UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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NMSS PUBLIC MEETING

PROPOSED REGULATIONS 10 CFR PART 63

HIGH-LEVEL WASTE REPOSITORY AT YUCCA MOUNTAIN

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BEATTY COMMUNITY CENTER

100 Avenue A South

Beatty, Nevada

Thursday, March 25, 1999

The above-entitled public 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

[7:00 p.m.]

MR. CAMERON: Good evening, everybody. Welcome to the NRC's public meeting on the NRC's Proposed Rules on the Licensing Standards that the Department of Energy would have to meet before a repository could be developed at Yucca Mountain.

My name is Chip Cameron, I'm the Special Counsel for Public Liaison at the NRC and I'm going to serve as your facilitator for the meeting tonight.

Tonight you're going to get an opportunity to hear from the NRC about this proposed rule and you're also going to have an opportunity to comment on the proposed licensing standards and also to ask the NRC questions about this proposed standard.

We also have a panel of Nevadans with us tonight who are --

MS. TREICHEL: And a Californian.

MR. CAMERON: I'm sorry, we have a Californian tonight, excuse me, Brad. Nevadans and one Californian who are knowledgeable and concerned about high-level waste issues and they're going to do a few minutes at the beginning of the meeting to sort of set the context for you on some of the issues connected to this proposed rule.

And one of the things we wanted to do is not only

tell you about the proposed rule, but to make sure that you all know who the government and other players are in this high-level waste business and to know what their different roles and responsibilities are.

Now, as the facilitator for the meeting, my general goal is to help all of you have a good effective meeting tonight. But specifically, I want to make sure that everybody who wants to talk has an opportunity to talk tonight.

Secondly, I want to make sure that everything that's said up here is clear to you, okay? And so if there are any uncertainties or ambiguities, we'll clarify them for you.

And lastly, I want to make sure that we have a civil and relevant and focused meeting. And as I said before, the main focus tonight is the proposed rule that the NRC has recently published, that they'll be talking about. But we realize that Yucca Mountain and high-level waste is an issue of concern to people and there may be things that you want to say that aren't exactly on point on the proposed rule and we'll listen to that.

Final point before I get into the ground rules for the meeting. You can also file written comments to the NRC on this proposed rule. We're here tonight to meet with you personally to talk about the proposed rule and any comments

that you give us tonight, we'll treat that just as we treat the formal written comments that come in on the proposed rule.

Now, in terms of ground rules, once we get done with the NRC presentation, we're going to hear a short perspective from the Department of Energy as the potential licensee for this repository. We're then going to go quickly through the panel and then come out here to hear from you. If you have a statement that you want to make or a question, just raise your hand and I'll call on you and what I'll do is I'll bring you this talking stick, okay, that you can use for a microphone. And if you could just state your name and affiliation, if affiliation is appropriate, so that our transcriber can get that onto the transcript.

We're taking a transcript tonight of the meeting so that we'll know what everybody said. When we get back to Washington we can read the transcript. That transcript also, I think, would be available from the NRC if anybody is interested in getting a transcript of the meeting. We may need you to spell your name for us so that she can get the correct spelling down there.

I would also ask everybody to just speak one at a time as a courtesy to everyone in the audience so that we can listen to what they're saying and also that will help

get a clear transcript if only one person is speaking at a time. I'm not going to set any rigid time limits for people tonight. I hope we can be more flexible than that.

But I would ask you to try to be to the point in your comments so that we can give as many people an opportunity to speak as possible and so that we can have a full discussion. And if someone is going on or sort of wandering off a little bit, I may have to try to bring you back and just have you summarize what you're saying.

There are a number of other organizations that are not up here tonight that play a role in the Yucca Mountain process and one of them is the Nuclear Waste Technical Review Board. And I want their representative to just introduce himself to you at this point because he has an announcement to make. Go ahead.

MR. CARROLL: Yes, I'm Michael Carroll from the Nuclear Waste Review Board and I just want to let all the residents know that we're going to be here for a public meeting on June 30th -- 29th and 30th; that's a Tuesday and Wednesday. Two full days of a public meeting.

REPORTER: Could Michael spell his last name.

MR. CAMERON: Michael spells his name probably C --

MR. CARROLL: Two r's and two l's.

MR. CAMERON: But you know what I think, we're not

going to do this. We'll go back after the meeting and get spellings, okay. And if they're spelled wrong, they're spelled wrong because I think that's going to sort of get a little bit to awkward for us.

There's another advisory committee that operates in this area. It's an NRC advisory committee and it's called the Advisory Committee on Nuclear Waste and I'll let their representative introduce herself to you. And you may want to stand up. Private joke there.

MS. GERRING: The Advisory Committee on Nuclear Waste is an oversight body of the Nuclear Regulatory Commission. We also are going to have a meeting in this area this fall and the details haven't been worked out, but we will advertise and we'll keep you posted. But sometime in the September time frame. We hope you will come.

MS. DEVLIN: We hope so because we've been ignored.

MS. GERRING: Okay. We're seriously considering to run with that good location. Thank you.

MR. CAMERON: Okay, thanks. That's Lynn Gerring. And the last, we have numerous NRC staff with us tonight because we want to be able to answer all of your questions. But the last introduction I'd like someone to make is Fraser from the Environment Protection Agency.

MR. FELTER: Thank you. Good evening, ladies and

gentlemen. I'm Fraser Felter and I'm from Region IX San Francisco for USEPA and I'm here as an observer and listener like many of you. But I wanted to assure you that EPA is very near releasing its proposed standard on this particular matter. I know many of you are anxious and we have been instructed to tell you that we're very close to doing that. Thank you.

MR. CAMERON: Okay, that proposed standard and the relationship to the NRC standard will become clear when the NRC goes through their presentation. What I'd like to do now, just real quickly, why don't we just run down here so people know who you are. Steve.

MR. BROCOM: My name is Steve Brocom. I'm the acting assistant manager for licensing and regulatory compliance at the Yucca Mountain project.

MR. McCARTIN: Tim McCartin with the Nuclear Regulatory Commission.

MS. KOTRA: Janet Kotra, Division of Waste Management, Nuclear Regulatory Commission.

MR. REAMER: Bill Reamer, Division of Waste Management, Nuclear Regulatory Commission.

MR. MURPHY: Mal Murphy. I'm the regulatory and licensing advisor to Nye County. And Chip, I want to invoke the host county's prerogative if I could here and just briefly introduce -- well, for those of you who are Nye

County residents, of course you know him. For those of you who aren't, we're privileged to have Jeff Taguchi with us, one of our County Commissioners.

Also, in the back of the back of the room, Les Bradshaw, the manager of the Nye County Department of Federal Facilities -- Natural Resources and Federal Facilities and the Project Manager for our nuclear waste project office. And Nick Stellavato our technical on site, geo-technical on site representative.

MR. CAMERON: Okay, thanks. Steve, why don't you use -- this is a live one because I think we're getting feedback.

MR. FRISHMAN: I'm Steve Frishman and I'm technical policy coordinator for the State of Nevada Nuclear Waste Project Office.

MS. TREICHEL: July Treichel, Nevada Nuclear Waste Task Force.

MR. METTAM: Brad Mettam, Inyo County, California. I don't need a mic.

MR. VASCONI: Bill Vasconi, member of the study committee and the citizen's organization believing that a through and complete scientific study of Yucca Mountain is essential to ensure the health and safety environmental concerns of the people of the state of Nevada. We do believe we should let science decide the future of Nevada

Yucca Mountain not politics.

MR. CAMERON: Okay, thank you, panel. Can everybody hear back there? Can you hear everybody?

MR. SCHANKLE: The last comment was not completely understood.

MR. CAMERON: Do you mean you couldn't understand it or you couldn't hear it?

MR. SCHANKLE: Couldn't hear it.

MR. CAMERON: All right, well, Bill --

MR. VASCONI: Again, my name is Bill Vasconi. I'm a member of the study committee which is a Nevada citizen's organization. We believe that a complete, through and scientific study of Yucca Mountain is essential to ensure the safety, the health and the environmental concerns of the people of Nevada and the nation.

We also believe that we should let science decide the future of Yucca Mountain not politics. We also believe that we should maximize on the benefits that could be realized to the state of Nevada, the counties, the communities by the scientific and technological expertise that has been developed at that test site over the last four, four and a half decades. Thank you.

MR. CAMERON: Okay, thanks, Bill. And we're going to try to keep things lively for you and concise and short so that we can come out and hear what you have to say.

We're going to start off with a presentation by two of the staff scientists from the NRC to talk about the proposed rule. And that will be the longest talking-at-you by any one group tonight.

So Janet are you going to lead off or -- all right. And Tim is going do your --

MS. KOTRA: Right.

MR. CAMERON: -- the graphs, okay.

MS. KOTRA: Could I sit here?

MR. CAMERON: Yes.

MS. KOTRA: Thanks, Chip. On behalf of the scientists and engineers at the Nuclear Regulatory Commission that participated in the development of this proposal --

MR. CAMERON: Can you hear? I think you're going to have to speak into that because it's just not making it.

MS. KOTRA: Okay. On behalf of those of us who participated in drafting the proposal that we're here to speak with you about, I want to welcome you here this evening and thank you for coming out and we are very eager to hear your concerns, to answer questions if you have them and to help you participate in our regulatory process.

Before I actually speak to the content of the proposal itself, I want to give just a very short amount of background to clarify who the NRC is in the context of

regulating Yucca Mountain and distinguish our role as a player in this from that of two other important players; the Department of Energy with whom you may be much more familiar and the Environmental Protection Agency.

I'm going to provide some discussion of the legal requirements, the congressional laws that have brought our agency to the point where we feel it's important at this time to propose regulations for Yucca Mountain and to talk about the multiple decision points that the NRC, as independent regulator, has and where it will use these regulations, once they are final, once we've had a chance to incorporate the comments that we will receive during the public comment period and issue a final rule. And these various decision points we will evaluating and judging, DOE actions, vis-a-vis the repository.

I'm hoping that with this background I can then move very quickly to discuss why we're proceeding with these new regulations at this time. I'll talk a little bit about the schedule for the issuance of a final rule after we've received and analyzed comments. And then I'll turn the discussion over to Tim McCartin who's kind enough to turn the slides for me right now. And he'll talk to you about the rule itself, the conceptual approach we used in developing it. The actual -- some of the big-ticket issues within the proposal and throw out some of the issues that we

are most eager to hear about.

Now, as Chip indicated, we're really eager to hear your views and concerns about the entire proposal. There are copies of it at the back of the room. If you haven't picked one up, I encourage you to do so. It's also available on the World Wide Web. But we're eager to hear your input on all aspects of the proposal, but we're particularly interested in some of the issues that Tim will identify later in the presentation.

Next slide. As I indicated and I'm not going to dwell a great deal on it, we have a different role than either the Department of Energy or the Environmental Protection Agency, as the independent regulator, who will decide whether to authorize construction of a repository at Yucca Mountain and may or may not issue a license depending upon our independent evaluation of a license application submitted by the Department if they choose to move forward to develop Yucca Mountain as a repository.

As you know, the Department of Energy is responsible for characterizing the site. That effort has been underway for some time now. They are preparing an environmental impact statement. They will make the decision whether to recommend the site for development as a repository to the President. If the decision is in the affirmative to move forward, they will prepare a license

application. They will do the design, the construction. They're responsible for operating the repository safely and they're obligated to provide long-term oversight after it is closed if a decision is taken to close it.

The Environmental Protection Agency, as was mentioned earlier, is statutorily obligated by the Congress to establish health and safety standards and protection of the environmental standards for Yucca Mountain. And as we heard from the representative from Region IX, I believe it is, those standards are eminent.

The Nuclear Regulatory Commission, as the independent regulator, the main reason we're here tonight is to talk about the first responsibility listed there and that's to issue technical criteria for Yucca Mountain. And those criteria ultimately will have to be consistent with final EPA standards. We also have a very extensive obligation to consult with the Department of Energy well in advance of licensing.

Now, that role is sometimes misunderstood, but I think if you think about it for a minute, it's pretty reasonable. Because this is a very complicated technical enterprise to characterize a very complex site, to develop the design for a very sophisticated facility and this is not something that we can make an informed judgment on in the time Congress has allowed us if we are not involved in

watching and observing how the site is characterized.

In fact, Congress gave us an additional job to make comments on the sufficiency of that site characterization prior to the site recommendation. So we have been involved in oversight of this even though we're not a regulator yet. We don't officially become the regulator in a sense until the application has come in. Did I say that correctly, Bill? Okay.

We will, as the NRC will make the decision whether to authorize construction of the repository. We will also make a decision about whether to license repository operation, and once the proposed repository has been granted a license, if it is granted a license, we would be the agency responsible for regulating operation and closure of the facility.

Next slide. Under two very important acts that control the activities of characterizing Yucca Mountain in its development as a potential repository, the Nuclear Waste Policy Act of 1982 and the Energy Policy Act ten years later. With regard to our responsibilities in developing criteria, the Nuclear Waste Policy Act of 1982 gives us some limited guidance and the two criteria must important in this context are that we have provide for a system of multiple barriers and specify a period during which the waste must be retrievable.

By that I mean the Congress recognize that even after the waste would be put in place in a proposed repository, there needs to be some time to evaluate whether the system operates the way we expect it to, the way the Department expects it to. The way the Department has described it in its license application and to allow some opportunity for the national policy to be sure that it really wants this to be a high-level repository for this material.

In 1992 the Energy Policy Act developed some additional guidance for the regulator, and both regulators, the Environmental Protection Agency and the Nuclear Regulatory Commission. EPA was directed to develop new standards for the protection of radionuclide releases from Yucca Mountain and those standards have to be health-based. They have to prescribe a maxim annual dose equivalent, and these new standards which shall be issued shortly for comment have to based on and consistent with the findings of the National Academy of Sciences.

Now, some of you know, but many of you may not that the National Academy of Science has issued a report -- I have a copy of it here, but it is available from EPA. I think EPA has actually the entire text on its Web site. It made recommendations to the EPA and some to us regarding the technical basis for issuing standards for Yucca Mountain.

And lastly, the Energy Policy Act also said that these shall be the only such standards for protection against radionuclide releases from Yucca Mountain. With regard to NRC criteria, we were told that we must conform our standards to EPA -- our regulations to the final EPA standards within one year.

Next slide. I alluded earlier to the fact that there are multiple decision points where these regulations will be used by the NRC to make judgments about specific DOE actions. When DOE submits a license application, it's not just one decision that the NRC is faced with. NRC will review the license application and make a determination whether to authorize construction. Once construction is complete, the NRC will then evaluate whether the construction conform to the license application and then make a decision whether waste could be received and placed in that facility.

The basis for that decision, of course, would have to be reasonable assurance that the regulations, the rules have been complied with and that the public health and safety will be protected. It is going to take a finite period of time for the capacity of the repository to be filled and even after all the waste were to be placed, there is, again, a 50-year retrievability.

