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**OFFICIAL TRANSCRIPT OF PROCEEDINGS  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON NUCLEAR WASTE**

**Title: MEETING: 119TH ADVISORY  
COMMITTEE ON NUCLEAR  
WASTE (ACNW)**

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ADVISORY COMMITTEE ON NUCLEAR WASTE

JUNE 13, 2000

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This transcript had not been reviewed, corrected and edited and it may contain inaccuracies.

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON NUCLEAR WASTE

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119TH ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW)

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Nuclear Regulatory Commission  
Two White Flint North  
Room 2B3  
11545 Rockville Pike  
Rockville, MD 20852-2738

Tuesday, June 13, 2000

The Committee met, pursuant to notice, at 10:45  
a.m.

MEMBERS PRESENT:

- B. JOHN GARRICK, Chairman, ACNW
- GEORGE M. HORNBERGER, Vice Chairman, ACNW
- RAYMOND G. WYMER
- MILTON LEVENSON

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C O N T E N T S

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ATTACHMENT

PAGE

Technical Report on Low-Level

Waste Performance Assessment

7

NRC's Draft Policy Statement on

Decommissioning Criteria for the

West Valley Demonstration Project

and West Valley Site

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## P R O C E E D I N G S

[10:45 a.m.]

CHAIRMAN GARRICK: Good morning. Our meeting will come to order. This is the first day of the 119th meeting of the Advisory Committee on Nuclear Waste.

My name is John Garrick, Chairman of the ACNW. Other members of the committee include George Hornberger, Ray Wymer and Milt Levenson.

During today's meeting we will discuss committee activities and future agenda items; review and comment on the final draft version of the branch technical position on low level waste performance assessment; hear and discuss the results of public comments on a draft policy statement on decommissioning criteria for the West Valley Demonstration Project; and we will discuss plans for its own review of the Yucca Mountain site suitability and licensing application process, our task action plan.

Richard Major is the designated federal official for today's initial session.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act. We have received no written statements from members of the public regarding today's session. Should anyone wish to address the committee, please make your wishes known to one of the committee's staff. And, as usual, it is requested

1 that each speaker use one of the microphones, identify  
2 themselves and speak clearly.

3 Before proceeding with the first agenda item, I  
4 would like to cover a few items of interest. The committee  
5 is very pleased to welcome Milt Levenson as a new member of  
6 the committee. Milt was officially named to the Advisory  
7 Committee on Nuclear Waste by Chairman Richard Meserve on  
8 May 17th.

9 Also, we would like to welcome two new ACRS/ACNW  
10 staffers, Magdalene Weston and Jenny Gallo. And we have  
11 some changes in staff that we would like to acknowledge.  
12 Unfortunately, we are going to have to say farewell to Lily  
13 Gaskins, who has been a tremendous help to ACNW over the  
14 past six years. Lily has accepted a position with the  
15 Defense Intelligence Agency and we wish very well on her new  
16 career change.

17 As you know, on April 25th, President Clinton  
18 vetoed the High Level Nuclear Waste Bill. The bill approved  
19 by the Senate in February and the House in March would have  
20 provided for early receipt of civilian spent fuel at Yucca  
21 Mountain in the year 2007. The bill would have also limited  
22 EPA's authority to issue radiation standards, and the Senate  
23 failed to override the veto in an early May vote.

24 The State of Utah has received an application from  
25 Envirocare of Utah for Class B and C waste. The state will

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1 review the site and report, first, to decide whether it is  
2 acceptable before beginning a review of the application  
3 itself.

4           The Rocky Mountain Compact, which is Nevada,  
5 Colorado, New Mexico, expects to receive an application from  
6 Waste Control Specialists for a disposal site in New Mexico,  
7 across the Texas border from WCS's waste storage site. And  
8 this application is expected to include waste Classes A, B  
9 and C. Apparently, New Mexico is interested in the prospect  
10 of an application being submitted.

11           We have a couple of other items we want to  
12 mention. We are very pleased to announce that on June 22nd,  
13 Theron Brown will be receiving the Commission's meritorious  
14 award, Excellence Award for his outstanding contribution to  
15 the Commission. As you all know, Theron is the gentleman  
16 that makes possible all this audio-visual activity that we  
17 carry on in these meetings, and we are pleased that he is  
18 receiving this recognition.

19           I also want to note that on June 7th, the governor  
20 of South Carolina signed into law the Atlantic Interstate  
21 Low Level Radiation Waste Compact Implementation Act. I  
22 don't know, Howard, if you want to make a comment or two on  
23 what all that means, but you might want to.

24           MR. LARSON: No, not really. I did send to all  
25 the members the notice, the three page notice from the Low

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1 Level Waste Forum where, in addition, to indicating that  
2 South Carolina, New Jersey and Connecticut are this compact,  
3 there also is a gradual reduction in the quantities of waste  
4 that they will receive over the next several years.

5 I guess I would like to say one thing, John. John  
6 mentioned that there were two new members of the ACRS/ACNW  
7 staff, one of them Mag Weston, who is principally working  
8 with the ACRS, but she is today at Davis-Besse on a site  
9 tour with many members of the ACRS, and the other is Jenny  
10 Gallo, who is hiding over here, who many of you probably  
11 have not seen since she came since your last meeting. Jenny  
12 has helped Lynn out on a lot of things and will help us all  
13 out in budgeting analysis, presentations, innumerable  
14 things.

15 CHAIRMAN GARRICK: Is she tied to the California  
16 Gallo family?

17 [Laughter.]

18 MR. LARSON: Do you want a free tour of the  
19 winery, John?

20 CHAIRMAN GARRICK: All right.

21 MR. LARSON: I don't know.

22 CHAIRMAN GARRICK: I think that is -- do you have  
23 anything you want to add to any of this?

24 [No response.]

25 CHAIRMAN GARRICK: Okay. The first item on our

1 agenda is low level waste branch technician position on  
2 performance assessment. As all of you know, this has been a  
3 major issue. It has been a difficult task in trying to  
4 achieve a reason balance between the traditional ways of  
5 doing performance assessment and the corporation in the  
6 methods of a risk-informed approach. And I know that both  
7 options are available as a result of the branch technical  
8 position, and we are going to hear about that and a lot more  
9 from Mark Thaggard.

10 Mark, do you want to introduce yourself and tell  
11 us what you are going to tell us?

12 MR. THAGGARD: Okay. Can everybody hear me? I  
13 might be a little loud.

14 Okay. My name is Mark Thaggard, I am a senior  
15 analysis in the Division of Waste Management, and as Dr.  
16 Garrick pointed out, this effort has been going on for quite  
17 some time. And as I was talking to Andy Campbell before the  
18 meeting, I am kind of like the last man standing on this.  
19 There have been quite a few other people that have worked on  
20 this effort in the past.

21 What I am going to be talking about today is the  
22 technical report on low level waste performance assessment.  
23 I have gone my phone number and e-mail address here in case  
24 anyone has some follow-up questions.

25 The outline of my presentation, first of all, I

1 would like to go over the purpose of the presentation,  
2 specifically, what we are hoping to get from the committee.  
3 Provide some background information on development of the  
4 document, and I think this may be kind of pertinent  
5 considering the fact that the document has been around for a  
6 number of years and I believe the last time we briefed the  
7 ACNW was back in 1995. And, so, we have gotten a lot of new  
8 members since that time.

9 Also, as part of the background, I would like to  
10 talk a little bit about some of the attributes of the  
11 performance assessment that is discussed in the document,  
12 along with some positions that we have taken in the  
13 document.

14 The primary purpose, I mean the primary thing that  
15 I would like to cover today is the comments that we got on  
16 the document and how we are proposing to respond to those  
17 comments, along with the revisions that we are making to the  
18 document. And then I would like to end with a brief  
19 summary.

20 We plan to publish the document as a NUREG and  
21 provide it to the Commission for information purposes. We  
22 were directed by the Commission, and I will go into this in  
23 a few minutes, but we were directed by the Commission a  
24 while back to go out for public comments on the document, so  
25 we feel obligated to go back to the Commission and let them

1 know how we are responding to the comments. So, we would  
2 like to -- we would be very interested in any feedback we  
3 can get from the committee on how we are addressing the  
4 comments and also how we are proposing to change the  
5 document in general.

6 Okay. Now, I would like to kind of walk through a  
7 little bit of the history of the development of the  
8 document. As most of you may recall, back in the late '80s  
9 and the early '90s, there were a lot of activities going on  
10 in the low level waste area. States were forming compacts.  
11 Some states were actually in the process of licensing low  
12 level waste disposal facilities, all in an effort to meet  
13 some milestones within the Low Level Policy Amendment Act of  
14 1985, which had 1993 and 1996 milestones.