The NRC may then make a decision to amend the

license to allow DOE to close the facility, that doesn't mean that's the end of the application -- or excuse me, the license. There's yet another decision to terminate the license if, in the judgment of the Nuclear Regulatory Commission, that would be appropriate. But all of these decisions involve some aspect of the criteria we're here to discuss tonight.

Okay, next slide. Now, here's the question that I mentioned earlier and why this background is important. Why is the NRC choosing to proceed to move forward with these criteria now, put them out for public inspection and for public comment. As I said, we're required to conform our regulations to final EPA standards within one year. It is a very complicated, it's a very involved rule-making. It touches all aspects of the licensing of a proposed repository.

And we know that we could not do something of this complexity in a single year. That we wouldn't have the time to allow for appropriate public comment. And we wouldn't have time analyze those comments and make necessary adjustments if we started from ground zero after EPA issued it's final standards. So the Commission determined that it was necessary for the development of both the standards as well as the implementing regulations to proceed in parallel. It just so happens right now that we feel that we're ready

to put forward a proposal at this time but we understand EPA will be issuing its proposal very soon as well.

Although those final EPA standards are in place, the NAS findings upon which they have to be based, the report I just mentioned earlier, has been available since 1995 and we feel very strongly and we've gotten comment to this effect, that it's important that these issues get out in the public domain and that a broad cross section of people are able to provide input to the decision-making process.

That's one of the reasons why we're very glad to see you here tonight and as Chip indicated we will listen to the comments that you bring forward, treat them with the same seriousness that we would treat written comments. But if as you go home this evening, you take a copy of the rule and you have additional comments that you want to sent to us, we will welcome those as well. Lastly, I think it's important to stress that we will amend these requirements to confirm to EPA standards as required once they are final.

Okay. What have we done to get us to this point so that we could put this proposal out. Immediately after the National Academy recommendations were made public, the technical staff at the Nuclear Regulatory Commission participated as much as possible with the technical staff of EPA. We shared the results of some of our independent

calculations. And our objective was to work with EPA to ensure that they were of like mind to produce practical and scientifically demonstrable standards that could be shown, not necessarily to be passed in the vernacular, but that would work in the licensing framework that we have at the NRC. That these would be standards that would bring forth sufficient information that the commissioners in the Nuclear Regulatory Commission would have sufficient information to make a judgment about whether the repository would protect adequately the public health and safety.

We have proposed new -- and there's a term here that I just want to take a moment to explain; the risk-informed performance-based regulation. This is consistent with an overall strategy that the Nuclear Regulatory Commission has taken towards it regulations. It's not something that we dreamed up just for Yucca Mountain. We regulate a lot of different types of facilities from nuclear reactors to medical instrumentation, well-logging devices and the like.

And we have gained a great deal of experience over the last several decades in quantitative risk assessment. The ability to calculate what is most important to health and safety and this overall philosophy is explained in a policy statement that was issued recently and it applies to all of the regulatory development that we do. I think there

are copies of that also available in the back of the room if you're interested.

But the only reason that I have it here is to explain that this is not something that we ginned up just for Yucca Mountain. It's consistent with the trend in our agency toward focusing regulations and requirements on those things that are most important to what we care about; namely public health and safety. And not just developing a checklist that has no connection to what our responsibility under the law is.

We've proposed, because we don't have the final EPA standards before us at the moment an overall safety objective -- and it's discussed at length in the proposal you have here this evening -- that we believe that it is protective, it's generally consistent with the finding of the National Academy report and it's scientifically demonstrable within NRC's regulatory process.

We're now seeking your input and the broad public comment on the soundness of this proposal. And as I said once before or maybe twice before, we'll conform our final standards -- our final regulations to EPA final standards when they're issued.

One last slide for me and that's the status. We've put out this proposal on February 22nd, 1999. We're in the middle of the public comment period right now. We're

holding public meetings. We had one in Las Vegas Tuesday evening. We're here this evening. Consideration is being given to perhaps holding an additional meeting in Washington but that hasn't made final yet.

We're developing a performance-based Yucca Mountain review plan. And this is guidance to our own technical staff, but this will also be made public, made available to the Department of Energy and anyone else who is interested, that will give our staff guidance for reviewing what is going to be a very, very big document; that's the license application. And that review plan will be based on the criteria that we're here to discuss this evening.

We'll be incorporating the public comments and we expect to complete our final rule at the staff level so that we can bring it forward to the commissioners who ultimately have to make the decision by late summer or early fall. The public comment period officially ends, at this point, on May 10th of 1999.

You may notice if you are a discerning reader that the public notice that we have in the back of the room says May 30th, that was a typo on the part of the Government Printing Office. But we have received, in our meeting on Tuesday night, several requests for an extension of that public comment. If there others of you who believe that's appropriate, we want to hear from you as well. And so we're

going to take that, that's one thing we know already we're taking back to Washington to reconsider is perhaps extending the public comment period. The addresses, you have in your handouts as to where you can send the comments.

And with that, I'd like to turn it over to Tim and have him explain a little bit more about the technical issues in the standards and in the criteria.

MR. CAMERON: Thanks, Janet.

And I just would point out to you there's coffee back there, okay. If anybody wants coffee just help yourself.

MR. McCARTIN: Okay, very briefly I'd like to go over the conceptual approach for the Part 63. There's four aspects to the rule. First and foremost is the repository must include multiple barriers. By multiple barriers we mean one barrier attribute to the engineering, like a waste package, and the other barrier would be something with respect to the natural setting. The attributes of the geologic system to limit water contacting the waste as well when radionuclides potentially leak out of the waster containers, movement through the geological system.

Second, as Janet pointed out, a risk-informed performance-based criteria. By that we mean we are setting a limit on the overall performance of the repository in terms of a dose to humans. And that particular -- how we

would calculate that then is through a performance assessment where we evaluate those attributes of the repository, both good things and bad things that can happen, to see how the repository would perform relative to that dose or risk standard. And with that, that's the only limit we're placing on the performance of the repository, there aren't any separate additional limits for individual pathways.

Second, because of the long time period that we would be evaluating the performance of a repository as we said, the performance objective is in terms of a dose standards. You have to give radionuclides to humans to calculate a dose. Estimating where people might live, what their habits would be, what kind of lifestyles over very, very long time periods is quite speculative.

So in the rules you'll notice we have put certain limits on what would be considered in terms of what we call the Critical Group. Those individuals who are mostly likely at the greatest risk from potential releases from a high-level waste repository. And we've set a farming community approximately 12 miles downgradient from Yucca Mountain with dietary habits typical of the current region.

The reason we did that are really twofold. One, a farming community tends to get a lot more food from local means. That increases the doses. You would get doses from

crops, animal products and potentially contaminated water. So that's one reason. That type of lifestyle would tend to increase your dose so we want to make sure those types of individuals are protected.

Why 12 miles from the Yucca Mountain site? In looking at what is typical in most parts of the U.S. in terms of how far will people drill for farming activities, at the 12-mile location, the water table we estimate is approximately, at the time of the rule we estimate approximately 100 meters below ground and we felt that that was pretty much -- people for a farming community would not drill much deeper than that. It certainly is possible to do that, but the economics of farming, the greater you drill becomes more and more difficult, and that's why chose that particular location.

And lastly the, as the National Academy of Science, as Janet mentioned, gave us recommendations. Their recommendations for a human intrusion was to evaluate that through a stylized calculation and you'll notice in the rule we have specified that type of calculation.

Going into a little bit more detail in terms of exactly what's expected. For the preclosure phase of the repository which is our way of saying the operational period of the repository, when waste is being received and in place into the repository, we have a performance objective that is

related to our Part 20 which is what we apply to all operating nuclear facilities for protection of both the workers and the general public.

The demonstration, once again getting to the risk-informed performance-base, we expect that the Department of Energy would carry out a systematic rigorous calculation demonstrating the performance of the repository during that operational period to show that it was in the release limits -- or the dose limits of Part 20.

Also, there's a requirement for a retrievability period; over 50 years. And finally, an emergency plan is required in the event there is an accident. The Department has to have an emergency plan for how they would treat any type of an accident that could happen during the operational period of the repository.

Post-closure criteria. The performance objective, once again, has to include multiple barriers both engineered and natural. The individual dose limit is 25 millirems per year and the compliance period, this, it would be required to comply with that dose limit over the next 10,000 years.

The demonstration, once again is done with a performance assessment, a calculation that estimates the releases from the repository and it would also be required to consider natural events such as earthquakes and volcanoes that could happen over this 10,000 year time period.

That's pretty much the criteria, the real meat of the criteria. The question is what are we most interested in hearing about and there's really four ways to phrase some of the things we'd like to hear from people tonight or later in the written comments. And number one, the 25 millirem dose limit is being proposed, is that a reasonable criteria? Is it sufficiently protective of the public health and safety for evaluating Yucca Mountain repository?

Next, as you noted when I talked about the Critical Group, I was talking about that location and that lifestyle as it related to contaminated water. We believe that the most likely release of radionuclide from a Yucca Mountain repository would be in the groundwater pathway. And if there's some reason people believe another pathway is more likely, we'd also like to hear that. Right now, that Critical Group is based on a groundwater release.

Thirdly, in the rule we've put particular limits for the Critical Group for assumptions about lifestyle, dietary habits; does that seem to be reasonable. And lastly, obviously, the Department of Energy has to make a calculation to show compliance with our regulation. We believe we've put things in our regulation that make it clear what the Department is required to do. If it isn't clear what they're required to do, we'd also like to hear that because we certainly -- the Department as well as the

public wants to know exactly what's expected in terms of this compliance calculation in demonstrating that the public health and safety is protected.

MR. CAMERON: Okay, thanks a lot, Tim.

We're going to go through our panel first, very quickly, so that they can put some of these issues into perspective for you. And what I'd like to do to start with Nye County. As Mal pointed out earlier, this is where the repository is so we're going to -- or might be located to go to Nye County.

MR. REAMER: What about DOE?

MR. CAMERON: Oh, I'm sorry.

MR. BROCOM: That's all right. No, that's all right. That's all right.

MR. CAMERON: I forgot DOE. How could I do that. Steve Brocom.

MR. BROCOM: I thought you were changing the agenda. That's fine. You know, any order would have been fine. I'm going to give a few words on DOE's perspective on the NRC's proposed regulation. We're currently reviewing the rule. We received it about February 22nd. And we're preparing comments. We will probably have, you know, I would say fairly detailed comments when we submit our comments to the NRC on or about May 10th.

Let me give some general observations based on our

initial look at the rule. We view, DOE views that the risk-informed performance-based nature of the proposed rule to be an appropriate basis to evaluate Yucca Mountain and the basis for licensing. From a technical perspective, we feel that the proposed rule is a big improvement over the existing rule, 10 CFR 60. This proposed rule recognizes world-wide, more or less, expert consensus on how to evaluate repository performance.

Most countries in the world that are considering building a geological repository are using a very similar methodology. And that methodology is using a total-systems performance that evaluates all the various multiple natural and engineered barriers. This approach helps to focus our resources on what is really and truly important for the protection of public health and safety. At the same time it provides the NRC and the public visibility into the building blocks of our safety argument and our performance assessments.

We will provide comments on the rule from the -- you know, we're a potential applicants and the potential applicants point of view regarding the implementability of the rule. It's very important to us that the rule be implementable. So we are concerned or we will be commenting on understanding the level of proof required, or the term that that NRC's uses is reasonable assurance and we believe

that that should be consistent with what science and engineering can reasonably provide and what we can reasonably defend in the licensing environment. We strongly believe that the rule is, it's health-based, that the rule should be understandable, but not only by the regulator and the regulatee but by the general public.

We expect to focus our review on several key areas. With regard to the preclosure, that's the period of time from the time we begin to emplace waste until the repository is closed. Understanding a new concept that the NRC has introduced called the integrated safety analysis. We need to understand how the use of design bases-event probabilities are going to be considered in the preclosure safety analysis.

We have some -- we will probably have some questions about the dose limits to be used in demonstrating compliance and what the scope is -- what we have to include to adequately cover the whole area. What's important to safety in the preclosure operational period.

With regard to the post closure, that's the period from the time you close the repository to 10,000 years. You heard the NRC talk about the human intrusion scenario. That is a stylized scenario of drilling a drill hole from the surface through a waste package all the way down to the water table and seeing what happens, how the repository

performs.

Since that is a stylized and not a real scenario, we would like to have that clearly defined so we don't have to argue exactly what the scenario would look like. We want to clearly understand how the contribution of the multiple natural and engineered barriers will be evaluated and how we should present them so they could be evaluated.

And finally, with regard to performance confirmation. Once the waste is in place we are required to confirm that the repository is operating or performing within prescribed limits. And we need to understand that better, you know, what NRC expects.

With regard to the overall process of licensing, we would like a license process that provides for a definitive resolution of issues at each step of the licensing process to avoid revisiting issues over and over and not being able to reach a decision.

So in closing, I would like to say that we look forward to the upcoming interaction. This is a very important rule making from our perspective and I think from the public perspective. So we look forward to our interaction with the NRC and other interested parties regarding this rule making.

MR. CAMERON: Okay, thanks a lot, Steve.

Mal.

MR. MURPHY: Thanks, Chip. Let me very brief. And first of all emphasize the fact that everything I say here today with respect to Nye County's views on the proposed Part 63 is preliminary. We are still, as is DOE and I'm sure everybody here, in the process of analyzing these proposals and specifically with respect to their impact on the county and the county's residents.

And we will have detailed comprehensive comments into the NRC before whatever deadline is finally established. And so -- but we do have some preliminary views and that is subject to change after they go through our routine and appropriate internal review within the Nye County program.

Another thing, I want to emphasize again, as we always do with those of you are residents of Nye County and are familiar with it, and that is the county's neutrality to this process. We are not substantively either in favor of or oppose to Yucca Mountain, but the county's program is designed to strictly oversee what the Department of Energy and the NRC and all other federal participants do out there to ensure that whatever decision is ultimately taken with respect Yucca Mountain is based on objective, rigorous, and thorough science and on the application of reasonably conservative scientific principals.

So that anything I say tonight and anything our --

and when we finally file our written comments on Part 63, should not be interpreted as either intended to support or to DOE's ability to bring Yucca Mountain to a licensing proceeding or to in any way hinder that. And those comments will be our objective view of what the impact of the NRC's proposal from a strictly scientific and technical and programmatic point of view.

With those, our preliminary comments in mind, let me just very briefly, because we do, I agree with, wholeheartedly with Mr. Cameron's views expressed earlier that we want to leave as much time as possible for you folks from the public to talk tonight. So let me just briefly express the four questions which the NRC's moves in the final stages of the review draft.