15 In 1987, the NRC developed what we call the  
16 performance assessment strategy, and that was actually  
17 authored by John Steimer, who I see sitting in the back,  
18 along with Lynn Deering.

19 We also contracted with Sandia National Laboratory  
20 to develop what we called the performance assessment  
21 methodology, which they documented in a series of NUREGs,  
22 5453.

23 Now, as I indicated, -- let me flip this around.  
24 As I indicated, back in the early '90s, we were having a lot  
25 of activities in the low level waste area, and the

1 Commission became concerned at that time as to whether or  
2 not, if we got a license application, whether or not we  
3 would be able to review that application within 15 months,  
4 as was called for in the Policy Amendment Act.

5 So, the Commission directed the staff through a  
6 SRM to develop a plan for enhancing its performance  
7 assessment capabilities in the low level waste area. And,  
8 so, with SECY-92-060, the staff developed a plan for  
9 enhancing its performance assessment capabilities and a key  
10 component of that was development of some guidance on how to  
11 conduct performance assessments. So, that is kind of where  
12 we -- how we got started in this effort.

13 In the early '90s, the staff from NMSS and  
14 Research, in what we called the Performance Assessment  
15 Working Group, developed a preliminary draft for the  
16 document. In parallel with that, we conducted a test case  
17 analysis where we actually were trying to analyze a  
18 hypothetical low level waste facility. This not only  
19 allowed us to look at some of the assumptions and approaches  
20 that we were proposing to put in the document, but it also  
21 gave us a way to help enhance the staff performance  
22 assessment capabilities.

23 After we developed a preliminary draft of the  
24 document, we had public workshops. We also briefed ACNW at  
25 that time. And, based upon the feedback we got from these

1 groups, we revised the document. And in 1996, we developed  
2 a draft version of the document, went up to the Commission  
3 with the draft and requested permission to go out and seek  
4 public comments on the document.

5 In this SECY paper, we also identified four  
6 regulatory positions that were taken in the document, and I  
7 am going to go over those in a few minutes.

8 In a staff requirements memorandum in August of  
9 '96, the Commission approved the staff request to go out  
10 for public comments on the document. In addition, the  
11 Commission asked the staff, prior to finalizing the  
12 document, to come back to the Commission with additional  
13 technical justification for truncating the performance  
14 assessment analysis at 10,000 years. This was one of the  
15 policy issues addressed in this SECY paper here.

16 The staff requirements memorandum also directed  
17 the staff to seek public views on this issue of dose  
18 discounting, which has to do deal with the current economic  
19 cost of design and performance against future health risk.  
20 This issue wasn't addressed in a document, but the  
21 Commission for some reason asked staff to get public views  
22 on it.

23 So, through a Federal Register Notice in 1997, we  
24 went out, made announcement on the availability of the  
25 document. Although it was like a 90 day time period for

1 getting comments, we are just getting around to finalizing  
2 the document this fiscal year, because we have obviously had  
3 some cutbacks in our low level waste program and, also, we  
4 have had some other higher priority work.

5 I will point out that completing the document is  
6 in the agency's performance plan for this fiscal year to be  
7 completed, so it is important that we get it done this year.

8 And the last thing I would like to point out is  
9 that our original plan was to finalize the document as a  
10 branch technician position, and now we are planning to  
11 simply publish it as a NUREG document.

12 MR. HORNBERGER: I understand all the difference  
13 in the letters, Mark, but what does that last thing mean?

14 MR. THAGGARD: Branch technical position?

15 MR. HORNBERGER: Well, no, I mean I understand the  
16 branch technical position and a NUREG. What is the  
17 difference between publishing it as one and not the other?

18 MR. THAGGARD: A branch technical position carries  
19 a little bit more weight to it. It is similar to like a  
20 guidance document that basically laws out approaches that  
21 the agency finds acceptable. Whereas, basically, anybody on  
22 staff can develop a NUREG and state their position. So, the  
23 positions in the document can be just the positions of the  
24 Performance Assessment Working Group, they don't necessarily  
25 have to be the position of the agency. Whereas, if it was a

1 branch technician position, it would be stating, you know,  
2 we would be stating that these are the agency's positions.  
3 So, I don't know if that gives you a flavor.

4 CHAIRMAN GARRICK: Well, does that really mean  
5 then you are still undecided about what the position of the  
6 branch is?

7 MR. THAGGARD: No, I think -- one of the reasons  
8 for just publishing it as a NUREG is that, obviously, our  
9 involvement in the low level waste area has been greatly  
10 reduced over the years. And, so, there is really less of a  
11 need to put out a document which -- I mean a document of the  
12 stature of a branch technician position. However, there may  
13 be some useful information in there that we can give the  
14 Agreement States and some of the other people that are  
15 involved in conducting performance assessment, and we  
16 probably ought to share that information with those other  
17 groups.

18 I don't know if this has anything to do with the  
19 fact that positions are not clear. I mean, obviously, some  
20 of these positions are policy issues and they have gone up  
21 to the Commission once. And our plan was to go back to the  
22 Commission -- I mean our plan is to go back to the  
23 Commission again, but I don't know if that really weighs  
24 into it. We can get into that some more if you want.

25 When we started developing the branch technical

1 position, one of the things that we did was we looked at  
2 some of the approaches that were being used for doing  
3 performance assessments and looked at some of the concerns  
4 that we had with the approaches that were being used, and  
5 tried to factor these into the document.

6 One of the clear concerns we had was that most of  
7 the performance assessments that were being done at that  
8 time, they were not done integrating the site  
9 characterization and the designs, it was almost done as a  
10 separate entity.

11 Another concern is that most of the site  
12 characterization work focused primarily on the groundwater,  
13 and in some cases it turned out the groundwater may not have  
14 been that important of a pathway.

15 And, also, most of the performance assessments  
16 done at that time, there was very little consideration given  
17 to the treatment of uncertainty.

18 So, in developing the performance assessment  
19 approach that is in the document right now, there are  
20 certain attributes that I would like to discuss. First of  
21 all, it is designed to look at long-term performance that is  
22 post-closure. And, so, issues associated with inadvertent  
23 intruder or dose to the public during operation, they are  
24 not really covered under the performance assessment approach  
25 that we are talking about here, although the document does

1 talk a little bit about the consideration of inadvertent  
2 intruders.

3           The performance assessment approach in the  
4 document is structured after the performance assessment  
5 methodology that was laid out in those series of NUREGs  
6 developed by Sandia National Laboratory. I apologize for  
7 the quality of this. But, basically, what we have tried to  
8 do in the document is each one of these areas here, we have  
9 tried to address concerns or approaches of how to analyze  
10 each of these technical areas. So, if you go through the  
11 document, you will see a section on each of these technical  
12 areas.

13           Another key aspect of the document -- I apologize,  
14 I am flipping back and forth to page 8. Another key  
15 consideration in the document is that the performance  
16 assessment approach that we laid out calls for an iterative  
17 process. Basically, what this means is that we are  
18 suggesting that people start the assessment using the  
19 available information that they have, develop their  
20 conceptual models and their mathematical models, carry out  
21 the analysis, and then do some sensitivity analysis. And  
22 from those sensitivity analyses, they can identify the key  
23 assumptions and parameters that are driving the analysis and  
24 that can feed into their site characterization and their  
25 design, and then they can update the analysis as necessary,

1 so it will be an iterative process. And this would allow an  
2 integration of the site characterization and the design with  
3 the performance assessment.

4 And the last thing, the last attribute I would  
5 like to point out is that we obviously tried to cover the  
6 issue of the treatment of uncertainty, which I am going to  
7 talk about in a few minutes.

8 Okay. Now, I would like to talk briefly about the  
9 four regulatory positions that are stated in the document.  
10 As I indicated that SECY paper that we went up to the  
11 Commission, we identified four policy positions. And I  
12 would just like to touch upon what those are in the  
13 document.

14 The first position has to do with the timeframe of  
15 the analysis. If you look at 61.41, there is no definitive  
16 timeframe as to over which the analysis should be carried  
17 out. And, so, we tried to address this document, and our  
18 position is that the analysis should be carried out 10,000  
19 years, but if you have got peak doses beyond 10,000 years,  
20 you should look at that information and use it, because it  
21 might be able to help determine whether or not there is some  
22 need for inventory limits or something of that nature. So,  
23 it is a two part approach that has a 10,000 year compliance  
24 period, with a qualitative evaluation beyond 10,000 years.

25 Another regulatory position had to do with the

1 consideration of future site conditions and processes. And  
2 this concerns what assumptions should be made about the  
3 condition of the site in the future. And our position in  
4 the document is to use a "reference geosphere" and  
5 "reference biosphere" based upon current site conditions.

6 CHAIRMAN GARRICK: Do you have any sense of what  
7 fraction of the low level waste would have peak doses beyond  
8 the 10,000 year compliance period?

9 MR. THAGGARD: No, I don't know if I have a  
10 specific number. We did some analysis as part of the test  
11 case, and we found that most of the peaks were occurring  
12 within 10,000 years. Obviously, in some cases you are going  
13 to see that if you have got, for example, large quantities  
14 of uranium or some other transuranics, or if you are in an  
15 arid environment, for example, you may get cases where --  
16 but I don't know if I have a definitive number on that. But  
17 in the analysis that we looked at, most of the peaks  
18 occurred within 10,000 years.

19 CHAIRMAN GARRICK: Yes. The only reason for  
20 asking the question, of course, is it is my understanding  
21 that a lot more of the low level waste is contaminated with  
22 uranium than we had ever envisioned, and that could play a  
23 role in the peak dose calculation.

24 MR. THAGGARD: Yes, that is correct. And I see  
25 Andy wanting to make a comment on that.

1 MR. CAMPBELL: Yes. We looked at different  
2 timeframes and for the mobile radionuclides like iodine-129,  
3 chlorine-36, tech-99, most of the doses occurred fairly  
4 early.

5 CHAIRMAN GARRICK: Right.

6 MR. CAMPBELL: Basically, you have very little KD.  
7 So, as soon as your cover has failed, and you get natural  
8 infiltration, then you see a dose, and that usually occurs  
9 within the first thousand years. You see doses later on  
10 from things like radium put into a low level waste site. At  
11 very long timeframes, you can see doses due to the in-growth  
12 of daughters of uranium. But those in-growth doses don't  
13 become, you know, don't begin to approach the limit until  
14 you are a 100,000, 200,000, 300,000 years out.

15 CHAIRMAN GARRICK: Right.

16 MR. CAMPBELL: For the kind of inventory we did in  
17 the test case, which was a few hundred curies of uranium.

18 CHAIRMAN GARRICK: Yes.

19 MR. THAGGARD: Yes. I think to answer your  
20 question, though, I don't know what percentage of low level  
21 waste sites have a higher percentage of uranium than we  
22 originally anticipated.

23 CHAIRMAN GARRICK: Right.

24 MR. THAGGARD: I don't really have the answer to  
25 that.

1 Another regulatory issue, regulatory position that  
2 we took in the document has to do with the performance of  
3 engineered barriers, and this relates to how long should we  
4 assume that the barriers remain effective in terms of  
5 isolating the waste. The position we took in the document  
6 is that beyond the 500 years, the barriers should be assumed  
7 to be degraded, however, structure stability and chemical  
8 buffering could be considered to last longer than 500 years.

9 The last regulatory position dealt with the  
10 treatment of sensitivity and uncertainty. And a couple of  
11 questions that we tried to address is whether or not  
12 deterministic or probabilistic analysis should be used. And  
13 for probabilistic analysis, what part of the distribution  
14 curve should be used to make the determination of  
15 compliance?

16 The position we took in the document is that  
17 either deterministic or probabilistic analysis could be  
18 used. For deterministic analysis, the analysis should be  
19 demonstrably conservative is the position that we took. And  
20 for probabilistic analysis, the mean of the distribution  
21 should be less than the performance objective and the 95th  
22 percentile should be less than 100 millirem.

23 Okay. That is just to touch upon the four  
24 regulatory positions in the document. Now, I would like to  
25 go over some of the comments that we got on the document.

1 First, as an overview, we sent out over 200 copies of the  
2 document in response to that Federal Register Notice, and we  
3 only got comments from 17 different organizations. These  
4 included Agreement States, Non-Agreement States, two federal  
5 agencies and some other organizations such as NEI and some  
6 of the low level waste disposal facility operators.

7 On balance, the comments that we got were somewhat  
8 favorable. We got comments such as the document fulfills a  
9 need, it is well written. It reinforces ongoing efforts,  
10 and it provides helpful and useful guidance. So, on  
11 balance, the comments we got were favorable.

12 The comments that we did receive focused primarily  
13 on those four regulatory positions I just touched upon. We  
14 also got some comments on the dose methodology, ALARA,  
15 institutional controls and groundwater protection, and I  
16 will go over these in a few minutes.

17 A key revision that we are going to make to the  
18 document, as I pointed out at the beginning, is that we are  
19 not going to publish the document as a branch technical  
20 position but now our intention is to simply publish it as a  
21 NUREG. So, the positions in the document are going to be  
22 the positions of the Performance Assessment Working Group.

23 Okay. Now, I would like to touch upon some of the  
24 key comments we got. First, the comments on the time of  
25 compliance seemed to be a big issue. And we got, basically,

1 comments all over the place. Some commenters suggested that  
2 a shorter time should be used, such as 500 years. We also  
3 got comments that the 10,000 year compliance period that is  
4 recommended is appropriate, it serves as a good balance  
5 between these two. And then we got comments that the 10,000  
6 year period was not long enough, that the dose should be  
7 carried out to peak regardless of what time that is.

8 And our response is, right now is that we believe  
9 that the 10,000 year compliance period is still appropriate  
10 because it generally includes the period of time when the  
11 waste is most hazardous. It is sufficiently long to allow  
12 evaluation of the natural system, whereas, if you use a  
13 shorter time, you are primarily look at an evaluation of the  
14 performance of the engineered barriers. And, also, it is  
15 consistent with the other regulations, not only NRC  
16 regulations, but EPA's regulations. So, we feel that the  
17 10,000 year compliance period is still appropriate.

18 Just to give you a little bit more information on  
19 that, some of the rationale we came up with for developing  
20 the 10,000 years is that we think that the time of  
21 compliance should provide a good basis for distinguishing  
22 between good sites and bad sites. And what I mean by that  
23 is that -- one of the comments that we got on the document,  
24 people suggested that, well, we should use a shorter time  
25 period such as 500 years because there is so much

1 uncertainty in the analysis that we won't have much  
2 confidence in the results beyond a fairly short period of  
3 time.

4           And our position is that the goal of the analysis  
5 is not to come up with a true prediction of what the doses  
6 are going to be, but, you know, to test the robustness of  
7 the facility. And, so, we don't necessarily have to get an  
8 accurate estimate.

9           The other thing is that we think that the time of  
10 compliance should allow us to look at multiple barriers,  
11 whereas, if we were using a shorter time period such as 500  
12 years, we would be primarily just looking at the performance  
13 of the engineered system, whereas, if we allow a longer time  
14 period, that allows us to evaluate the performance of the  
15 natural setting. And, also, we believe that the time of  
16 compliance should not arbitrarily limit the information to  
17 decision-makers. And we think that the approach that we  
18 have come up with, the approach that we have advocated in  
19 the document allows us to do this, and this was also a  
20 recommendation by the National Academy of Sciences of the  
21 technical basis for Yucca Mountain.

22           Some other considerations for the use of the  
23 10,000 years is we believe that, generally, PA calculations  
24 are more reliable for estimating dose than estimating the  
25 time of occurrence of the dose. And, so, you may wind up

1 having to do some complex analysis to demonstrate compliance  
2 if you are relying on delaying the releases.

3 MR. HORNBERGER: Mark, do you have any basis for  
4 that first bullet, or is that just the gut level feeling of  
5 the working group?

6 MR. THAGGARD: I think it is the gut level  
7 feeling. Although I think the genesis of this actually came  
8 from some analysis that was done in the high level waste  
9 program. I think they did a lot of analysis in there, and I  
10 think this was the general conclusion that they were drawing  
11 from their analysis.

12 Also, there was limited support for a shorter  
13 compliance period such as a thousand years when EPA went out  
14 for soliciting comments on their proposed 10,000 year  
15 compliance period. A 10,000 year compliance period was -- I  
16 mean a 10,000 year timeframe was also used by several of the  
17 states in their assessments, and it was also used in the  
18 draft EIS in developing the rule. So, those are just some  
19 other considerations.

20 Okay. Now, to move on to another regulatory  
21 position. We got comments on the position on the  
22 performance of the engineered barriers. The general  
23 comments that we got is that the assumed 500 year life is  
24 arbitrary and without technical justification. We also got  
25 comments that having a 500 year performance life would tend

1 to discourage research to improve barrier performance.

2           And our general response is that we think 500  
3 years is appropriate because it allows, it generally allows  
4 sufficient time for decay of the short-lived radionuclides,  
5 which is primarily what the engineered barriers are designed  
6 to protect us from. And, also, we reiterate the fact that  
7 the document does allow people to assume longer time  
8 periods, they just need to justify it. So, although we do  
9 provide a 500 year timeframe in the document, people can use  
10 longer timeframes if they can justify it.