And the first is; has the NRC proposed a protective and reasonable criteria for evaluating the safety of a potential repository? And our qualified answer would be yes, but that does not mean that this is the best criteria for evaluating the safety of the repository. Nye County still would prefer an approach based on release criteria rather than doses, but we recognize and appreciate that Congress removed that discretion from the NRC as well as from the Environmental Protection Agency in the energy policy after 1992 and with that congressional act in mind, we agree that this a reasonable approach but necessarily the

best approach.

Is the NRC correct in assuming that radionuclide releases to the groundwater is the most likely pathway? We agree with that and for that reason, because groundwater is the likely pathway and because groundwater is so extraordinarily important in this area as anyone driving up from Las Vegas, if you've never been here before, can certainly appreciate. We do not agree with the Department, with the Commission's preliminary views that no additional groundwater protection is desirable.

It is still our position that some additional protection for the county's and Amargosa Valley, in particular, groundwater resources is appropriate and at this point in time at least and subject to our further review, we see no reason why this program and these standards should be treated any differently than would otherwise be treated under the Safe Drinking Water Act.

Do the proposed regulations meet reasonable assumptions about the Critical Group, the group of people who live near the repository? Our answer again is yes. That that group identified in the regulations is unlikely to exist at the corner of 95 and 373, I guess it is, 10,000 years from now. You know, more likely there will be some other biosphere in that area. But because assuming a small farming community with a diet based on today's diet is the

more conservative approach with respect to risk exposures, that is the kind of approach -- and based on our insistence on scientific conservatism, that's an approach that we can support.

And do the proposed regulations make clear what NRC expects of DOE? And we would answer that yes.

So with those comments then I'll turn it over.

MR. CAMERON: Thanks, Mal.

And why don't we go to Steve.

MR. FRISHMAN: Yes, I'm Steve Frishman and I'm here representing Nevada Agency for Nuclear Projects. That's a state agency that was established in 1985 when we perceived the high-level waste program as it effects the state.

Now, rather than giving some type of a statement or presentation what I'd like to do to save time and also satisfy my curiosity on one part of the rule is just ask a question to the representatives from the Nuclear Regulatory Commission about a particular element of the rule.

As we were told the performance or predicted performance will be calculated at a point approximately 12 miles away from the where the waste is placed. And that would be downgradient and approximately where Lathrop Wells is right now. The idea for geologic disposal is that the site is suppose to contain the waste. So now what we're

looking at is a situation where even the regulator understands that the groundwater is going to be contaminated and is going to flow downgradient and the performance of that waste containment weighing 12 miles away, isn't going to be measured until you get -- if the contaminated water and you have groundwater diluted and then pumped to the surface a long distance from where the waste is.

What I'm curious about is given that this is the point of the regulation, what are the boundaries of the repository site?

MR. CAMERON: Tim, do you want to handle that?

MR. McCARTIN: Well, in terms of the 12 kilometers or 12 miles, I'm sorry. That was set as where we thought it would be most likely that people would come into contact with the waste. That's why it was set. Now, in terms of -- the boundary of site did not come into play in terms of setting that 12-mile limit.

MR. FRISHMAN: Well, if you're setting a regulatory limit 12 miles away, what goes on even 20 -- are you -- suppose there will be people there. Are you protecting them? I don't know how.

MR. McCARTIN: Well, is it -- well, is it ---

MR. FRISHMAN: So what is the area that you're going to require under that rule that the Department demonstrate ownership and control over?

MR. McCARTIN: Well, the ownership and control is during the operational phase. In terms of requirement of 10,000 years ownership of that entire land is not required?

MS. KOTRA: It is so.

MR. McCARTIN: Well --

MR. FRISHMAN: Read your rule.

MR. McCARTIN: Okay. Well, what you're saying though is, let's say what if six miles was the most likely place, would we have put the Critical Group there and the answer is yes.

MR. FRISHMAN: Okay, but what I'm asking is: what is the area that is going to be called the site in the evaluation of post closure performance of the repository.

MR. McCARTIN: The Department of Energy will define what that limit of the site is.

MR. FRISHMAN: So your enforcement of the performance is some place way outside the site?

MR. McCARTIN: The geologic setting?

MR. FRISHMAN: I just want to know what you're going to require the Department to own and control at the outset for a repository that's intended to perform for 10,000 years. Is it going to go to 20 kilometers or not?

MR. McCARTIN: They will identify that in their license application.

MR. FRISHMAN: Well, you're going to have to --

MR. McCARTIN: How much of the geologic setting that they are going to control.

MR. FRISHMAN: Okay, so it's possible that someone could live, drink water and whatever, inside of the 12 kilometers when you have -- or 12 miles when you have no regulatory basis for saying that it was safe or not safe?

MR. McCARTIN: We have not said that it's not technical possible for someone to drill a well inside 12 kilometers. Clearly, you can drill a well to much greater depths. Wells exist to that level. What we've done though is now it becomes much more speculative. Why would you put someone at say five miles from the site in that particular location? Why would they be there?

MR. FRISHMAN: Because you have another rule that applies to another repository that puts the regulatory boundary at three miles instead of 12 miles.

But what I'm still after is; what are you going to accept as the boundary of the site? Is it going to be something less than where you measure performance or not?

MR. McCARTIN: If DOE needed to control out to 12 miles, then they would have to control out to 12 miles.

MR. FRISHMAN: Are you going to require that? It's your rule.

MR. McCARTIN: If it's required for public health and safety, yes. The performance --

MR. CAMERON: Let me interrupt you just for a minute because --

MR. SCHANKLE: Let him answer the question.

MR. CAMERON: Well, I want to make sure that all of you out here understand.

MR. SCHANKLE: We can understand. Let him answer the question.

MR. CAMERON: Does everybody understand what the 12 mile distance is all about? All right.

MR. McCARTIN: If needed for performance, yes, it will be required.

MR. FRISHMAN: What would make it not needed for performance if you're calculating and regulating based on performance 12 miles away. Why would it not go that far?

MR. CAMERON: Okay, let's go to -- Janet, why don't you say what you have to say.

MS. KOTRA: Let me try and clarify the basis upon which we tried to identify as the National Academy asked us or suggested that we do.

MR. FRISHMAN: I'm not really asking that. What I'm asking is; when you get a license application --

MS. KOTRA: May I finish? May I finish?

MR. FRISHMAN: -- what is going to be acceptable to you as a boundary relative to where you measure performance?

MS. KOTRA: We will require that the Department have ownership and control over the rights and the easements that are necessary to ensure that the person at greatest risk will not receive a dose in excess of what we've put into the standard.

Why did we choose that particular group. Why do we believe that that is a reasonable approach for finding the group, a group that is at the greatest risk. Yes, people can exist closer, they can exist further away, but what group will have the greatest potential exposure through the largest number of pathways.

And we believe, based upon the analysis that we've done -- and the analyses that supported that judgment will be published also and made public and will be available for review -- came out to be a farming community large enough to intercept the whole plume not just a part of the plume that would be large enough to support the maximum credible diet from the most pathways that we consider to be important from a concentration of radionuclide point of view.

If that group that was the most at risk from our analysis was on top of Yucca crest, we would have put it on top of Yucca crest. But the fact of the matter is is that we were tasked to look at the group that was most likely to be at greatest risk. There are other people that are going to be at risk, too, but the view is and the concept of the

Critical Group -- and that's an international concept. It is something that is in use by -- in radiological protection parliaments all over the world, that group -- the theory is if you protect the group at greatest risk, you are protecting everybody else as well. And that's the basis of the determination.

MR. FRISHMAN: Well, and I don't want to belabor this much. I don't think you answered my question. And it sounds to me like there are other people that might be interested in the answer, too. And that's are you going to require the Department to own and control the land out to where you calculate performance? Meaning; is the site going to have to include the out-to the 20 kilometers or 12-mile boundary or is it going to be approximately 1,000 acres that the Department says it is right now? How big is this site going to be required to be and they have control over?

MR. McCARTIN: In the license application DOE will have to identify the geologic setting that they are relying on for performance of the repository. If that is out to 12 miles then they have to control it. If they do not need 12 miles to control the doses up to that point, then they would not have to necessarily. But, you know, right now it's somewhat speculative that -- that analysis is still going on, information is still being collected. But they will have to control as much as needed.

MR. FRISHMAN: Okay, so what that says is closer to the repository the doses could be higher?

MS. KOTRA: They could be lower, too.

MR. McCARTIN: The could be. But let's -- for example --

MR. FRISHMAN: Well, I think, you know, people around here sort of have the concept of if you're going to do something, we want to know how much resource you going to need. How much land do you need for this thing.

MR. McCARTIN: Right.

MR. FRISHMAN: You're the regulator. You are apparently regulating some place, but you're saying it's up to the applicant to tell you where between your regulating and his dump is, what he's going to control and what he's not, even though the risks may be higher the closer than at the 20 kilometers where you're regulating.

MR. McCARTIN: The risks aren't higher.

MR. FRISHMAN: Well, we're not getting anywhere here. What I conclude from this is; you're going to let the Department of Energy tell you how big their site is even though you're regulating 12 miles away from the site?

MR. McCARTIN: Well, it's their analysis.

MR. CAMERON: And we can come back to all of you for this question again when we get out here.

Okay, Judy, you want to say anything? Go ahead.

MS. TREICHEL: Oh, I'm up? Yes. In the rule the environment is mentioned several times. We had a brief chance -- certainly we more chance than the audience has had to go through the rule since it's come out. And you mention, in environment benefits, you mention environmental costs, environmental values.

There's one you've left out which is environmental justice because the treaty of Ruby Valley -- the Shoshone are not here tonight, but they would clearly tell you that the treaty of Ruby Valley is in full force and effect. That has not been dissolved, gotten rid of. The United States has not captured the land and they would make a very strong point that regardless of what the size of the repository is going to be, they, the Department is not going to be able to prove full and complete title of that land. But having said that, that's environmental justice.

Can you explain to me what an environmental benefit is from a repository?

MR. CAMERON: Can we have NRC, someone want to tackle that? Bill.

MS. TREICHEL: And this is language out of the rule.

MR. REAMER: Judy, I'm speaking -- I'm anticipating what the Department of Energy would say here because they are the ones who are responsible to prepare the

environmental impact statement so I could be wrong. But the environmental benefit would be the benefits associated with all of the activities in the nuclear fuel cycle, including the generation of nuclear energy and nuclear power.

MS. TREICHEL: So this environmental benefit would probably be a long ways away from here, but the environmental costs would wind up being in Nevada, I would imagine. And this is actually in consideration for the construction authorization not the EIS. And I just think it's interesting language.

MR. REAMER: The Department of Energy is responsible for doing the environmental evaluation and the environmental impact statement and they will address environmental benefits and environmental impacts in that statement.

MS. TREICHEL: Okay. It seems to me -- and I'm not going to go back to the question that Steve asked because that was hashed over pretty well and I'm sure the people here can put it in terms that are much clearer to them and more important.

But it seems like we're splitting hairs. The big word that's being used here is dose. And if Yucca Mountain is such a good place and if what the country anticipated when we have national repository was that it would isolate waste, we here in Nevada have dealt with this thing an awful

long time.

But when you go out and talk to audiences across the country as I do very often, they assume that the reason that they're going to have all of this transportation across the country is because the Department of Energy has found a place and the NRC, of course, is in with this game with them, that isolates waste. And when you're talking about doses and you're talking about where they occur and what they do and all of that sort of thing, that's not waste isolation.

So it seems to me like we're just sort of splitting hairs on this thing. And the farming community is moving closer. The last time -- well, tonight and in other times when I've come out this way, I see somebody growing something right at the corner of 95 and 373. So it's getting very close and it isn't going to take 10,000 years for people to want to do things there. So I think we're sort of arguing about things that are -- and maybe just splitting hairs.

The last question I have is; you mentioned in your presentation and you've mentioned many, many times that you're doing a lot of this so you can get a lot of public opinion. What about this rule could you see that public opinion would change?

MS. KOTRA: Let me try that one. I wanted to ask

you a question of clarification of one of your earlier statements. But I'll answer the last question first.

As with every rule making that the NRC engages in, we are obligated as part of that process to take a cut at what we think our best shot is technically. We don't just go out and make it final. We are obligated and we believe it's very important that we put forward a concrete proposal. Not just say, we're thinking about having a rule, what's the best rule.

We feel we have an obligation because of our technical expertise and our responsibility to do the best job of a proposal. Once that proposal is out there, there are lots of aspects of that proposal that may be improved. That may miss the mark. That may be made more clear. That, in some cases, may be unnecessary to accomplish the stated objective. We make that proposal available to the broadest possible community to get input to help us make a better decision about what that final rule should be. And that's why public comment period is so very important to us.

MS. TREICHEL: Well, if you hear a lit of people here tonight say that they think it should stricken, that it should be less than 25 millirems, are you likely to bring that down? Are you likely to bring it down to 10, 15, whatever?

MS. KOTRA: What we will do, as the technical

staff working for the commissioners who are the individuals appointed by the President to make these decisions, we will take that back. We will do a very thorough analysis of all the comments that are received on this rule. That's why we're keeping a transcript here and we will have a -- and if you look at our track record as an agency for any of these types of rules, particularly the big ones, there's a very lengthy analysis to comment document that goes along with it and will take a lot of time to prepare.

Then we will analyze those and we will go back to the Commission and say, here is what the reaction has been to our proposal and we have, in some cases, we take a look at these comments and we think it would be better if we did this. We would make a recommendation. Ultimately, the decision has to be taken by the five individuals that are appointed by the President.

As the technical staff we will rely very heavily on the comments that we received to make those recommendations, but ultimately the decision will be made by the five commissioners. But it is an extremely part of the process.

I wanted to ask you a question though, as a scientist, I wanted to make sure I understood you to say that isolation means finding a site for which there is no release.

MS. TREICHEL: Right.

MS. KOTRA: Okay. We, as a regulator, have to look at what can go wrong with any site and say what would be protective if those things -- if over time this facility does deteriorate, what is going to be the likely consequence of that deterioration and what has to be done. What are the standards for protecting people if that facility does indeed deteriorate and that's what this is about.

MS. TREICHEL: Okay, I don't want to take any more time, but if you set a real tough standard, you'd get a lot closer to isolation because Yucca Mountain would fail and you'd have to do something else. Like in Sweden where it's less than 1 millirem. But don't talk anymore.

MR. CAMERON: Okay, thanks, Judy.

Brad, Brad Mettam from Inyo.

MR. METTAM: Thank you. My name's Brad Mettam from Inyo County, and Inyo County is one of ten counties that are involved in this program. I'd like to recognize there are at least three other counties represented out in the audience tonight as well as Nye County at the table.

I'd really like to hear what you folks have to say so I'm going to just raise a couple of items for consideration and then move on. The first one to think about is the issue of the multiple barriers. They talked about defense and depth. But if you look in the rule, it

doesn't really talk about how they're going to decide if that's been met. That, you know, the defense and depth criteria is met. So that's something to think about.

We agree with Nye County that groundwater is the most likely pathway and because of that we're concerned about the use of total system performance assessment as the sole way of deciding if this site is suitable. Too many s's in that.

The performance assessment effort is something that has been developing over the last 10 years or so. The Commission in its discussion document says that they now believe that it's matured sufficiently to use that rather than specific criteria.

But I'd like to know that the peer review panel, which released the report on total system performance assessment last month, in their report which looked at the total system performance assessment for the viability assessment -- I don't want to lose you there. They said it's unlikely that the TSBAVA, taken as a whole, describes the long-term probable behavior of the proposed repository.

So I'm not certain that this really has matured enough to be used as the way to decide if the site is suitable or not. Inyo County strongly, they feel as does Nye County, that you need, at the very least, a groundwater protection standard that's very specific. Thank you.

MR. CAMERON: Bill Vasconi.

MR. VASCONI: Yes, Bill Vasconi with the study committee. There's several of the entities involved in this and you've got to read the paper over two or three times to get your head straight on what they are, at least I did.

Naturally, you know there's DOE, but you got the Nuclear Regulatory Commission and basically they're regulators. They set the regulations. Then you've got the EPA, Environmental Protection Agency, that builds the standards. They've all got to work together and they have been cooperating and talking amongst themselves. Then they throw in the National Academy of Sciences trying to bring this all together.

Well, the bottom line is that the NRC needs to make revisions in its regulations in order to be consistent with a new risk-based EPA standard. And although the NRC may not know all the details of the upcoming EPA 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.

So my question is, okay, 25 millirem, and what does it mean? The average dose to an individual, annual dose, yearly dose to an individual in this area is 300 millirems; 300 millirems over a year. And that comes from things like the house you live in, the food you eat. Chest

x-ray, for example, 10 millirem. A mammogram is 30. Cosmic rays received, 31. Radium in a household, 200.

If you take an airplane trip, the higher your elevation. If you smoke cigarettes, it goes to the thousands. If you work with phosphorous, if you work with fertilizers, there's also an increase, 25 millirem. And we're talking hundreds and thousands for smoking, fertilizers. Dentures is measured in the thousands of millirem to the gums. I did not know that before I got a report to see that's the way they're manufactured.

So 25, where did we establish the 25 figure from? Is this something national? That would be my question.

MR. McCARTIN: Well, the public dose limit that NRC has in Part 20 is 100 millirem. And for high-level waste, we have elected to use a fraction of the public dose limit of 100 millirem for Yucca Mountain; so we have 25 millirem. Generally, that's consistent with most international countries setting dose limits and it's consistent with other regulations we've set for other types of nuclear facilities, et cetera.

MR. VASCONI: Thank you very much.

MR. CAMERON: Thanks a lot, Bill. Brad mentioned that there were other county representatives out here. I don't know if any of them have anything to say at this point.

(No response.)

MR. CAMERON: All right. We have Clark County, Lander County, and Eureka County with us.

MR. MURPHY: Mineral County is here, too.

MR. CAMERON: Oh, Mineral is here. Who is from Mineral? Oh, great. Okay.

We just had this discussion about a number of terms; 25 millirems, dose standards, this 12-mile issue, Critical Group, human intrusion. You heard a lot of these terms. Does anybody have questions? You understand what this rule is about. I don't think that we -- at least from my hearing it and there might be others, I'm not sure that the 12-mile Critical Group issue has really come across clearly.

Does anybody have a question about that or a comment on the 12-mile issue.

MR. DUGAN: Yeah.

MR. CAMERON: Sir, could you -- let me get you a mic and if you could just state your name for us for the transcript, please. Thank you.

MR. DUGAN: Yes, sir, I'm Kenneth Dugan. What I was wondering and what I wanted to ask you was now at that 12-mile limit, if that shows or goes into a higher contamination, what are they going to do about it?

MR. McCARTIN: If it's a higher contamination at

12 miles?

MR. DUGAN: Yes, if when they make a test on it, what if the contamination is already way higher than your allowance states, what are they going to do to shut it off?

MR. McCARTIN: You mean as it's monitored over the next 10,000 years? I mean right now the doses are hypothetical. These are estimates of potential doses. If those estimates are beyond 25 millirem, there would not be a license granted.

Now, I emphasize potential doses because I know the peer review panel discussion was brought up about their comments on performance assessment. They were talking about actually estimating the performance. We believe the calculations we're doing are conservative and we're overestimating the doses. We'd like to think that whatever doses we estimate are much larger than ever would occur.

MR. DUGAN: I guess we all hope that. But that still don't answer my question. I wanted to know if they run over that, say 20 years from now, if they take the test.

MR. McCARTIN: Oh.

MR. DUGAN: And it is way above that, what are they going to do about it to clean it up?

MR. McCARTIN: Well, during the operational phase, their retrievability option is there and that's why that retrievability clause is there. Is that over this next,

let's say 100 years, there's a retrievability option for 50 years in which time DOE would have the option to retrieve it.

And if there was anything learned, either more analysis that showed that now we believe that the repository would not be in compliance at later times, then the retrievability option could be used to remove the waste. And in addition to the performance, confirmation period and monitoring where they're examining the site to make sure it's behaving the way we've represented it in our calculations.

MS. KOTRA: And must closer than 12 miles, also, yeah, all the way along the line.

MR. MURPHY: Could I just add just a very brief Nye County perspective on that, on that last discussion. Sir, we, Nye County based on some work that a couple of our scientific advisors have done, has been looking very closely, has been urging the Department of Energy and the Nuclear Regulatory Commission and others to look closely at a design of any closed repository which we call it a naturally ventilated repository, a design which would allow the atmosphere, the natural air to get into the repository, keep it cool, keep it dry, keep the water out of contact with the waste canisters and thus provide a far more certainty about the repository performing the way it's

expected.

But one of the additional benefits of such a design would be to provide -- would be to allow the government to retrieve that waste literally forever, forever. So that if --and it's not going to happen in 20 years. But if at some point in time in the future, the doses at this hypothetical 12-mile downgradient did exceed 25 millirem, the option would be available for the government to just go in and retrieve the waste.

So that's a -- and we aren't pushing it. You know, I don't want to say that Nye County is sponsoring that design yet because a lot more work needs to be done. But it's a design that we think needs to be given a very close look at by everybody involved in the program.

MR. CAMERON: Okay, thanks, Mal. And I'm going to go to the people in this row and then we'll see if anybody else out there has something to say.

Yes, sir, and please state your name.

MR. BURSM: My name is Zolin Bursm. I'd like to recommend that the regulations would include a sampling program such that you could determine that the water was contaminated far earlier then anybody would get any dose. And then you could eliminate everything. Why doesn't the sampling program be a part of your regulation?

MR. CAMERON: NRC sampling program issues. Can

you talk to that?

MR. McCARTIN: We would agree. We would agree.

MS. KOTRA: And it is part of the --

MR. McCARTIN: Performance confirmation.

MS. KOTRA: Yeah.

MR. CAMERON: Okay, thank you.

Let's go over here to Sally Devlin.

MS. DEVLIN: Yeah, I'm Sally Devlin from Pahrump and welcome everybody. And I came here -- as part of my presentation from the Federal Register on page 8645 and 46, regarding the term and you have this term and I don't know why it's in your stuff, the biosphere and Critical Group for Yucca Mountain. And this is the 20 kilometers and 12 and a half miles that we're talking about.

What bothers me the most about the Federal Register's report is that it doesn't give details that the TSBAVA did, a peer review. And that talks about that titanium 237 and the iodine 5.39. And they are in large doses. And my concern, and this was going to be part of my presentation to ask you the question is; you're talking very arbitrary numbers as far as I'm concerned. We can throw out that 420 millirems a year. Beatty is 460. So you have limit standard at 365.

My problem with all this stuff is the cancers and so on that they cause. And I was going to say that I feel

very strongly that 25 millirems is much too high and the reason I say that is I have been tutored in radiobiology and one of the things that I found is in the report on the children's deaths from cancer was children 15 and under cannot endure more than 10 millirems and it's certainly going to be close to children.

The second point I want to make and I want investigated is we're talking as they said an arbitrary 20 kilometers or 12 and a half miles. But look how close you are to Death Valley. And this really bugs me. You look over there right out of the window at Beatty and you look at the two little mountains and the Superstition Mountains and so on and that's just 20 miles.

Now, when you're talking about Yucca Mountain and to me is no analog and it leaks like a sieve. And how long will it take for the neptunium iodine and the other deadly poisons that will be going in the mountain to hit Death Valley. You're not allowed to kill our pope fish and you're not allowed to kill Death Valley, and Inyo County, my friend, Brad.

So these are three questions that is actually asked about dosage; less than 25 for the children. I don't -- this is arbitrary because even if I were not at Hiroshima and I -- we were both exposed, I'm might be dead and you'd be alive. The radiation side of this knows nothing about

why one would get cancer another doesn't. And once I realized that it's very important and this is such an arbitrary thing and I think it should be really looked into far more seriously than you have done.

MR. CAMERON: Okay, thank you, Sally.

Does anybody from the NRC want to clarify for the audience the dose issue and what it's based on and what the data show. I don't mean to do a long thing, but can you clarify that in response to Sally's question?

MR. McCARTIN: Well, the 25 millirem you have a likelihood of causing problems like cancer. It's a very, very low likelihood. I mean, that as you noted the experts, there's very little -- you have to go to a much, much higher dose and Chris McKinney from the staff, he's the health physicist here, he can talk to -- I think it's at somewhere on the order of 25,000 millirem where you actually start to see some effects from radiation. But I'll turn to Chris, I'm not a health physicist.

MR. CAMERON: Okay, Chris, if you could explain this simply, it would be helpful.

MR. REAMER: There's a challenge.

MR. McKINNEY: Okay, I'm Chris McKinney. I'm a health physicist with the NRC. First of all, no more evidence that any of us, that nobody will get anything. It's not a physical thing you can hold onto. That's the

problem.

Most all the data --

REPORTER: I can't pick you up very well, could you come back over toward the table a little bit. Right there is fine.

MR. McKINNEY: Okay, the whole basis in protecting the public from radiation is based on risk estimates of how potent radiation may cause cancer in people. And most all the data is on the order of, that we have good data on distinctive cancer showing up or is on the realm of people who get 10 rem or 10,000 millirem in a year or more. We've extrapolated that down and said there may be a threshold, there may be a lower effect, but as a conservative measure we're taking it to be the same effect as up there. If you get -- at the same rate of chance.

So 25 millirem equates to a lifetime risk increase in a cancer risk of four in ten thousand. Now, none of -- everybody in the United States currently has a risk of between 20 and 27 and 100 of having a fatal cancer, of dying of cancer right now. The 25 millirem dose limit is talking about very much lower than that so you may have 20.04 than 20.

The 100 millirem dose limit that the NRC uses is based on protecting everybody not just adults, children, too. We've evaluated children, child doses. Although the

rule points towards adults, we've evaluated them and they're not different than the adult doses because children are more sensitive per gram they eat. But they tend to eat less overall when you talk about all pathways. They may drink more milk than you do on a per-weight basis, but you eat a lot more different products. You drink more water and get other ways to get the radiation.

MS. KOTRA: Well, let me just add here that the Nuclear Regulatory Commission is responsible for regulating the use of radioisotopes and radioactivity in a lot of different applications; from nuclear power plants to medical use of radioisotopes to small commercial products. And we use, as a health and safety limit for all of those activities, from all sources, an individual is believed by many, many countries and by our agency to be safe if that limit is kept below 100 from all sources.

We believe it's reasonable to apportion a fraction of that given the fact that there are people who may be exposed to other manmade sources in addition to exposure to a repository. But the 100 millirem public dose standard has been in effect for a long time. It's consistently used around the world, and as a conservative measure, because we want to take account of the fact that people might be exposed to more than source, we have allocated only a quarter of that public dose limit that is operating for all

licensed facilities to a repository.

So I just wanted to emphasize that this is based upon a international consensus, there are international radiation protection organizations all over the world that agree that 100 millirem public dose limit, it's a basis of our regulations and has been from as long as NRC has been in business.

MR. CAMERON: Okay, thanks, Janet. Thanks, Chris.

We have some questions back here. We're going to go to this gentleman here and if you could just simply state your name.

MR. YOUNGHANS: My name is the George Younghans. I'm the closest living relative to Yucca Mountain. I have a couple of questions. First, Steve Brocom, at least I hope I pronounced that right. I did not understand much of what you said. So if you could reiterate in layman's language, I would appreciate it.

Two, I live up in the Oasis Valley which is downstream from the wetness test program particular in area 20. We quit the wetness test in 1992. The DOE computer models indicate that we should have tritium in the Oasis Valley and Beatty, per se, right now. And as far as I know there's no major wells to intersect the radionuclide iron that is coming off of the test site.

Also the DOE has admitted that plutonium has

traveled one mile in say 20 years. It's not many years until it gets to our back door. The DOE has not resolved what's happening on the wetness test program and the radionuclide that is coming at us right now, how can you people even dare stand up there and tell us what's good and bad and indifferent, I don't understand.

I do not comprehend and you're part of the same package. The off-site radiation is coming at the town of Beatty and nobody has taken any major steps to intercept this or to determine what is happening and I would like to know. And if we don't know what's happening there, and I'm only talking seven years since we quit the wetness testing and you people are talking 10,000 years and it will show you this.

Do you understand that, you know, that the plutonium is still lethal 10,000 years from now, is it not? Is it not?

MS. KOTRA: It is hazardous for that long --

MR. YOUNGHANS: You don't know.

MS. KOTRA: It is hazardous for that very long time, it is.

MR. YOUNGHANS: Because the DOE has not done that for the locals, how can you try to sell a program like this.

MR. McCARTIN: Certainly the plutonium will be around, but in our analysis if it's in concentrations beyond

25 millirem which is acceptable for public health and safety, it would not be licensed. We're not allowing it out in lethal amounts.

MR. YOUNGHANS: If the DOE lets in off in Nevada test sites --

MS. KOTRA: No one has gotten doses in excess of 25 --

MR. YOUNGHANS: Pardon?

MS. KOTRA: No one has gotten doses --

MR. YOUNGHANS: No one has gotten doses yet because it's only seven years since they quite testing and you're talking 10,000.

MR. CAMERON: Perhaps the simplest, and I want Bill to say something, but perhaps the simplest way to respond to this is; are there studies that have looked at radiation releases from the test site?

MR. YOUNGHANS: No, not releases, underground water.

MR. CAMERON: Okay.

MR. YOUNGHANS: I know what the release is, we don't know the underground water.

MR. CAMERON: Are there any studies that Mr. Younghans --

MR. MURPHY: Let me try to answer that.

MR. CAMERON: -- could be referred to?