11           And the other thing that I point out is that the  
12 document reiterates the need that, no matter what time  
13 period you use, whether it is less than 500 or beyond 500,  
14 you need to provide a justification for it. And the simple  
15 fact that the document reiterates the need for this  
16 justification, we think that in itself should help continue  
17 to encourage research into the performance of the barriers.

18           We also got comments on the position on future  
19 site conditions. Some of the comments we got were that  
20 uncertainties in human activity should be considered, use of  
21 the "critical group" concept was not justified. And our  
22 responses are that consideration of future human activities  
23 we think is highly speculative, and there is really no  
24 scientific or technical answer on that. The use of the  
25 "reference biosphere" and "critical group" concept is

1 consistent with international opinion and practice.

2 We also got comments on the treatment of  
3 uncertainty. Some of the general comments we got are that  
4 use of the mean is not justified. Use of the mean is  
5 appropriate, but it may be difficult to communicate to the  
6 public. And we took that to mean that it may be difficult  
7 for the public to accept. Also, we got comments that use of  
8 probabilistic analysis in general could be an invitation to  
9 failure.

10 And our response is the selection of the mean has  
11 both policy and technical considerations, so, we can't just  
12 give a technical reason for why we selected the mean,  
13 although we believe that the use of the mean provides the  
14 best estimate of the system performance. We think that the  
15 approach that we have laid out for doing the performance  
16 assessment in the document will help identify the sources of  
17 uncertainty and that in itself should help build confidence  
18 in the results.

19 CHAIRMAN GARRICK: I don't suppose you would want  
20 to be so bold as to say that the use of the whole curve  
21 provides the best estimate of the system performance.

22 MR. THAGGARD: Excuse me, did I miss --

23 CHAIRMAN GARRICK: Instead of a part of the curve.  
24 Well, I am just needling you a little bit.

25 MR. THAGGARD: Okay.

1           CHAIRMAN GARRICK: I can't agree that the mean  
2 provides the best estimate of the system performance. It is  
3 the best estimate if you are going to have to lean on a  
4 central tendency parameter.

5           MR. THAGGARD: Yes.

6           CHAIRMAN GARRICK: But the best estimate is to  
7 tell a whole story, and the whole story is the whole curve.

8           MR. THAGGARD: Okay. The last point on this is  
9 that the proposed approach that we are taking is consistent  
10 with approaches that are being used in other program areas.

11           Okay. Now, those were some of the comments that  
12 we got on the four regulatory positions. Now, I would like  
13 to walk through some of the other comments that we received.  
14 We got some comments on the fact that the document  
15 recommends that people use the conventional TEDE calculation  
16 in doing their dose analysis, whereas, the standard is based  
17 on this ICRP whole body -- ICRP 2 whole body methodology.  
18 And, so the, standard is a little bit outdated, and, so, we  
19 got some comments on that.

20           And our response is that the Commission, as a  
21 policy, the Commission generally considers the use of the  
22 TEDE to be appropriate for evaluating against the ICRP 2  
23 whole body methodology.

24           We also got a suggestion that the document needs  
25 to provide guidance on how people should do ALARA,

1 demonstrate ALARA, because that is a requirement in the rule  
2 And, so, we have included some discussion in the document to  
3 spell out a little bit how people can do that in terms of  
4 looking at the cost and benefits of various designs.

5 We got a comment on institutional controls and  
6 that institutional controls should be maintained at the  
7 disposal site as long as the waste remains hazardous. And  
8 our response is that Part 61 obviously limits reliance on  
9 institutional control to 100 years, but we think in most  
10 cases they are going to probably be maintained much longer  
11 than that.

12 CHAIRMAN GARRICK: Now, is hazardous greater than  
13 25 mr, is that what you mean by hazardous?

14 MR. THAGGARD: Well, I am just restating what the  
15 comment is, so you kind of have to leave it to your own  
16 interpretation of how want to interpret that.

17 CHAIRMAN GARRICK: Okay.

18 MR. THAGGARD: That is what I would -- that is how  
19 I would interpret it.

20 We also received comments from EPA that meeting  
21 61.41 will not ensure compliance with the EPA's MCLs. And  
22 our responses are that the comment, for the most part, is  
23 beyond the scope of the document, since it deals with the  
24 specific language in the rule. But we feel that the current  
25 regulations provide adequate protection. MCLs were not

1 developed specifically for groundwater protection and MCLs  
2 are based on an outdated modeling approach.

3           Some other comments that we received, we got some  
4 suggestions that the test case analysis that we worked on  
5 should be documented, because it could provide a useful  
6 example. And our response is that, because of limited  
7 resources and other priority work, the agency has decided  
8 not to publish the document. However, it was presented as  
9 part of a two day public workshop, so it was made available  
10 to the public.

11           We also got a suggestion that the document should  
12 advocate the use of peer reviews, and we kind of agree with  
13 this suggestion, and, so, we have included some language in  
14 the document encouraging the use of peer reviews and expert  
15 elicitation.

16           We got a comment that the document should address  
17 the issue of criticality. And as noted by the commenter, we  
18 feel that there is an extremely remote possibility of this  
19 occurring, because in most cases we think that appropriate  
20 measures are going to be taken during site operation to  
21 prevent this from happening. And, also, we note that the  
22 agency is also planning to develop some additional guidance  
23 on this.

24           Okay. Now, I would like to just touch upon some  
25 of the key revisions we are planning to make to the

1 document. First of all, we have responded to every comment  
2 that we got. As I indicated, we got 175 comments, depending  
3 upon how you count them. We have developed a response to  
4 each comment, although I have tried to summarize them here  
5 today, and that is going to be included as an appendix to  
6 the document.

7 We also felt that it would be important to include  
8 the Commission's policy statement on the use of PRA methods,  
9 and, so, we are going to include that as an appendix to the  
10 document.

11 We got a couple of comments suggesting that we  
12 provide additional information the performance of engineered  
13 barriers and, so, we have included a bibliography on  
14 engineered and natural barriers.

15 We have also revised the approach that we are  
16 advocating on how to deal with the treatment of uncertainty,  
17 and I am going to touch upon that in a few minutes. And, as  
18 I indicated, we have provided some discussion in the  
19 document on the Commission's position on the use of TEDE,  
20 and we provided some information on how to demonstrate  
21 ALARA, along with recommendations on the use of peer review  
22 and expert elicitation. And throughout the document, we  
23 have tried to provide additional clarification in some other  
24 areas where we felt that was needed based upon the comments  
25 that we got, including expanding the glossary.

1           And as the last bullet here, which you may not be  
2 able to hardly see, notes, as I have stated before, our plan  
3 is to publish the document now as a NUREG.

4           Okay. I would just to touch upon what we are  
5 proposing to do with this approach on the treatment of  
6 uncertainty. As I indicated before, in the previous  
7 approach, we were advocating for probabilistic analysis that  
8 the mean of the distribution should be less than 25 millirem  
9 and the 95th percentile of the distribution should be less  
10 than 100 millirem. That was the approach that we previously  
11 advocated.

12           Now, we are advocating something slightly  
13 different in that we are saying that the peak of the mean  
14 dose as a function of time should be less than 25 millirem  
15 and the plot of the upper 95th percentile should be less  
16 than 100 millirem. And I will give you an example of this  
17 in a minute.

18           Now, the reason for this change is not based upon  
19 the comments that we got, but we feel that this approach is  
20 generally consistent with the approach that is being used in  
21 the high level waste program and, also, what we are  
22 proposing in the decommissioning program. And, also, we  
23 think that this provides better representation of risk to an  
24 individual and, so, it should be a little it more in line  
25 with the agency's risk-informed regulatory philosophy.

1           Okay. We look at these two curves here, this kind  
2 of shows what we are doing. In the previous approach for  
3 the treatment of uncertainty, what we were saying is that if  
4 you take a look at the distribution of peak doses, the mean  
5 of that distribution should be less than the 25 millirem,  
6 and the 95th percentile of the distribution should be less  
7 than 100 millirem.

8           The approach that we are advocating now is that  
9 you take a plot of mean doses, these are mean doses at  
10 individual times and if you plot those over time, that  
11 should be less than 25 millirem. And if you take the 95th  
12 percentile doses at time and plot that over time, that  
13 should be less than 100 millirem. So, that is the approach  
14 that we are advocating now.

15           Okay. It is not clear?

16           MR. HORNBERGER: It is clear, but I can't believe  
17 that that is an approach used in high level waste. You are  
18 taking the mean dose at time K.

19           MR. THAGGARD: Yes.

20           MR. HORNBERGER: From a variety of realizations.

21           MR. THAGGARD: Yes. And you are plotting that  
22 over time.

23           MR. HORNBERGER: And you are plotting that over  
24 time.

25           MR. THAGGARD: And you are taking the peak of

1 that.

2 MR. HORNBERGER: I think that I could -- it  
3 wouldn't take me long to think of a pathological case that  
4 would give you the nonsensical result. I'm sorry. Never  
5 mind. Go ahead, Mark.

6 MR. THAGGARD: Okay.

7 MR. McCARTIN: Well, I guess, for high level  
8 waste, I mean we are taking -- Tim McCartin, NRC staff. For  
9 high level, I mean we are creating a mean dose curve that is  
10 the summation of all the different realizations, and then  
11 you are just taking the highest dose on that curve at each  
12 -- at a particular instant in time, say, at 100 years, if  
13 you did 100 realizations, you would have 100 estimates of  
14 the dose.

15 MR. HORNBERGER: Yeah.

16 MR. McCARTIN: And you would take the mean. And  
17 if you go to 200 years and do the same thing.

18 MR. HORNBERGER: Right. And Part 63 is based on  
19 the peak of that curve?

20 MR. McCARTIN: Right. From a risk standpoint, you  
21 are looking at -- previously, as Mark indicated, if you just  
22 took the mean of the peaks, you would be averaging a peak  
23 at, say, a 2,000 year dose with a 200.

24 MR. HORNBERGER: Right.

25 MR. McCARTIN: And then you don't -- in terms of

1 an individual risk, it wasn't a good reflection of  
2 individual risk is why we went to the peak of the means.

3 CHAIRMAN GARRICK: Did you consider doing it in  
4 CCDF form? Where you have probability as a parameter, and  
5 each member of the family constitutes a percentile. So that  
6 would be a nice way to do this, too, I would guess. We can  
7 talk about that offline.

8 MR. McCARTIN: Okay.

9 MR. HORNBERGER: Let me make sure that the  
10 difference between the previous approach and the proposed  
11 approach are clear. The distribution that Mark is talking  
12 about in the previous approach was really, say, you did  
13 several hundred realizations, from each realization, you  
14 would find the peak dose. Then you would take the mean of  
15 that value and that is what you would compare to the Part 61  
16 dose limit. As Tim pointed out in the --

17 MR. McCARTIN: And you are talking any account of  
18 the time that that occurs?

19 MR. THAGGARD: That's correct.

20 MR. HORNBERGER: That's right. And the approach  
21 that Tim is talking about, you take whatever, several  
22 hundred realizations and you make a mean dose versus time  
23 curve, and then pull the peak off of that, so there is a  
24 significant difference between how you do it.

25 MR. McCARTIN: Yeah, I can understand the CCDF

1 approach quite clearly that John mentioned, but there is  
2 something logically wrong to me doing the calculation the  
3 way you just described and using that as a standard.

4 CHAIRMAN GARRICK: We need to pursue this further.

5 MR. HORNBERGER: Yes.

6 MR. THAGGARD: Okay. Now, I would just like to  
7 summarize real quickly. As I stated, on balance, the  
8 comments that we got on the documents were fairly favorable,  
9 although I kind of gave you the bad side of the picture by  
10 giving you the comments.

11 The positions in the document remain largely  
12 unchanged, except with this treatment of uncertainty issue.  
13 The other positions remain pretty much unchanged, although,  
14 as I indicated, because we are going to publish the document  
15 simply as a NUREG, these are going to reflect the views of  
16 the Performance Assessment Working Group. And, as I  
17 indicated, we revised the position on the treatment of  
18 uncertainty to try to be more consistent with what is being  
19 done in the other program areas.

20 We have responded to all the comments  
21 individually, so, if you go to the document and look in that  
22 appendix, you will see that we responded to each of the  
23 comments. And then we just tried to provide additional  
24 information as needed in the document to make it a little  
25 bit clearer. So, that pretty much concludes that I had to

1 go over and I will try to answer your questions.

2 CHAIRMAN GARRICK: Well, let me go around the  
3 committee. Milt, do you have some questions?

4 MR. LEVENSON: No.

5 CHAIRMAN GARRICK: Ray?

6 MR. WYMER: I have a comment. At a very high  
7 philosophical level, I was struck by the very great  
8 similarity, in general, in how this was treated and how the  
9 high level waste in the Yucca Mountain repository is  
10 treated. I mean the whole strategic approach was very  
11 similar, with an outstanding exception, and it seems to me  
12 sort of anomalous.

13 The exception is that you limit the lifetime of  
14 barriers, without additional justification, to 500 years.  
15 This is for low level waste. There is no such limit on the  
16 high level waste repository. And it seems to me that it  
17 would be more desirable for that situation to be reversed,  
18 considering the hazard posed by the types of waste. So, I  
19 wondered why you stuck the 500 years in there when it is not  
20 there in the high level waste. It seems sort of  
21 inconsistent.

22 MR. THAGGARD: Yeah. We got a lot of comments on  
23 that, people suggesting that we shouldn't have any time  
24 limit in there. One of the reasons for the 500 years is  
25 because it is the general feeling that, for low level waste,

1 most of the hazard -- I mean most of the short-lived  
2 radionuclides are going to be decayed after 500 years. And  
3 that is primarily what the barriers are designed to protect  
4 you for.

5 MR. WYMER: But that is no justification for  
6 putting a 500 year limit on it. Anyway, that is an  
7 observation.

8 And my second observation is -- okay, Tim.

9 MR. McCARTIN: Yeah. Tim McCartin. I mean we did  
10 not impose a strict limit of 500 years. We thought after  
11 500 years it would be increasingly difficult, with little  
12 benefit. But there is not -- as Mark indicated, whatever  
13 credit they -- likewise, we weren't giving 500 years credit  
14 with no support. Whatever a licensee came in with, they  
15 would have to defend. We only gave the idea that after 500  
16 years, the benefit of taking credit for it would be fairly  
17 diminished, because you would have to go to very long  
18 periods then because, you know, the remaining hazard is  
19 there for almost forever.

20 MR. WYMER: Really, the thrust of the comment had  
21 to do with the difference between the high level waste and  
22 the low level waste, as opposed to what you did for low  
23 level waste.

24 MR. THAGGARD: Yeah, but you are probably looking  
25 at a different type of barriers, too. I mean what we did in

1 coming up with the 500 year number is the engineers that  
2 were involved in this effort, they looked at the different  
3 type of engineering components that you are likely to see in  
4 a low level waste site. And, quite frankly, it was their  
5 expert opinion that they didn't think you could rely on  
6 these any more than 500 years.

7 Now, if they looked at the type of components that  
8 is in a high level waste program, they may have looked at  
9 something -- I mean they may have come up with a different  
10 number. Unfortunately, they have since retired, so, we  
11 can't -- we can't get into that discussion with them.

12 MR. McCARTIN: Well, with respect to high level  
13 waste, I mean, once again, DOE has the flexibility to come  
14 and defend whatever number they come up with. We haven't  
15 specified any minimum value. There is a difference in that  
16 there is a -- the hazard level is higher for the high level  
17 waste repository, and, so, they may -- there is  
18 justification and merit in creating, obviously, a much  
19 longer-lived container.

20 Low level waste, it was primarily earthen covers  
21 and concrete. And so --

22 MR. WYMER: Yeah, I realize that. It just seems  
23 to me you sort of set yourself up for a problem.

24 My second observation is you have managed to  
25 destroy my confidence in the use of NUREG documents.

1 [Laughter.]

2 MR. THAGGARD: Okay. Well, at least I  
3 accomplished something here today.

4 MR. HORNBERGER: Mark, following up on Ray's NUREG  
5 versus BTP again, somewhere in here, in your presentation, I  
6 can't find it right now, but you said that the positions  
7 were going to be taken out of the document.

8 MR. THAGGARD: Well, what I said was that the  
9 positions were going to be rephrased as being positions from  
10 the Performance Assessment Working Group, as opposed to --

11 MR. HORNBERGER: But I mean you are still going  
12 to --

13 MR. THAGGARD: Yeah, the positions are going to  
14 still -- yeah.

15 MR. HORNBERGER: The position was going to still  
16 be given that 10,000 years was the correct timeframe.

17 MR. THAGGARD: That's correct.

18 MR. HORNBERGER: And all the other things that you  
19 mentioned.

20 MR. THAGGARD: That's correct.

21 MR. HORNBERGER: Okay. And do you give any  
22 guidance in the BTP -- well, the NUREG, the NUREG for how  
23 one would use the information on calculations beyond 10,000  
24 years?