MR. MURPHY: Chip, let me try to answer that and if I -- listen up here, Nancy, because if I say anything wrong I'm going to call on you to correct me. But yes, the answer to that is there are -- there have been, in fact, and there are ongoing studies of the migration of radionuclides off the Nevada test site in your area, sir, up in Oasis Valley.

And not that I mean to defend Steve or anything, but the folks from DOE who are responsible for that problem are the Nevada Test Site Environmental Management people not the Yucca Mountain project. But let me just --

MR. YOUNGHANS: But the standards ---

MR. MURPHY: I understand that, no I understand that. Let me just continue. We -- and this speaks to one of the issues we discussed earlier, too, about the certain early warning. We have, as you know, and Nye County has what we call the early warning drilling program where we've drilled a series of wells down around the Amargosa Valley to give us an early warning of releases from Yucca Mountain.

We have also proposed to the Nevada test site people that they fund Nye County to drill the same kind of series. I don't have in my mind the number and locations but an early warning drilling program in, up in that area to give us a warning, if you will, to provide that trip wire so that you would know when releases in the groundwater from

the Nevada tests on weapons program on the Nevada test site are heading your way and, you know, Nick could fill you in on that.

But we have, Nye County has proposed that we be funded by the Department of Energy to do exactly what it is that you're concerned with, but we haven't -- we're still hopeful that in the near future we will get funding to conduct that program.

MR. YOUNGHANS: But they have not done that and secondly, their computer programs, their computer programs indicate that it is here right now. That's what my point is. Do we wait until Yucca Mountain is in Amargosa Valley or in Beatty before we respond? Well, it's too late.

MR. CAMERON: Okay.

MR. MURPHY: Well, that's the whole point of our early warning drilling program so we can respond to that kind of thing.

MR. YOUNGHANS: Well, they don't care.

MR. CAMERON: Okay, we're going to go to Nick now for last comment on this issue at this point. Go ahead, Nick.

MR. STELLAVATO: Nick Stellavato with Nye County with the waste offices. Mr. Younghans and Ms. Younghans was up here, gosh, it was a year or so ago and when we made the proposal to the DOE NTS ER program for a similar drilling

program that we proposed to Steve Brocom's DOE side and we were funded for the Yucca Mountain side, we were not funded for the Oasis Valley side.

The ER program, at the NTS site they have drilled, or started one of the first holes, I guess, right off Pine Mesa. They're down to 1600 feet right now and that's that program that Bob Bangler talked to you about up here one night that we also wanted to drill down in Oasis Valley so we could get up to 22 holes there, somewhere in that vicinity to get some independent third-party data.

UNIDENTIFIED VOICE: Well, it's too late on the tritium.

MR. STELLAVATO: Well, the response of Rick Rodell with the NTS, and I saw the presentation a year and a half ago that they did. Their model says that tritium should have been down but they ran out and did some sampling. I don't think they ever picked up any tritium. Bob Bangler and his program to get the wells in will definitely be picking up, you know, the groundwater samples and we'll all get to see that analysis.

MR. CAMERON: All right, we're going to be coming back to it. We're going to go this gentleman and then we're going to Nancy -- is it Louden or --

MS. LOUDEN: Yes.

MR. CAMERON: Louden. Okay, you have a question,

sir. State your name for the transcript.

MR. SCHANKLE: My name is Vernon Schankle. The question I have is a multi-part question. In your presentation, the first thing that I found that I was confused about is; what elevation is the repository going to be located at? At what elevation is the groundwater at the repository site?

At the 12-mile mark, you've indicated that you've established 300 meter mark over the well and at that point you were measuring or concerned about a 25 millirem observation when you sample. In order to obtain that 25 millirem, what would it take in terms of time and in terms of quantity of materials to be discharged at the repository for this to become a potential problem?

And should there then be a series of observation wells on that early warning detection that would then need someone to, at what point is it -- back to towards the repository where you had 25 millirems become suddenly higher and potentially there's a problem for human life.

MR. CAMERON: Okay, thank you. Who's going to try to answer that question?

MR. McCARTIN: Briefly, I'll -- some of the DOE people may be able to help out about the elevation. But generally the repository is approximately 300 meters above the water table. Now, at the 12-mile mark, we're talking

about the water table being about 100 meters below the surface in terms of the actual elevations. I don't know if you need more than that, but that -- those aren't exactly elevations, but in terms of relative to the water table, that's --

MR. SCHANKLE: What is the amount of time that it would take for the material to travel from the site to the 12-mile mark?

MR. McCARTIN: Right.

MR. SCHANKLE: And have a 25 millirem --

MR. McCARTIN: Well, right now, and obviously the Department of Energy is still characterizing the site and there's a lot of information and studies to go on. Generally in terms of the amount of time, I think right now if you had to make an estimate, I'd say 1,000 to 7,000 years would be, capture the minimum. In all likelihood it could be much longer but I'll take a guess at 1,000 to 7,000 years.

In terms of the amount that's released, generally 25 millirem is a low dose. There is not a lot of material that can be released and that dose not be exceeded. And that over a very, very long period of time, the overwhelming majority of the contents of the repository would be expected to remain at Yucca Mountain for millions of years.

MR. SCHANKLE: I understand but you're talking

failure analysis and what the failure, you're talking about a container that has been punctured and allowing either surface water or groundwater to penetrate through and pick up that discharge into the continuation of the groundwater.

MR. McCARTIN: Right. Well, the analyses to date are still ongoing. Now, in terms of what we do, generally at NRC we think we're doing analyses that are conservative in that we assume a relative high number of packages that are failed from day one. The amount of water getting through the unsaturated zone, fairly high.

Are you asking how many containers would it take to fail?

MS. KOTRA: No.

MR. McCARTIN: And before, out of the -- let's assume there's 7,000 containers, to get a 25 millirem dose for a farming community? I'll say -- I mean you're really asking me to guess prior to a lot of analysis being done, but I'll say 100 to 500 containers.

MR. SCHANKLE: Out of what total volume?

MR. CAMERON: Out of what total volume. We're going to have to close this off and go on to some other people.

MR. McCARTIN: I guess what kind of volume?

MR. MURPHY: Chip. Chip, before we do that, I think there's still confusion about what it is we're talking

about here with respect to a 25 millirem dose.

What the Department, what the Nuclear Regulatory Commission is suggesting is not that at where this so-called Critical Group lives, that is 12 miles away from Yucca Mountain, they would measure the groundwater and if the groundwater contained 25 millirems of radiation then, you know, that the repository would somehow be in violation.

But that what that means is that if this hypothetical Critical Group, a farming community located up there, down there at the Lathrop Falls intersection, if those folks lived there for a year, grow their food in that area, eat the food they grow on that ground, drink milk produced locally, and drink the water out of that ground and do so for a year, that the Yucca Mountain, that the repository at Yucca Mountain could not produce to those people over the course of a year a dose to their bodies in excess of 25 millirems.

It's not a measurement of the amount of radiation in the water or the measurement amounts of the amount radiation in the case of Yucca Mountain. That's why -- and that's sort of the thing that Steve Frishman was discussing earlier. That's why we would prefer a system which would allow them to do that, to draw a circle say three to five miles around Yucca Mountain and measure the radiation escaping, if any, measure the radiation escaping from Yucca

Mountain, and then determine whether or not it was complying and not get into these kind of arguments about how much milk adult versus children drink and what and who and how many people are going to live in Lathrop Wells ten years from now.

We would prefer a situation, a regulatory scenario where they didn't have to do that. Where the determination of compliance or non-compliance was sharper and clearer and much simpler.

MR. CAMERON: Okay, Mal, thanks for putting that into perspective. We have a number of people who have wanted to talk out here and we're going to go to Nancy Louden first and we have a gentleman in the back and Abby from --

MS. JOHNSON: Eureka County.

MR. CAMERON: Eureka County wants to say something and I know that Bill has wanted to say something. I'm going to let Nancy Louden, who's come a long ways tonight to talk for a minute.

MS. TREICHEL: Can I also ask that the answers from the table be way briefer. We shouldn't go more than -- even as long as the questions because we're wasting a lot of time up here.

MS. LOUDEN: My name is Nancy Louden and my family and I own the Crescent Valley Mineral Hot Springs. It's one

mile from the proposed nuclear rail line through Crescent Valley. My husband and I drove 300 miles to get here because we are opposed to the transportation and storage of nuclear waste in the state of Nevada. If people from other states could put themselves in our shoes, I'm sure they would feel the same way.

No one would want to take a therapeutical healing mineral bath next to a nuclear railroad. The whole idea is appalling. We came here nine years ago and have enjoyed our time and put up all our resources into developing our place, into a healthy peaceful environment.

We are looking forward to living long healthy lives with no fear. Fear of the accident that is not suppose to happen, but, in fact, there have been numerous train accidents in Nevada and a wreck involving high-level nuclear waste would be devastating. It isn't right for anyone to play God and lower the health and safety standards for their fellow Americans.

The number one criteria for choosing any source of power should be health. When safety and radiation standards are lowered, more people will die of radiation-related diseases. The first to go will old people like me and my mom. Then babies, then those whose health has been weakened by a serious disease or accident like our 17-year-old daughter and only child, Nina.

The people living in Nevada will pay the high price for nuclear power used in other states. By getting diseases caused by anxiety and living next to a nuclear waste route and repository and dying from cancer caused by background radiation and the possibility of nuclear accidents which would kill all life for hundreds of years. No one knows what will happen over a period of time if all the waste is condensed into one place.

All states should share the burden equally for storing nuclear waste because it will keep people tuned in to the serious problems that the nuclear industry creates. Only when people whose personal lives are close to this deadly waste will all the less toxic energy options be developed. Even though we are told they aren't economical.

To quote National Geographic here in this past 20 years, tens of billions of dollars have been wasted in attempting nuclear projects that were never used. DOE has spent more than $2 billion attempting to establish a permanent repository and little progress has been made. That was a few years ago.

Only 20 percent of our energy is generated by nuclear power and it is a good time to phase it out. People can easily dismiss the fears and health hazard caused by nuclear waste. They can ship it out to Nevada, a place far away. Then they can even justify making more of it. Those

who think the right thing to do is to put this deadly waste in the state of least population and representation, believe that it is okay to sacrifice some people to make the quality of life easier and better for the others like themselves.

This is pure shortsightedness, selfishness and greed. People are learning that it isn't right to exploit and kill people of other races. Now, they have to learn that it isn't right to exploit and kill people who live less densely populated areas.

(Applause.)

MR. CAMERON: Okay, thank you, Nancy.

We're going to go back here to this gentleman and then we're going to go to Abby.

MR. McCRACKEN: Thank you. My name is Ralph McCracken. I'm from Amargosa Valley and in deference to our moderator, I believe we're still talking primarily about our 12-mile or 20 kilometer parameter-type question.

MR. CAMERON: Go for it.

MR. McCRACKEN: Okay. The people throughout this country have the ideas that's been projected to them that Yucca Mountain is a place to put radiation, a place to keep radiation, a place to contain it, okay.

Containment is one thing. Any gardener, any fireman can tell you what containment is. If his hose doesn't leak, he has containment. I suggest that you guys

are offering to us a leaky mountain. Something that will be allowed to permit to deliver to the people up to 25 millirems or whatever number you guys settle on before we go into alarm mode.

Which brings us to the next question. If there's 25 millirems at 12 miles or at 20 kilometers, however you want to look at it, if there's that much coming out there then, how much more in transport already to get to the point that we know that 25 millirems is there? And finally, you go in and go extract a leaky package, that's fine for what's left in the leaky package but not what's in transit. Think about that. Okay, that's enough on that part.

During the period of time that you've been studying this mountain, other things have been happening in the area within that 12 miles and/or going on out to the 30 kilometers things are happening, things have been happening. Even Nye County's got a big project in that area.

Now, it's very convenient that this 12-mile radius is a limit that stops just before you get to Highway 95. Anybody that's running from Las Vegas to Reno on the highway, or back and forth, are going to go through this area. And just because you say, okay, we have this 25 millirems in here at 12 miles doesn't mean that it stops there. The folks that are just over that are going to get a shot of it, whatever it amounts to.

Specifically, we're talking about, there's this high-tech corridor that's happening right here at gate 510. It's also projected to bring industry and with industry support services and support services and industries don't happen without people all running down Highway 95. Starting as far south as just beyond Lathrop Wells through Beatty and on up further north. As far as a technology corridor, has been bandied about very much over the last couple of years.

I'd also like you to take a look at the population figures that your rules and projections were based on. In the environmental study you talk about 900 people in Amargosa Valley. I seriously question that number and I suggest to you guys that it's low. Our next census will give us a final answer on that.

What is this gentleman's name here, the second one over?

MR. McCARTIN: Tim McCartin.

MR. McCRACKEN: Tim?

MR. McCARTIN: Yes.

MR. McCRACKEN: Okay. Tim, you suggested that well -- you said a 100 meters deep which is roughly 325 feet, something like that, as being economically environmental or --but you wouldn't drill that deep. Well, I'm going to tell you right now that in Amargosa Valley on the TT Ranch there is at least one well that goes down 400,

450 feet. That most of the wells in that valley were drilled in the '60's with '60's technology, that the pumps for the most part were dry-shaft pumps. And there was a reason that you tend to stop at that 250 to 400 foot range. It's called horse power loss and inefficiency.

Well, since then we've come up with submersible pumps. You can go deeper and you can pump more with the innovation or the same additional horsepower and draw your water from lower down with the same over-all horsepower efficiency. So I suggest that you revisit those numbers there with today's technology.

MR. McCARTIN: May I just add that's one of the reason we're putting this information out. If there's other information that suggests some of the basis for what we elected to choose is wrong, we need to hear it and we appreciate it.

MR. McCRACKEN: That's why I'm telling you.

MR. McCARTIN: Right, we appreciate.

MS. KOTRA: And we appreciate it.

MR. McCARTIN: We appreciate the information, yeah.

MR. McCRACKEN: I'm not criticizing. I'm taking issue with it.

MR. McCARTIN: Yeah, okay.

MR. McCRACKEN: And giving some facts to go with

it.

MR. McCARTIN: Good.

MR. McCRACKEN: That's pretty much my comments for that area of the discussion.

MR. CAMERON: Thanks, Ralph. I think that that information was helpful already to the NRC.

Abby?

MS. JOHNSON: My name's Abby Johnson. I'm the nuclear waste advisor to Eureka County, Nevada. I'm absolutely thrilled to have people from Crescent County and Eureka County at tonight's meeting. And especially such articulate spokes person.

I have a couple of areas to touch on. Anybody who's heard me talk before knows I talk a lot about public participation and public access and that sort of thing. Let me be the first person to stand up and say that we need more time to comment on this rule. And I hope I'm not the last person to stand up and say that we need more time to comment on this rule. We've got several rules coming down. It's very hard to sit down and put together comprehensive comments on all those things at the same time and so Eureka County is one who wants more time. Six months would be great, we'll take what you give us.