25 MR. THAGGARD: Yeah. I mean one example is, as I

1 indicated, maybe to possibly identify the need for inventory  
2 limits. There may be some other --

3 MR. HORNBERGER: I mean what would lead you to  
4 conclude that inventory limits were necessary?

5 MR. THAGGARD: Well, obviously, if you are getting  
6 doses that is going to exceed the limit -- I mean the  
7 standard, that may be something you need to take a look --

8 MR. HORNBERGER: Exceeding 25?

9 MR. THAGGARD: Yeah. I mean if you are getting  
10 significant doses at that point, then you -- I don't know if  
11 we specify a specific number in terms of --

12 MR. HORNBERGER: Yeah. Well, that was --

13 MR. THAGGARD: Yeah, I don't believe the document  
14 does that.

15 MR. HORNBERGER: But I mean is the general gut  
16 level feeling, again, of your group that if you calculated a  
17 peak dose at 50,000 years of 100 millirem, that that would  
18 be what would lead you to conclude that something was  
19 needed? Or 26 millirems --

20 MR. THAGGARD: Yeah. We didn't really specify  
21 that and maybe, you know.

22 MR. HORNBERGER: Well, I wasn't asking for -- I  
23 mean I don't think you would want to specify a number, or  
24 else it would become a de facto regulation.

25 MR. THAGGARD: Yeah.

1 MR. HORNBERGER: But I was just curious whether  
2 you think guidance --

3 MR. THAGGARD: Well, I think the -- well, the  
4 general intent was not to throw that information away, to  
5 look at it. And, obviously, it is a qualitative decision,  
6 so, I think the main emphasis is not to throw that  
7 information away, to look at it. And if it tells you  
8 something that you can use, to help you -- I mean help guide  
9 you, you should take a look at it.

10 I don't know whether we had a particular number.  
11 I mean maybe Andy can answer that because he wrote the  
12 original position on that.

13 MR. CAMPBELL: I guess now I am the guy left  
14 standing. There were a number of issues, and, in fact, the  
15 committee had a working group on timeframe of compliance a  
16 number of years ago, I believe in '96. We also, the  
17 committee wrote a letter in '97 on low level waste time of  
18 compliance. At the time we were putting this document  
19 together, there were proposals to put very, very large  
20 inventories of depleted uranium into a low level waste site.  
21 And, of course, the doses, because it is depleted uranium,  
22 don't become apparent till long timeframes.

23 And, so, Part 61 clearly provides for the  
24 specification of an inventory limit, although it doesn't say  
25 that you have to do that, but it provides for that

1 capability. And, so, there are scenarios in terms of what  
2 kinds of waste and how much you are disposing that long  
3 timeframes, you might very well want to look at them,  
4 because the dose is not necessarily in the 25 millirem but  
5 much, much higher range.

6 The other issue in terms of time of compliance for  
7 the more mobile radionuclides, which tend to be the drivers  
8 in terms of peak doses, the real concern about the  
9 engineered barriers and why 500 years was kind of an  
10 arbitrary number, I mean there are parts of the regulation  
11 that, for example, in a BTP waste form requires a 300 year  
12 lifetime for a Class B and C HIT, high integrity container.

13 There was a concern that -- how long do covers  
14 perform? Well, in wet climates that may be driven by how  
15 long it takes trees to establish themselves on the covers  
16 and the roots to penetrate the multiple layers and so on.

17 The engineered vaults, the concrete vaults, we  
18 were seeing proposals in DOE space for vault systems where  
19 it was claimed that they would last, you know, 10,000 years  
20 with no leakage. And, so, the 500 years was a judgment on  
21 the part of the engineers to say, look, we don't exactly  
22 know how long the cover is going to last, maybe a few  
23 hundred years, maybe a little bit longer. We do know that  
24 concrete vaults, when they start cracking, even a small  
25 series of say 50 micron cracks, it doesn't take very many of

1 them before they are not a barrier to infiltration.

2 So, the key driver was how long you can keep water  
3 out of the system. And if you push your timeframe to a  
4 short enough period of time, essentially, you never analyze  
5 what the potential dose is from the facility and what the  
6 site will do for you. You essentially end up saying, well,  
7 my engineered barriers are going to last, my cover is going  
8 to last, you know, eight, 900 years, and if I have a 500  
9 year period of performance, then I am done. Essentially, I  
10 don't need to do a PA at that point, all I have to do is  
11 make a demonstration my cover will last X hundred years.  
12 And, so, that was another rationale in terms of looking at  
13 these timeframes.

14 Clearly, you go way out in time, the value of a PA  
15 becomes less and less because the uncertainties are just  
16 getting larger. Did that help?

17 MR. McCARTIN: Tim McCartin, if I could add one  
18 thing, Dr. Hornberger. If you look at how the -- the  
19 qualitative look, I think is the right way to look at the  
20 beyond. In terms of what kind of -- how you treat those  
21 doses, I think it depends on how far out it is, et cetera.  
22 But another way to look at it, if you are looking for any  
23 quantitative feel for how the staff would perceive things, I  
24 think if you look at the way the dose limit is met, we want  
25 the mean to meet 25. The 95th percentile only has to be

1 below 100. And, so, clearly, we are allowing some doses of  
2 realizations to be above 100 millirem. So, as you go out, I  
3 think you get a sense that we aren't looking at -- we are  
4 not going to give any number, but you can see that there are  
5 doses that certainly could exceed 100 potentially.

6 MR. HORNBERGER: No, and, as you know, I would not  
7 be in favor of stating a number that far out either. I  
8 think what Andy just said helps in terms of the kind of  
9 scenario that one would envision requiring inventory  
10 control, where you have large amounts of depleted uranium.  
11 I was more curious about whether you had that kind of  
12 guidance, which is more qualitative.

13 CHAIRMAN GARRICK: Just a couple of questions of  
14 clarification. When you talked uncertainty, you talked  
15 pretty specific in terms of the peak of the mean dose as a  
16 function of time should be less than 25 millirem, et cetera,  
17 et cetera, and that as a function of time should be less  
18 than 100 millirem for the 95th. How are you assessing the  
19 relative contribution to uncertainty of modeling uncertainty  
20 versus -- I can certainly -- certainly, there is a lot of  
21 experience in addressing the issue of information  
22 uncertainty. Where there is increased controversy is how  
23 you quantify modeling uncertainty.

24 MR. THAGGARD: Yeah. In the document, we don't  
25 really take a strong stance on advocating people quantifying

1 model uncertainty or, for that matter, even scenario  
2 uncertainty, I mean.

3 CHAIRMAN GARRICK: Right.

4 MR. THAGGARD: So we are primarily looking at here  
5 parameter uncertainty, although we think that, to some  
6 extent, we may be looking at alternative conceptual models  
7 based on some of the range of parameters that we are --  
8 people are going to be using in the way these models are  
9 constructed. But, so, to some degree, you may be having a  
10 back-end way of calculating model uncertainty, but we don't  
11 have really real guidance on --

12 CHAIRMAN GARRICK: Okay. So, most -- this is  
13 referring mostly to information uncertainty?

14 MR. THAGGARD: It is mostly, yeah, information  
15 uncertainty related to the parameters, so, it is primarily  
16 parameter uncertainty.

17 CHAIRMAN GARRICK: Okay.

18 MR. THAGGARD: Although, as I indicated, for some  
19 of the parameters and how the parameters may be treated in  
20 the models and the range of the parameters, you may be  
21 looking at the effects of different models to some extent.

22 CHAIRMAN GARRICK: Yeah. One of the things I  
23 noticed in reading the draft, speaking of scenarios, there  
24 was a footnote, in reference to analytical approaches, that  
25 said, "Assigning probabilities to scenarios, which is

1 characteristic of some probabilistic approaches, is not" --  
2 and "not" is in bold letters, the only bold letters that I  
3 saw in the whole document -- "recommended by the staff for  
4 low level waste performance assessment." That almost comes  
5 on like it is a condemnation against scenario based risk  
6 assessment, which is, in my opinion, the best way to do risk  
7 assessments.

8 Does that mean that if a licensee came in with a  
9 scenario based risk assessment, that it would be looked upon  
10 negatively?

11 MR. THAGGARD: No, that is not the intent. And  
12 maybe we need to look again at how that is worded. But the  
13 idea was, I think there was a lot of concern, when we first  
14 went out with the document, people were saying, well, you  
15 know, when you start getting into things like scenario  
16 uncertainty and things of that nature, that there is a  
17 tremendous amount of uncertainty just in terms of trying to  
18 assign probabilities to that. And I think there was some  
19 concern that we didn't necessarily want to be putting people  
20 in the position that they had to necessarily go into an  
21 expert elicitation process just to come up with  
22 probabilities for these scenarios and so forth.

23 So, that may have been the genesis for that  
24 language. It is more in terms of trying to tell people that  
25 they didn't necessarily have to do that. I don't think

1 there is any thought on the staff's part that we would look  
2 disfavorable is somebody chose to go down that path.

3 CHAIRMAN GARRICK: I think it comes across in the  
4 wrong way. I think if you were to turn it around and just  
5 say that this need not necessarily include a propagation of  
6 uncertainties through the scenarios, or the identification  
7 of scenarios, because you do talk a lot in the report about  
8 models, almost in the context that you substitute the word  
9 "models" for "scenarios." And one could argue that all a  
10 structured set of scenarios is is a model.

11 So, I think that one might get the wrong  
12 impression from this, and we may want to comment on that.

13 MR. THAGGARD: Okay. Do you want to add something  
14 on that, Mike? I mean I think that would be --

15 MR. LEE: Yeah. This is Mike Lee. We can work  
16 with that language. That may not have been the best  
17 language to select. But our concern was that we wanted to  
18 remind the developer that in selecting the proposed disposal  
19 site, they were to be reminded that they were to select  
20 sites that were geologically quiescent. We didn't want --  
21 we wanted to avoid situations where the developer would  
22 start doing scenario analyses of a probabilistic nature to  
23 drive his site selection process. We wanted to kind of get  
24 out of that space, because that is contentious and certainly  
25 inconsistent with what the regulations call for.

1           We are not adverse to them considering scenarios  
2 that are consistent with the evolution of the site as part  
3 of the performance assessment, but we didn't want to be  
4 pushing them in that direction.

5           CHAIRMAN GARRICK: Well, of course, the kind of  
6 scenarios that I am thinking of are assessment scenarios  
7 that respond to the issue of what can go wrong with the  
8 site. So, that is how I would answer the question, -- What  
9 could go wrong? -- is with the structured set of scenarios.

10          MR. LEE: Right.

11          CHAIRMAN GARRICK: And, so, I would hope that this  
12 wouldn't discourage people from --

13          MR. THAGGARD: Yeah, I don't think that was the  
14 intent, and we can certainly look at the language there, to  
15 tone that down.

16          CHAIRMAN GARRICK: Because it really almost looks  
17 like a kind of condemnation, especially with the emphasis  
18 put on it with the bold type on the word "not." So, okay.

19          Any other questions? Comments? Yes, Howard.

20          MR. LARSON: When do you plan to finalize it? I  
21 gather that -- you know, has the document received a final  
22 tech editor review?

23          MR. THAGGARD: No, it is --

24          MR. LARSON: You are satisfied with the writing?  
25 When would the final document be available for the committee

1 to look at insofar as, you know, the way it is put together  
2 and everything?

3 MR. THAGGARD: Probably, my guess would be late  
4 summer, maybe in the fall some timeframe. Our plan is right  
5 now we are still getting comments on the document, internal  
6 -- I mean still going through an internal review. And once  
7 it has finished that, then I don't think there will be a  
8 problem with showing it to the committee.

9 I would like to touch upon one thing that Dr.  
10 Wymer said about the fact that we are going to publish the  
11 document as a NUREG. That shouldn't -- it is not really our  
12 intent to necessarily diminish the recommendations in the  
13 document. And I apologize if that is the impression I gave,  
14 because I mean the ideal is that this was an agency, a group  
15 of agency experts working on this. And people should be  
16 able to take that and say, well, you know, this group of  
17 agency experts looked at this, and these are the  
18 recommendations that they came up with. This is the  
19 information that they provided. And they should be able to  
20 use that however they see fit. But it wouldn't necessarily  
21 say that this is the overall agency's position, but people  
22 should be able to recognize that this is a group of experts  
23 from the agency and this is their position. And, so, I  
24 think that should still carry a lot of weight. So, I didn't  
25 mean to diminish the role of what we are trying to

1 accomplish here.

2 CHAIRMAN GARRICK: Okay. Thank you. Thank you  
3 very much.

4 I guess, since we have a little time here, it  
5 might be appropriate to raise the question with the  
6 committee of what kind of response do we think this out to  
7 have at this time. And can we give a response without the  
8 committee members actually reviewing the document itself?  
9 We can give a response on the basis of the presentation to  
10 be sure. But some of the questions the committee is asking,  
11 they are probably going to require a little digging into the  
12 report.

13 Anybody have an opinion on how we should respond?

14 MR. WYMER: There are two or three things we could  
15 respond to, they have already been brought up, having to do  
16 with George's concerns about the meaning of these doses  
17 interpretation. And I would like to comment, I think, too,  
18 on the fact that I think having the low level waste document  
19 and the high level waste document, I mean differently with  
20 respect to what engineered barriers can mean, even allowing  
21 that there is a flexibility, and that is allowed in the  
22 language, a justification of a longer lifetime is certainly  
23 within the scope, but to say for the low level waste there  
24 is a 500 year limit with exceptions allowed, and then not to  
25 say something comparable in the high level waste area, it

1 seems to me you are sort of setting yourself up for a  
2 problem. And I think we might comment along those lines.

3 CHAIRMAN GARRICK: And I think we definitely --  
4 maybe that is what you mean when you say the dose  
5 calculation, but I think there is definitely a sense of  
6 maybe we want to comment on the form of the results, the  
7 actual form of the dose assessment results.

8 MR. LEVENSON: Do we recognize the difference  
9 between Classes A, B and C?

10 CHAIRMAN GARRICK: I don't know. Tim.

11 MR. McCARTIN: There are slightly different rules,  
12 primarily depth of burial for the different classes.

13 MR. LEVENSON: Integrity of containers.

14 MR. McCARTIN: Class B and C waste, Milt, is  
15 required to have an intruder barrier that has a lifetime of  
16 at least 500 years. Class B and C waste has to be put in  
17 containers that have been -- essentially gone through a  
18 topical report review by the NRC that shows that they will  
19 have about a 300 year stability lifetime. There are some  
20 other differences between Class A and Class B and C, but the  
21 analyses done to support this document looked at a facility  
22 that had both Class A and Class B and C. In fact, the  
23 inventory was derived from manifest information and reports  
24 about what was being disposed. Now, mind you, that was a  
25 number of years ago, but the radionuclide content hasn't

1 changed that much, the volumes have changed.

2 MR. LEVENSON: Back then I think there was more  
3 perception that a low level waste facility would maybe take  
4 them all. We don't know what will have with Envirocare,  
5 but, clearly, it is a facility that for some time has been  
6 only Class A. So, I wondered whether this document  
7 recognized the difference between a single category and some  
8 of the general facilities.

9 MR. McCARTIN: Well, I mean in doing the  
10 performance assessment, you certainly would tailor it to the  
11 inventory you are expecting. Other than that, there is no  
12 preclusion of having to have one class or three classes,  
13 whatever.

14 MR. LARSON: As a NUREG, if it was an Agreement  
15 State and they were going to put in a low level waste  
16 disposal facility, and they felt that they needed no help  
17 from anybody, what would be the impact of this document upon  
18 them? I just -- for my own clarification. Do they have to  
19 follow it or is it -- it is only whatever value they want to  
20 use, right?

21 MR. THAGGARD: That's correct. I mean as a BTP,  
22 they wouldn't necessarily have to follow it, and they can  
23 use whatever approach they think is necessary.

24 CHAIRMAN GARRICK: One of the things that I was  
25 struck by in the limited reading of the report was the

1 emphasis that was given to the distinction between  
2 uncertainty analysis, sensitivity analysis and probabilistic  
3 analysis. I am still wrestling a little bit with how you  
4 address uncertainty analysis, say, out of context with the  
5 probabilistic analysis. But maybe when I see what you have  
6 done, I will understand that better.

7 I could make the same comment relative to  
8 sensitivity analysis, because, to me, probability is the  
9 language of uncertainty. And, so, if you are going to do a  
10 reasonable job of uncertainty analysis, you have to do a  
11 considerable amount of probabilistic type investigation.  
12 And I hope that is all sorted out in the report.

13 MR. McCARTIN: Yeah, I guess -- Mark had limited  
14 time to go through everything. But when we first went down  
15 this approach of doing -- and it is a probabilistic  
16 approach.

17 CHAIRMAN GARRICK: Right.

18 MR. McCARTIN: I mean most people would --  
19 however, having said that, probabilistic in the terms that  
20 your parameters have distributions and you are sampling  
21 among those distributions, and each value has a certain  
22 probability assigned to it. To the broader low level waste  
23 community throughout the United States, we did not want to  
24 -- there was a worry of confusing people with a  
25 probabilistic approach with assigning probabilities to

1 scenarios in disruptive events, what is typically done in  
2 high level waste. And, so, we tried to draw some  
3 distinctions there. As Mark indicated, we aren't  
4 recommending scenarios with probabilities, primarily because  
5 the siting conditions preclude many of the disruptive events  
6 from occurring at the site, except at a very low  
7 probability, albeit, because it is sited properly.