Secondly, Helen Decloney at the last nuclear waste technical review board meeting made a very good point about

Internet access. She said, and I don't think this board which is a very good board at listening, really believes that there's places in Nevada that are not on the Internet.

So I wanted to bring to everybody's attention a newsletter that just came out from the Offices of the Attorney General, his office of the Consumer Advocate in Nevada. I brought a copy tonight for your records that says this. All the communities in Nevada that aren't there yet.

And my message to both the DOE and the NRC is just because it's on the Internet doesn't mean that people in communities that need to know about it are finding out about it. Those of us that are doing oversight try our best, but you need to try many different ways to communicate to get your message across. And if you tell somebody it's on the Web isn't enough for rural Nevada.

MS. KOTRA: Can you give us some other suggestions on ways --

MR. CAMERON: Could you always speak into the mic up there.

MS. KOTRA: Can you give us some other suggestions. We want to get the, you know, the opportunity to comment to the broadest possible audience. We've brought flyers with mailing addresses on, but if there's some other way other than through the U.S. mail that people can get their concerns to us, we make it available on the Internet

but we do not assume that that's the only mechanism. We're here tonight, we want to hear other ways to get access.

MS. JOHNSON: Well, I'm glad you asked because as this project goes on we, we in the county anticipate more interaction with the NRC just like DOE anticipates more interaction. One way would be to work with the folks who are staffing the county offices to try to get the word out. And also to do the obvious things, like notices in the paper and that kind of thing, press releases focusing the press at the local level; that sort of thing. And I can have you talk to me more about that at some other time as well.

MS. KOTRA: Great.

MR. McCARTIN: Okay. I thought we had a mailing list for all the local governments that went out with the rule, et cetera. I will double check but I thought there was an extensive mailing list. If there's others we need to get on that, let us know.

MS. JOHNSON: I think -- I'm not saying that Eureka County was not notified of this meeting. All I'm pointing out to you is that there are people in Eureka County and in other counties represented tonight who are harder to reach than the average inside-the-beltway person. And so, my point is that you have to try harder to reach us than you try to reach people who live in the cities. Right?

MS. KOTRA: Got it.

MS. JOHNSON: Okay. I have another point regarding public participation. The woman from the ATNW said they want to hold a meeting in September in Beatty. Great. But while I would strongly encourage the DOE, the ATNW, the NRC and the Nuclear Waste Technical Review Board is to coordinate with each other. If we are not successful in getting an extension to the Department of Energy's draft environmental impact statement hearing and review process, those hearings are likely to take place during the month of September.

So September would be an exceptionally bad month to try to have public participation. We could drive all the way here and have no one show up because there's some higher priority in the month of September. Now, that's just an example. So I just encourage all of you agencies to work together and look at each other's schedules. I know you got a schedule like a year in advance, but then some people think their meeting is more important than your meeting.

So, you know, they do leave -- if you guys could work it out that would be great because we want to be able to participate to the fullest and sometimes there are incredible conflicts, that to those of us who are trying our best, appear to have been avoidable.

Okay, I have two more points and then I'll shut up. One is -- and this purely a layman's comment. I have a

really hard time explaining to my constituents here in Crescent Valley why WIPP has a 15 millirem standard with 4 millirems for groundwater and five kilometers for the border and we don't. I just don't get it. I'm sure there's some answer about what Congress did in their infinite wisdom, but it doesn't make any sense. So I'm trying to sit here and figure out about this 20 -- the 12 miles and the 20 kilometers and the 25 millirems. Why do we have those standards? You know, it doesn't make any sense.

I have another comment --

MR. CAMERON: Do you want an answer to that before you go on?

MS. JOHNSON: Yes, I think I need an answer to that.

MR. CAMERON: Can someone address what is a good question about why, why a particular repository might have a different standard than is proposed for this one?

MR. McCARTIN: Well, we did not look at the WIPP standard in setting this standard. We looked at the NAS recommendations that they had an overall risk number that was in terms of a probability. If you take the symmetry values and change that into a dose number, what the NAS recommended was a dose value of, for a starting point for the EPA to consider the limit was 2 to 20 millirem.

The NRC, as you know, we will adapt an EPA

standard when it becomes available. Right now it is not. We look at what we -- how we license other facilities. We use generally a 25 millirem standard that's generally consistent with NAS recommendation of 2 to 20 as the starting point. That's how we came up with the 25 millirem standard.

Also at Yucca Mountain as people have noted, the groundwater pathway is the most likely pathway for the release of radionuclides. So this standard is really applied totally to groundwater. We believe 25 millirems is protective of public health and safety, and in addition, the groundwater pathway is protected because that is the dominant pathway for releases.

MS. JOHNSON: Now, is -- correct me if I'm wrong. So it's 25, right now, you're saying it's 25 for groundwater.

MR. McCARTIN: Well, 25 is an all pathway standard.

MS. JOHNSON: Okay.

MR. McCARTIN: However, at Yucca Mountain where it's expected that the releases will be primarily if not totally from groundwater, that would be applied totally to the groundwater pathway.

MS. JOHNSON: Okay. And at WIPP it's 4 millirem for groundwater?

MR. REAMER: No, that's not a dose.

MS. JOHNSON: Is that right?

MS. KOTRA: No, not correct.

MR. REAMER: That's not a dose.

MS. KOTRA: No.

MR. McCARTIN: Right, the 4 millirem standard is what they apply for groundwater protection at WIPP.

MR. REAMER: But it's not a dose standard. It's not a dose.

MS. KOTRA: No, it's a concentration measurement.

MR. McCARTIN: They use that -- concentration limits to apply.

MR. MURPHY: 4 millirems is in the rule.

MS. KOTRA: But not for a license though. I think it's --

MR. McCARTIN: In the Safe Drinking Water Act.

MR. CAMERON: Can someone explain that?

MR. MURPHY: No, that, the 4 millirems, the 4 millirems maxi is in the WIPP standard under the Save Drinking Water Act is what we call a maximum concentration limit. So if you measure your groundwater and if there is -- if it exceeds, if radioactivity in the groundwater in your cup exceeds 4 millirems, you've violated the safe drinking water standard regulations.

That standard has nothing to do with whether or

not any human being will ever come in contact with it. You can exceed and violate the WIPP standard, the maximum concentration level in the WIPP standard if no human ever comes in contact with that radiation. So, but, you know, we fully agree with that. We, Nye County says we should have some that's similar and we agree with this standard. We should have some similar and I don't know whether it's 4 or 3 or 8 is the right number, I don't know.

But there should be some similar additional protection, a way to measure whether or not the groundwater is being, you know, contaminated in the centers, we agree with that. But, you know, I hope people don't confuse the formula in the groundwater standard as WIPP with the 4 millirem dose to people living Amargosa Valley and Yucca Mountain because that's not in this standard. It has nothing to do with human contact whatsoever.

MR. CAMERON: Could the -- could Tim give us one comment briefly for us on this.

MR. McCARTIN: Yeah. And it's also very nuclide specific in terms of those MCLs that you refer as 4 millirem. For neptunium, a 45 millirem is one that would -- is comparable to what they allow in the concentration limit for wetness. So that 4 millirem safe -- the Safe Drinking Water Act is a very difficult regulation to follow. But each nuclide has its own concentration limit and you'd have

to take doses from all those to see exactly what it pertain to, but it doesn't -- it's quite variable.

MR. CAMERON: Abby, do you have one more questions and then we'll --

MS. JOHNSON: I have one more comment.

MR. CAMERON: Okay.

MS. JOHNSON: And then I'm done. And that is I really didn't understand the stuff about how kids eat less so --

(Laughter)

MS. JOHNSON: So that the dose standards applies. And I'd actually request that my dumb question there is that in the regulation somewhere or is that an opinion of the Nuclear Regulatory Commission? I heard Carol Browner of EPA speak about a year ago and she was so articulate about EPA's approach in general being if it's safe for children then it's safe for everybody. And so this is -- I mean this as a guarantee says if it's safe for adults, is it safe, safe for everybody. So I'm confused.

MR. McCARTIN: The regulation is targeted to an adult. We have done a calculation to see how this translates doses for other individuals like infants and children. What we have seen is that -- as Chris pointed out, the sensitivity to radiation is higher for the infant, but the food intake for an infant is less than adult and

there's sort of cancellation effect there that the doses calculated are not that much different.

MR. JOHNSON: Well, I just don't believe it but --

MR. McCARTIN: Well --

MR. CAMERON: Okay, that last remark was that Abby doesn't believe that.

And Janet, I cut you off. Did you have something brief to say on this? An ultimate point that Abby was talking about. Speak into the mic, please.

MS. KOTRA: We will get -- and I will see -- I will make a point of getting information back to you about the way NRC takes into account doses for children. The models that we rely on that are supported internationally do make -- it's a very sophisticated dosimetry that allows us to set the standards that we do across the board. But children are protected under these assumptions but it's not a simple explanation.

And I will take your name and I will make a point of getting a clearer explanation than we've been able to provide this evening. I know that's not as satisfactory as being able to give it to you right now, but I think you deserve an answer on that.

The other point that I wanted to make with regard to WIPP is that maximum concentration limits that apply at WIPP -- and Mal is absolutely correct, that is a separate

standard for the groundwater. We are talking about a standard here that applies; two doses that would be received by a hypothetically population. That is not one dose. It depends on nuclide as Tim said. So the MCLs that the EPA would apply at WIPP could be -- depending on the nuclide -- could 40 millirem, it could be .2 millirem. It could be a lot of different things. So it's not one value but it's also a complex issue.

The other point that I think is very important to remember is that that standard could be 100 time higher or a 100 times lower and it wouldn't make any difference because there's no potability groundwater at WIPP. So, yes, you know, you can apply any standard you want but if there is a potable groundwater there, it's kind of meaningless. What's meaningful is what -- you know, the other part of their standard.

What we have in the situation here where we're trying to come up with an appropriate standard for a site that does have potable groundwater. What is safe? What will be protective of people if many, many thousands of years into the future or whenever the calculations show releases would occur, what would be protective for people's drinking and consuming that groundwater.

MR. CAMERON: Okay. We had a --

MS. JOHNSON: Just one point. It seems like if

you have groundwater that you know is potable then you must have a more restrictive standard than if you have groundwater that you can't drink.

MS. KOTRA: Thank you for that point.

MR. CAMERON: Okay, we had a couple of comments up here and then we're going to go out to you, sir, okay, because I know you've been waiting patiently.

UNIDENTIFIED VOICE: I give my time to them. He'll cover it, he can cover it.

MR. CAMERON: Okay, good.

UNIDENTIFIED VOICE: Go to the next person.

MR. CAMERON: Bill Vasconi, brief comment.

MR. VASCONI: Brief comment is and it's very obvious to everybody and I appreciate Nye County's response, but keep in mind we're building, building this facility, study this facility, taking the recommendations of individuals under today's technology. That's why a good many people think that we should give our educational system a little more credit and indeed, leave this be open for any number of hundreds of years, one, two or three. Three hundred years has been mentioned, monitored for temperature, monitored for water, with the capabilities, yes, of a retrievable.

One of the things we do know is that there's a good possibility coal or oil won't last 10,000 years in a

station either. Yucca Mountain may be a resource, if you will, for energy of the future. But, again, the NRC, the EPA, you should realize, DOE, there's a good many people that would like to see the fact that that is a monitored, retrievable installation.

MR. CAMERON: Okay, thank you, Bill.

Sir, would you like to make a comment?

MR. CARRUTHERS: Yes. My name is Joseph Carruthers. I'm a resident of Crescent Valley and I'm happy to have those people because I took a poll there in the Valley there. Overwhelmingly everyone signed except the one person who would be against this and we have a proposed nuclear well out there that's coming to our Valley.

I have a two-part thing here I want to say. The first one is safety and then the economics. One issue I have not heard addressed here because all the focus mostly tonight has been on Yucca Mountain. We're talking about 43 states, folks, trailers and trucks moving the stuff, dangerous stuff. And we're not talking just about, you know, an accident. We're talking also about terrorist, theft. Many things that can happen, many things. Many things that we don't even perceive at this point. We see it happen every day out there. Our scientist, everybody, our law enforcement. It goes beyond -- we can't even control the drugs in this country.

If people get a hold of this stuff we're going to have trouble. We're going to have big trouble and it's going to cost us all in a lot of different ways. So you really, really, really better think long and hard about what's going on here. If outside forces get a hold of this stuff or there's a accident or there's a terrorist attack on it, people are going infected.

And number two is the economics of this thing. Oh, they're dumping 18 plus billion dollars just for this. If something goes wrong, it's going to be a lot, lot more money. Who's going to be willing to pay for it? Steve? Will you liquidate all of your assets because you made the decision? How about you, Jim? How about you, Bill? Yeah, there's economic opportunity for our communities. But if they don't make out on it, would you do that if things went wrong? Any of you? Would you say that even these decision that you make for our children from here on, would you take personal responsibility and not push it off on the agencies?

I've seen this personally. And something like a movie I saw last night; the old Titanic movie. Not the new one. There it was the unsinkable ship. It's the Titanic, it can't sink. Well, it sunk, guys. It sunk. You know, I mean it sunk. And you got to look at it this way. And it could go this wrong and if it goes like this, we have a big price to pay and you are going to be responsible and your

people for the decisions you make for all the people. We have voted and we will pay for it, all of us. We're the taxpayers. Chances are you guys won't have to pay with your assets. We will. Thank you.

(Applause.)

MR. CAMERON: Okay, thank you, very much. It's Mr. Carruthers?

MR. CARRUTHERS: Yes, that's right. Yes.

MR. CAMERON: Right. Could someone just briefly address the transportation jurisdiction issue without getting into a whole lot of detail for Mr. Carruthers and the audience.

MR. REAMER: Well, transportation has not been discussed tonight because transportation is not a subject of this rule. This regulation that we're discussing tonight just deals with Yucca Mountain. But that's not to say that transportation is not important. It is very important.

We have regulations within the NRC regulations that govern transportation that protects the people along the corridors. So does the Department of Transportation. They have regulations that govern the trucks and the trains that move all kinds of hazardous materials. The hazardous material that might come to Yucca Mountain is shipped today on U.S. highways. It has an excellent safety record. But perhaps you know that, I'm not sure whether you're aware of

that.

MR. CAMERON: Okay, thanks, Bill.

Neal, you want to add anything? Okay.

MS. LOUDEN: Could I ask one question.

MR. CAMERON: Sure. Nancy Louden.

MS. LOUDEN: How much radiation leaks out of the casks -- I mean the casks, because this radiation is something you can't see, can't feel, and, you know, it seems serious to me. But does it -- I mean they say it can be contained. Can it come out of the casks while it's going down the highway? Is it higher, the -- those rads that are come out along the highway, when you're parked next to a train full of casks of nuclear waste, are you going to get a higher dose?

MR. CAMERON: You know, that's a basic, I think that's a pretty basic question because radiation is mysterious to people. Can you answer that?

MR. McCARTIN: Very briefly. But in terms of the transportation casks, there are requirements for what the dose level would be within "X" feet of the cask. And it's limited to keep the doses very low. What they are, I'd have to get back to you on that. I'm not -- I deal with this regulation not the transportation one. But there are very strict regulations for what kinds -- what dose levels there would be near the path for cask, but it's not zero.

MR. CAMERON: I think the question is, is that how does radiation, be it in a shipping container or in a container that's setting inside Yucca Mountain, what has to happen for radiation to be released to the environment?

MR. McCARTIN: Well, there's certain gamma rays that go through very great distances so they are not contained, necessarily, by container at all. They diminish the thicker the container gets. Now, in terms of the radionuclide that we're most worried about at Yucca Mountain, those gamma rays, once you get a few feet away from Yucca Mountain the dose is essentially zero.

The other things are the radionuclides that leak out of the container. That requires water to fall upon the container, the container, itself, to de-breach. That water to get inside the container, somewhat have the spent fuel leacned and picking up radionuclides in that water which then is transported out, et cetera.

MS. KOTRA: I think the questions was though is I'm setting next to a package, it's on a truck, am I at risk. And the answer to that is; we do not allow packages to transport waste as -- as Bill indicated, we regulate the package. The Department of Transportation regulates the trucks. Those casks can't be licensed if an unsafe dose is received by anyone, and most importantly the workers. The workers themselves that have to handle the stuff, have to

drive the truck. They're the ones that are exposed to it far more than just driving up in a car and parking for a few hours.

So the standards are very stringent with regard to that. And no, the risk is not zero, but it is so well below our public health and safety limits that allows us to license this cask. There are also very stringent testing requirements for how robust those casks have to be in the case of an accident so that they won't be penetrated and the material will not get out in an uncontrolled fashion.

MR. CAMERON: All right. And Steve Frishman on this issue.

MR. FRISHMAN: There are standards to be kept and they're actually in three different places. The one that comes to mind is probably the most interesting to people who think about getting caught in a traffic jam next to a truck. The standard is, and you can look at it relative to what is being proposed for a Yucca Mountain standard; 25 millirems per year.

The standard 60, the weight for a transportation cask is 10 millirems per hour. The equivalent of a chest x-ray an hour for as long as you're next to that. And it falls off very sharply as you go farther away. But that standard is set because the presumption is you're not going to be close to that for very long. And I also know drivers

who exceed their occupational dose every year.

MR. LOUDEN: How do you live next to the railroad though and it's going back and forth during your whole life, the rest of your whole life?

MR. FRISHMAN: You're getting it every time it goes by.

MR. LOUDEN: Yeah.

MR. McCARTIN: Well, but wait a second. That dose is very close to the container.

MR. FRISHMAN: That 60 was for the containment.

MR. McCARTIN: Yes.

MR. CAMERON: Okay. Let's go to this gentleman right here.

MR. DEVLIN: I'm Grant Devlin and I'm a chemical engineer. I've had nuclear engineering, training and experience. The -- one of the things that Bill touched on earlier, Congress took away any science connected with Yucca Mountain. They cut it right out for it. So the terms that we're hearing now are not scientific terms.

Scientifically demonstrable, sometime 10,000 years from now that we don't know the chemistry, we don't the reactions and we certainly don't know what the microbes are doing. Calculate the performance, we can't do that. Level of proof, reasonable criteria, reasonable assurance, these are not scientific terms. There's no science involved

anymore in Yucca Mountain.

Having said that, there are some things that we could add to this mix of information. There has been omission and I've asked the DOE for several years to provide it and they're still trying. The Nelson Limits. Nelson Limits are catastrophic failure of the primary cask. Now, there's a whole list of those conditions and so forth. There's a whole report on it, that's missing. All of that information is missing. And I -- and the NRC is asking how can we better respond to -- how can you better respond to our concerns. Getting a copy of the Nelson Limits to put into this mix would certainly help.

The corridor of transport which we talked about it, the plutonium moves a mile. We have a far better example of that and that report is also missing. In about 1980, Los Alamos drilled a hole in Tosh just like Yucca Mountain. Dumped some radioactivity in there and two months later it was in the fish, they were uneatable in Toshibia Lake several miles away. Now that report, I almost got a copy of it. But that report has not surfaced either. And that would be -- if you're going access some risk, I'd like to see that report included in your risk assessment.

We also have another report right at Yucca Mountain. They're doing a heat test in the rains up at the surface. Two hours later the heat test dropped 20 or 30

degrees and that's 1500 feet from the surface. I'd like to see that report in there, too. That indicates not only a leaky mountain but the thing's a faucet.

Now, I have some good news for you. There is a way to take the 72,000 tons or so, whatever the number is of the waste from the nuclear reactors, and transmute it, get some energy out of it and you'll end up with 200 pounds of waste to deal with instead of 72,000 tons. Those reports are also missing. This was done in Livermore in the '60's. It was done in Las Alamos up to the '80's and in the early '80's we did it at Sandia when I was there. And I'd like to see those reports as a part of the -- of this assessment.

And it certainly seems to me that with $18 billion ready to go into a mountain that we should not only use far less than that, but the one transmutation system that we worked on at Sandia was economically viable. Because of some personnel changes I'm not sure what the report said. I never saw the final report. And -- but it looked to me like at the time that was economically viable.

Livermore concluded it was not economically viable. They were trying to make a power source out of this kind of stuff and so did Las Alamos. They both had their separate approaches and I think we should see those reports and have the engineers and technical people take a look at them for the point of view of maybe consider having

scientist look at them, maybe some engineers look at them and maybe could do something that would be reasonable.

MS. KOTRA: Can I ask a question of the commentator?

MR. CAMERON: And could you speak into the mic, please.

MS. KOTRA: I just want to make sure I understand what you're suggesting. Are you suggesting that NRC require that DOE address these studies in their application for a repository. Is that what I'm hearing?

MR. DEVLIN: Absolutely.

MS. KOTRA: Okay.

MR. DEVLIN: In fact, NRC should have the knowledge of these reports so that they can assess what the DOE is doing.

MS. KOTRA: Okay, thank you.

MR. CAMERON: Steve, go ahead and if you need any more specific information, NRC, about these reports, talk to Grant after the meeting.

MS. KOTRA: I shall, thank you.

MR. BROCOM: This gentleman mentioned a heat test where it rained and the temperature of the heat test dropped and implied that heat test was 1500 feet down in the mountain. We have a large block test that's outside, in the open, that's designed I think and built by Livermore. They

excavated around and left a big block. That's the block that was heated up out in the open and it rained on the block.

MR. DEVLIN: Oh, it wasn't down in the mountain?

MR. BROCOM: It was not down in mountain?

MR. DEVLIN: Okay.

MR. BROCOM: So I just want to correct the record.

MR. DEVLIN: All right, thank you.

MR. CAMERON: Thanks for that clarification.

We have a question out here. I know we're running, getting a little late here in terms of meeting time. Go ahead, sir.

MR. STEVENS: I just wanted a little more time to address the issue regarding something that's been mentioned several times. All right, it's obvious to me, I think there's some other people here that it would better to have it be retrievable for as long as possible and I wondered what the reason was for the 50-year program of retrievability and this mention of the transmuting is one possibility that may come along, other possibilities may come along.

Technology may develop that will make the material more containable, better to deal with, better technology we might know about in the future, couldn't even guess. So my first question is why this 50-year limit?

MS. KOTRA: First of all in terms of address that let me just make sure people understand what the 50 years means. It does not mean 50 years from the first time you put a spent-tool package into the repository. It means the waste is in place. The Department will make a determination into license application, how long it wants to keep it open. When it comes to us, what we're saying is when the last waste they're going to put in there is in and before they make a decision to close it up, there would a period of 50 years of retrievability.

Now, that period before they seek to close it up could be at least 100 years, it could be longer. We understand the Department is considering an even longer operations period. That 50-year period which was actually part of an earlier generic rule that we did, was based upon what seemed reasonable based upon what we knew about DOE's plans at that time. It's part of the overall proposal upon which we're seeking comment and we would welcome comments for other periods which may be more suitable.

MR. STEVENS: Well, I was just saying it seems reasonable to me to have it retrievable indefinitely because you never know what technology will develop or what use might be made of it.

MS. TREICHEL: Can I ask if you're going to require DOE to show you exactly how they would be able to

either pull a bad cask out the repository or how they would be able unload it altogether. And I was speaking in reference to a case where there's a dry cask -- and maybe more than one, but I know of one in Michigan where almost immediately after it was loaded, NRC licensed it because the vendor said that unloading that cask would be just the opposite of loading it.

Almost immediately when it got loaded, they found that there was a reason that it needed to be unloaded. There was a bad route or something. It's three years now. Nobody has been able to figure out how to unload the thing because it was very much more difficult problem to do that.

I would contend -- and I'm certainly not a scientist, but there's a whole lot of very smart people out here, and we've seen them tonight, who are not scientist -- I would tell you that unloading that thing would be a way lot harder job than loading it. And I want you -- I want to know, and very briefly, about 10 words, will you require DOE to have an absolutely foolproof, all-the-way-through system for retrievability?

MS. KOTRA: The answer is, yes, we want them to demonstrate that retrievability in the license application is a part of the basis for our judgment.

MR. CAMERON: Okay. Thank you.

We're going to go back out here to Ralph McCracken

for some comments on the proposed rule.

MR. McCRACKEN: Thank you. This 125 millirems you're talking about for other facilities, other places, is that for people that have to exist outside the parameter of the operation or is that for the people that are doing their daily jobs within the operation?

MS. KOTRA: People outside.

MR. McCARTIN: That's the public dose limit. There is a different dose limit for the workers.

MR. McCRACKEN: Thank you. That was it.

MR. CAMERON: Okay, thank you, Ralph. I know we're running a little bit late here, but are there some other comments or questions from anybody in the audience? Yes, sir.

MR. LOUDEN: Yeah, I have a question concerning -- my name is Lee Louden. I'm concerned with the retrievability question. Say a catastrophic event happened, like an earthquake and you had to go in there and get the stuff back out of the storage facility and do what with it? At that point what would you do?

MR. McCARTIN: Well, the retrievability would in the event that we felt that public health and safety was not adequately protected. We would have to take it somewhere else I assume. If it could not be stored safely at Yucca Mountain, it would have to go somewhere else.

MR. CAMERON: Okay. Is there anybody who hasn't spoken tonight that would want to speak or has anything to say. Okay. I'm going to go to one of the Nye County Commissioners who is here.

MR. REAMER: Chip, I can't hear you.

MR. CAMERON: Jeff.

MR. TAGUCHI: Yeah, I got a question for Brad up there. You had said that the total performance assessment was inadequate and that a groundwater protection standard is needed. Could you explain that a little bit more.

MR. METTAM: I'll try. I didn't say that the TSBA, to use the acronym, was inadequate. What -- and the main reason I didn't say that is I don't think I understand it well enough to make that decision. Our concern is that the peer review panel said that the current version, the current irritation of the TSBAVA, the viability assessment version, in all probability didn't predict the actual performance of the repository. You know, will it do better in the future? Well, everybody hopes so. But I'm concerned that we're basing -- you know, we're sort of building a regulatory standard on a method of assessment that isn't there yet.

And to go to the second part of the question. I really feel strongly that we should have a groundwater protection standard and, you know, I tend to picture a

release standard would be better, but if it needs to be a dose standard, then the dose standard it is.

Because it sort of leads to the dimension depth question. If you don't have a specific standard for groundwater and I use that as the best example, then it's possible to put all of your eggs in a cask. You know, all together, if you know what I mean. All your eggs in one basket. Meaning you build a really, really good cask and that shows us that the repository will work. If that's the case and you make a bad judgment on corrosion of a cask material, that we only have 20 years of history on, for example. Then that's the only basket you've got and when your eggs come out, they all fall down.

I think that a specific standard for groundwater, since it is the most likely pathway, will provide us with an additional level of protection. And quite frankly, I think I can also explain that to people whereas GSDA is almost impossible to explain to most people.

MR. TAGUCHI: Thank you. There's one other item here that I just wanted to clarify. You know, I didn't think a portion of Mr. Dugan's question or Mr. Younghans question was answered to my satisfaction.

In this specific situation, let's assume that, you know, we're talking about assumed leakage and contaminations to the groundwater system. Okay. In that specific event or

in a specific event and it forces your situation, there is really nothing that you can do if contamination should occur on either one of their properties; isn't that correct?

MR. McCARTIN: Are you talking about cleaning up the groundwater after it's contaminated?

MR. TAGUCHI: Yeah. Yeah.

MR. McCARTIN: Can we -- yes, there's very little you can do. Now, be aware there is the performance confirmation period where you would be monitoring the behavior of the repository over that whole time period much closer and anything obviously leaking early on would be caught long, long before anything would get far away from the repository. That performance confirmation period is a very important aspect of the repository.

But you're right. I mean groundwater contamination is very difficult to deal with. There are some cases where pump and treat has been used to clean up aquifers. But in very limited situations.

MS. KOTRA: Can I take that from a different point of view.

MR. TAGUCHI: Sure.

MS. KOTRA: Right, I don't want to leave the impression that the regulator or, and I'll let DOE speak for itself on this. But certainly from the regulator's point of view the intent here is not to close our eyes and wait until

somebody says, "Whoops, it 26 millirem, we got to do something, guys." That's not what we anticipate.

What we are saying is that if we can't have reasonable assurance that it's never going to get above that and that means by performance confirmation for a very long period of time. If it suggests that our models are wrong, if it suggests that it could, the doses could higher, before anything ever gets out, you know, there's a corrective action has to be taken. All the way up to saying, no, the license shouldn't be granted. Or, no, the license should be terminated and the waste should be moved somewhere else. Or, no, there needs to be better monitoring, closer in, as an early warning. There's a whole lot of things that we can do, but we're not going to be asleep at the wheel until the 26 millirem dose is measured. I want people to be clear on that.

MR. TAGUCHI: Okay, Mr. Dugan, was that one of the issues that you were asking about, you know, is the contamination factors effecting your property.

MR. DUGAN: Oh, yeah, that's what I wondered is what are they going to do about if -- say if we have an earthquake and it tears that down --

MR. TAGUCHI: Well, the other thing I assume that if Yucca Mountain --

MR. DUGAN: And then if the contamination is bad,

what are they going to do about it. That's what I wanted to know.

MR. TAGUCHI: Yeah, the answer is there's nothing that they could -- very little that they could do once that contamination surfaced.

Now, is there anything on the backside that you could possibly do for him in that -- specific event? Or anybody?

MR. McCARTIN: I'm not sure --

MR. TAGUCHI: Should be consideration of all of this.

MR. McCARTIN: I'm not sure I understand the question. I mean in terms of when contamination gets to a point, is there anything we can do about it?

MR. TAGUCHI: Well, we know that there's some groundwater issue to take care of, but what would you do for him in the event that that should occur in his situation? What can you do for him?

MR. DUGAN: Yeah, what would happen?

MS. KOTRA: Well, okay, the --

MS. TREICHEL: Well, even if you caught it at a point way before it got to him, that's the source of his recharge. The thing is, if you were stopping it at the repository because you thought his water was going to get screwed up, then you'd be stopping recharge into this area

that they depend upon for --

MS. KOTRA: I think he specifically asked about an earthquake that would be disruptive of the casks.

MR. TAGUCHI: Natural forces or whatever they are.

MS. KOTRA: Yeah. And what we're trying to say is that in the course of the analysis the DOE has to present to the regulator, they have to analyze for disruptive events such as earthquakes and show that their casks are robust and will not be breached because of that.

MR. CAMERON: To get to the commissioner's question, maybe we could ask Neal Jensen from our office of general counsel. Neal, what types of liability provisions -- perhaps it wouldn't be NRC's responsibility, but what happens if someone's groundwater is contaminated in a situation like that. I think that's what you want to know.

MR. TAGUCHI: Yeah, I think that's good. I know it could be a long time from now, but I do know that force majeure could occur -- but if -- when Mr. Younghans was talking about the contamination already coming off the site, what could be a possible response to this?

MR. CAMERON: Let me take this up to Neal Jensen and have him try to -- you got the tough question.

MR. JENSEN: The Nuclear Regulatory Commission does not --

AUDIENCE: We can't hear him. We can't hear you.

MR. JENSEN: The Nuclear Regulatory Commission does not deal with product reliability.

(Laughter)

MR. JENSEN: I've never been asked to deal with this and it's a scenario I'm not familiar with. There is the federal recorded claim by authority act, however, and that's about the only thing I can think of. But as long as that's -- the federal authority claim by authority act is an act that would entitle a person to sue the federal government for damages to his or her property stemming from trying to protect under this scenario.

MR. CAMERON: And the only other thing that I could offer along those lines is that as part of the repository siting process, that you might want to set up some type of framework that would deal specifically with questions like that.

And we're going to Judy Schankle and then we're going to go back to you. Judy.

MS. SCHANKLE: Retrievability. Seeing that DOE has not retrieved this waste from what, 25 utility companies, how would you assure that DOE would retrieve this waste from Yucca Mountain in a timely manner if you did find this un-retrievable?

MS. KOTRA: There's a demonstration that they have to make before the license is granted. And before that

could be granted, they would have to make a demonstration that the Commission would find acceptable.

Now, what you're asking is, okay, supposing that acceptance has been given, a license has been issued and they have not lived up to -- or they have not implemented an acceptable plan or their plan wasn't as good as we thought it was or they thought it was. Then if that is in violation of our regulations, then we would issue a notice of violation. We would basically threaten to withdraw the license or ask -- take action against them for that.

MS. SCHANKLE: How come you've issued the license in the first place when this is occurring?

MS. KOTRA: It's based upon -- I think what she's asking is, you know, if we are assured that their retrievability plan is adequate and they've made that demonstration and we found it acceptable and issued a license, and she's saying, well, what if you're wrong, you know. And we're saying there are opportunities to, prior to closure to say, you know, come back, you've got to do more or you can't emplace any more waste or you have to take waste that's there.

MR. CAMERON: Okay, we're going to go back, we have a question back here. Yes, ma'am.

MS. YOUNGHANS: My name is LaRene Younghans and I have a comment and it kind of goes along with what Abby from

Eureka said. She asked if you guys would coordinate the different agencies and the different meetings. I'm now taking a different version of that. The different folks from DOE, I attend all kinds of meetings and everybody says, "That's the other DOE." We're not addressing those issues.

(Laughter)

UNIDENTIFIED SPEAKER: That's right.

MS. YOUNGHANS: When you're talking about the test sites, you're not talking about Yucca Mountain. When you're talking about this stuff from -- off of area 20 coming down into our water aquifers. We're not talking about that. I'm asking DOE to get together with all of the other little DOE groups and give us an honest answer.

(Applause)

MS. KOTRA: I think that's a question for DOE.

MR. CAMERON: Okay, thank you for that comment. Sounds like there was a lot of accord for that. Anybody else that we haven't heard from tonight that wants to talk before we close up.

MS. DEVLIN: Oh, I have a very important, very important --

MR. YOUNGHANS: Hey, wait, wait.

UNIDENTIFIED SPEAKER: Isn't DOE respond going to her question?

MS. TREICHEL: Are you going to get it together,

Steve?

MR. CAMERON: Do you want to respond to that, Steve?

MR. BROCOM: There have been a lot of questions about impact to the environment. The only thing I want to say here, and several of you have asked about transportation, another -- we have an Environment Impact Statement that will be issued in July of this year that will address most of the issues that were brought up in this meeting today.

MS. YOUNGHANS: Wait, you don't get my point. You were are only going to address the transportation issues about Yucca Mountain, right?

MR. BROCOM: We're going to address issues relating to Yucca Mountain.

MS. YOUNGHANS: Okay. What about the radiation and stuff that's flowing from the test sites now? That's already in control of some weapon's test?

MR. BROCOM: We are working with the Nevada test site and we have a joint effort to coordinate all our work so we can --

MS. YOUNGHANS: But you always say to the audience when somebody asks a question about another route, opps, we're not talking about that because I don't belong to that part of DOE. And I don't get it. Because do you even --

you push these people about the transportation, we're not interested, we're not talking about that issue. And one meeting I was at for transportation, they told us this regulation is done by the people who were right in the department. We don't have any control over it.

And all I'm saying is that with all the DOE people, you need to get somebody from DOE that reports to the President or whoever out here so we can talk to all the issues and not to whatever you happen to have.

MR. CAMERON: I think that he did indicate that at least they're trying to make an effort on this radiation release business to work with test site people. Is that correct, Steve?

UNIDENTIFIED SPEAKER: Yeah, but the other --

MR. BROCOM: And that will also be addressed, that will also be addressed in the EIS which comes out again in July, a draft EIS comes out in July.

MS. YOUNGHANS: (Inaudible.)

AUDIENCE: Can't hear you.

REPORTER: Can't hear her.

MR. CAMERON: Okay.

MS. YOUNGHANS: Are you saying the environmental thing that you're going to put is going to address --

MR. BROCOM: I'm going -- hold on, we have some help here.

MS. YOUNGHANS: You're going to put everything together, a whole total impact?

MR. VAN LUIK: Yeah, this Abe Van Luik. What we're going to look at is the total impact to the area that we expect to be impacted by Yucca Mountain. Which means we'll be looking at essential flows from the test site, from the low-level waste site on the east side. But the Oasis Valley groundwater, we expect, will never merge with the groundwater that we are going to be talking about in the EIS. We will discuss those issues and tell you why we think that's so.

But we are actually working together with the NTS folks to understand the complete picture because you have water going through Oasis Valley that eventually ends up in Death Valley. Our water will probably go to Franklin Lake instead and evaporate there. So there is a reason for the separation but we will discuss this in the EIS. And this is a draft EIS for you to comment on. So if you think that we haven't done a sufficient job in that draft EIS, you tell us and we'll fix it.

MS. YOUNGHANS: Well, that doesn't tell me though.

(Laughter)

MS. YOUNGHANS: Because I'm not just talking about Oasis Valley. We're talking about the east side of Yucca Mountain and I was at a meeting where the DOE people were

talking about the shots that they had in Yucca Flat. That was coming right through 40 mile canyon and past Yucca Mountain and you talk to them about Yucca Mountain and they said, "I don't know if we're going to address Yucca Mountain." I come to this meeting and you tell me, well, we're going to put in the EIS. Well, I live on the east side of Yucca Mountain.

MR. CAMERON: Now, just clarify that. You are going to request comments on whether your conclusion about the east side is correct in the draft EIS? All right.

There was one question. How long is the performance confirmation period that you mentioned, you talked about it, Tim? We had a question on that.

MR. McCARTIN: We would expect it to go all through the entire licensing procedure which could be 100 years until you finally get a termination of license.

MR. CAMERON: Okay, thank you. We have a comment or a question here from Sally Devlin.

MS. DEVLIN: Yes, I have a very important one and that is from this book that Jack mentioned and all of these books are sent to me and I want to know if you're going write comments on them. And on page 98 of the Regulator;

> "Appears to be better situated than the applicant to carry the responsibility. Because of the perception that any future

scenario developed by the applicant could have been chosen beginning with decided outcome."

MS. KOTRA: Could you say that again?

MS. DEVLIN: Now, that is the usual, the old gobbly-gook and that's NRC's stuff. Now, what is important to me is what we are going to see May 28th and I'm hysterical about it is Russ Wyler of DOE handing over to Lath Barrett, DOE, his boss, this entire thing about Yucca Mountain.

And it goes on and on and what you said about DOE is one hand washing the other and the one coming to the proper conclusion which this little sentence says on this very important report where they extracted out 800,000 years, but they don't talk about us.

Now, the opening and leaving Yucca Mountain open for 50 years, well, back there in Washington, this is 300 years. And who's going to say it, and this goes on and on. I'm just saying the public doesn't have a shot if it's one DOE doing one DOE doing the one DOE.

And it brings up another point and that is there has not been one word said about new science. That there is no need for Yucca Mountain. That this high-level waste can be -- what is it, Grant? Transmutated.

MR. DEVLIN: I talked about it.

MS. DEVLIN: And Grant talked about it. But there's more than transmutation. Four years ago we talked to a new group from the NWCRB saying microbic invasion was not impossible. My vote is number one on tne hit parade. And at the last NWCRB meeting, the C22 that you're developing as the out-of-casing for the canisters, my vote is to dump the nickel and they'll poison the water faster than anything else. Along with the lead and nitric sulfite.

And this goes on and on. They had eaten the steel at SRS. I was reading these reports and I hope you've seen them. They've eaten the zericloy at the Hanford tanks and that's what you want to put around the canisters. Now, that's all new science. Nobody ever heard of microbic invasion until '81. And the last four years it's number one on the hit parade. And the more I do research on this stuff, the more I learn that you're not paying attention to new science.

MR. CAMERON: Okay, Sally, can I --

MS. DEVLIN: One more thing. One more thing and this is really the banger. I read the Congressional Reports and in the Congressional Report in 1994 it clearly states that $25 billion is allocated for the first repository and 35 billion for the second. Now, I have not heard one word about these two allocations. I believe in our senatorial and the rest of our people know that and you should, too.

MR. CAMERON: All right, thanks, Sally. I don't know if anybody wants to try to put new science in the context of the rule or to talk about a second repository.

MR. McCARTIN: Well, just a couple of quick things. I mean one, the new science, I mean that's the reason the performance confirmation period is there in that , whatever deal we have to design and build the repository. Whatever they do, that time period, it's going to be uncertain, but the time period of performance confirmation is that time to see are things behaving the way we expected them to. And hopefully, they observe that behavior and we can confirm and terminate the license appropriately. Second --

MS. DEVLIN: How could you think we'd believe that when you see this $12 million for some mean test on a rock outside of Yucca Mountain --

MR. CAMERON: Sally, could you --

MS. DEVLIN: -- and which was invalid.

MR. CAMERON: Could you let him just finish his point. Go ahead.

MS. DEVLIN: And we're talking science.

MR. McCARTIN: Second, the only other -- the NRC report you're referring to was the National Research Council not NRC; the Nuclear Regulatory Commission. And I believe what they were referring to is that they recommended that

the regulator specify the exposure scenarios and that's why we were specifying the biosphere and Critical Group. And I think we are implementing their recommendation. And I don't know if I was interpreting the quote you were reading correctly, but that was my understanding of that particular passage.

MR. CAMERON: Okay. We're going to be here if you want to come up and talk to any of us about any of these issues. But we're going to adjourn the meeting right now after one final comment.

(Laughter)

MR. CAMERON: From our friend from Oasis Valley. Is that right? Okay.

MR. DUGAN: I'm concerned -- we've addressed what happens when the gas dried body is and it's up on the mountain, when it's in the hole. But what if one of these 70,000 metric tons of waste, just one cask breached say right on top of Yucca Mountain, with a good westerly wind. Could you tell me about that? What will happen?

MS. KOTRA: We have regulations in the proposal for the operational period. There are going to be --

MR. DUGAN: No, no, what if breaks wide open?

MS. KOTRA: I'm getting --

MR. DUGAN: The regulations aren't do anything.

MS. KOTRA: Okay. What I'm saying is that the

facility is being built to have hot cells to handle breached containers. And the Department is required an --

MR. DUGAN: I'm not talking about -- before it gets in the holes, on the highway.

MS. KOTRA: That's what I'm talking about. And the Department is required to provide an emergency plan that will protect people in the event of an accident. And that is -- just like every other applicant is required to do.

MR. DUGAN: I understand. I understand. What are your calculations for how many people will die from one breached canister?

MS. KOTRA: None.

UNIDENTIFIED SPEAKER: Good question.

MR. McCARTIN: Zero.

MR. DUGAN: None?

MS. KOTRA: None.

MR. DUGAN: None?

MS. KOTRA: None.

MR. CAMERON: Okay. And talk to -- talk about this afterwards. We do have one process question to go and Tim you can talk about this later on. Last thoughts, last question. Go ahead.

MR. McCRACKEN: Thank you. In the last few minutes both of you have said -- and the crux of your answer is; "We'll terminate the license" or "we'll pull the

license." Well, that's fine. Does that mean when you pull the license, you terminate the license, DOE is off the hook and there's this mess setting there? Is there a procedure that's written down in your proposal to have somebody else go in and clean up this mess that is there because -- that existed because you can terminate the license? It's all right saying, well, okay to the average drunk. Well, we're going to pull your license after you there's manslaughter. Well, it's a little late. Thank you.

MR. CAMERON: Okay, Ralph. Do you want to make --

MR. McCRACKEN: This is written down that after you pull the license this or that's going to happen and who's going to do it?

MR. CAMERON: Quick answer and then we're going to close up. If you have a quick answer. If you have an answer.

MS. KOTRA: I would prefer Neal address that in terms of, you know, legally what we're --

MR. CAMERON: Okay.

MR. JENSEN: I think the question was of enforcement and the violation in the license could not determine that until the licensee had corrected the violation. The NRC would have the right in this area as the regulatory authority over DOE during the operational period. So the NRC would be able to use some enforcement authority

to require DOE to take whatever steps that was necessary to solve the problem.

MR. CAMERON: Okay.

MR. JENSEN: Their license isn't terminated until DOE has made some assessment.

MR. CAMERON: All right, and maybe you can talk more to Ralph about that. You've been a really great audience. You made some really good points and I know the NRC was listening, and we all thank you and we'll evaluate the comments. Thank you very much.

(Whereupon, the above-entitled matter concluded at 10:00 p.m.)