8 But it was trying to -- to date, when we first  
9 went down this way, this approach, people had been doing  
10 single deterministic analyses, and to move over to this  
11 approach, we wanted to make it clear that it wasn't the full  
12 -- some people consider the high level waste approach  
13 probabilistic, because you have scenarios with  
14 probabilities. And, so, we were trying to bridge a wide  
15 variety of capabilities to conduct different analyses and  
16 experiences in doing PAs, and a lot of the people we talked  
17 to aren't familiar with the high level waste program and  
18 what that means, and, so.

19 CHAIRMAN GARRICK: Yeah. Well, as we have said  
20 many times, this whole issue is a classic case of risk  
21 communication, and our inability at times to do a reasonable  
22 job of communicating what we mean. If we could ever get to  
23 the point where we get across the message that by  
24 probabilistic approaches, we don't mean something in place  
25 of or instead of, we mean something in addition to, that,

1 essentially, by definition, we mean additional information,  
2 when we go from deterministic to probabilistic methods.  
3 And, obviously, in that structure, in that framework, it  
4 would seem that it is a more saleable concept to say that  
5 all we are really talking about here is getting additional  
6 information, additional insights and additional  
7 understanding of how much confidence we should really have  
8 in these deterministic results.

9 I have found that when you deal with students and  
10 the public in that context, with respect to the introduction  
11 of probabilistic notions, it takes some of the fear out of  
12 what you are trying to do. And, so, I think it is kind of a  
13 classic case of risk communication that we have not really  
14 been able to achieve and still represents one of our  
15 challenges. So, I am always disturbed when I hear that  
16 there is a fear of probability. That always signals to me  
17 that we are not, you know, we are not doing a very good job  
18 of telling them what we mean when we talk about that next  
19 level of analysis, and that is what it really seems to me  
20 should be, is just the next level of analysis. Because that  
21 is the reaction you get.

22 You know, I once heard a utility executive say we  
23 would never use probability as a basis for any decisions  
24 that we make. Well, how nonsensical a statement that has to  
25 be, because that is saying we only make decisions about

1 which we are 100 percent certain, and you never do that.  
2 Never have that. So, you are using probability all the  
3 time, implicitly as it may be.

4 Okay. Any other comments from staff or anybody in  
5 the audience? Yes.

6 MR. LEE: In the spirit of communication, I think  
7 at the beginning of the presentation, Mark noted that the  
8 BTP is currently in concurrence and we expect to get it to  
9 the Commission in July. And just to reinforce a point that  
10 Mark made earlier, the hope and desire is that we, in  
11 parallel with that concurrence, which we have recently met  
12 with OGC and they have given us some comments and  
13 recommendations which we are addressing, but we don't expect  
14 the BTP to change substantively between now and when it goes  
15 to the Commission.

16 MR. McCARTIN: You mean the NUREG.

17 MR. LEE: The NUREG, excuse me. Freudian slip.  
18 But our hope and desire is that we get a letter -- in the  
19 past, what the committee has done is it has sent a letter to  
20 the Commission with its recommendation as to finalize the  
21 document that the staff happens to be working on. In some  
22 cases we have gotten that recommendation with no comment.  
23 In other cases, we have gotten comments, and we welcome any  
24 comments from the committee and we can work those out in  
25 parallel with what we have to do to finalize the document.

1 CHAIRMAN GARRICK: Okay. Sounds like a real  
2 challenge if we are going to get any letter out that will  
3 have any impact on the submittal to the Commission.

4 MR. CAMPBELL: One comment here.

5 CHAIRMAN GARRICK: Yes.

6 MR. CAMPBELL: One of the things that I noted as I  
7 read through the document is that there are a number of  
8 references that have developed since the technical parts of  
9 the document were written back in the mid '90s, and that  
10 those references need to be updated, and there certainly  
11 should be some effort -- there are a number of NUREG reports  
12 and ACR reports that have come out since that was done, that  
13 really need -- otherwise, the document appears to be very  
14 dated, and that would be important to get into the document.

15 MR. LEE: We welcome those updates, Andy. When  
16 can you get them to us?

17 MR. CAMPBELL: Well, I think there were a number  
18 of people in Research that were involved in the document,  
19 and that needs to come over to you guys as a list of things  
20 that need to be changed, but it needs to be done soon.  
21 Otherwise, the document will appear to be fairly dated.

22 MR. LEE: Well, as part of the finalization of the  
23 document, we have redistributed the document to remaining  
24 members of PAWG and I know -- including those members that  
25 currently reside in Research, and I know they are working on

1 -- one individual in particular is getting us some new and  
2 updated references, but any contribution any PAWG member  
3 current, living, whatever, happens to make, we are more than  
4 welcome to get that.

5 MR. McCARTIN: Living or not.

6 MR. LEE: That's right.

7 MR. McCARTIN: Comments from the beyond.

8 [Laughter.]

9 CHAIRMAN GARRICK: Actually, I think the report  
10 will be very helpful to all parties, including states. And  
11 as far as the analytical process that is involved, and I  
12 suspect it will be an evolving NUREG as we update it and  
13 learn more about how to do things.

14 Okay. Well, I think, unless there is additional  
15 comment, we will adjourn for lunch.

16 [Whereupon, at 12:15 p.m., the meeting was  
17 recessed, to reconvene at 1:30 p.m., this same day.]  
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## A F T E R N O O N   S E S S I O N

[1:30 p.m.]

CHAIRMAN GARRICK: Good afternoon. The meeting will come to order. This afternoon, we're going to start off talking about West Valley, and we are, in particular, going to hear about some public comments on a draft policy statement on decommissioning criteria for the West Valley Demonstration Project.

Ray Wymer of the Committee is the lead on this subject, so I'll let Ray introduce our speaker.

MR. WYMER: Okay, before I do, I'll make a few comments, Jack. I hope I don't steal your thunder. I don't think I will because I don't know enough to steal your thunder.

[Discussion off the record.]

MR. WYMER: The West Valley site is a particularly complex site with a lot of people in the act and a lot of timing considerations with respect to when various things kick in and various people gain and lose responsibility for a license termination.

I don't know how many of you know that the West Valley site is located within the Western New York Nuclear Service Center, so-called, which is something over a 3300-acre site, and one of less in the middle of that is a 200-acre site which DOE has responsibility for.

1           They're operating under the West Valley  
2 Demonstration Project Act, a Congressional act, actually  
3 that gives DOE responsibility for a segment, a piece of that  
4 site.

5           The other parts of the site are also complex.  
6 There is a five-acre site that's licensed by the NRC.

7           There is a 15-acre site where the waste disposal  
8 activities are governed by the State of New York. There is  
9 a memorandum of understanding between DOE and NRC that  
10 governs this, completed in 1981 and governs the  
11 interrelationships and the New York State Energy Research  
12 and Development Authority has the responsibilities on the  
13 site.

14           So, it turns out to be -- and there will probably  
15 be incidental wastes associated with the site, which is  
16 another whole issue. So, it turns out to be an  
17 extraordinarily complicated issue.

18           I hope that Jack Parrot will explain all that,  
19 elucidate it, and in particular, tell us about the  
20 decommissioning criteria associated with the site. Jack,  
21 please?

22           MR. PARROT: Okay, thank you. Good afternoon. My  
23 name is Jack Parrot. I'm the NRC's Project Manager for  
24 interaction with West Valley and the West Valley  
25 Demonstration Project.

1           The focus of my presentation today was going to be  
2 -- or is going to be on the draft policy statement that was  
3 issued last December for the decommissioning criteria. But  
4 before I go into that, I was just wondering what the  
5 Committee would like to hear as far as background.

6           I don't want to just launch into where we are now  
7 without a little bit of background if it's all right.

8           CHAIRMAN GARRICK: I think that would be  
9 appropriate.

10          MR. PARROT: Okay. Briefly, the site, the West  
11 Valley site, was the only commercial spent fuel reprocessing  
12 site ever operated in the country.

13          It was licensed by the AEC in 1966. It processed  
14 some 640 tons of spent fuel. Along with that were a number  
15 of wastes produced, as you can imagine.

16          Also, next to the site in one corner of the site  
17 is a state-licensed disposal area, licensed by the State of  
18 New York, a pre-Part 61 disposal area that took some wastes  
19 from the operational facilities at West Valley, in addition  
20 to commercial wastes and waste from other government  
21 facilities.

22          The reprocessing continued until about 1972, when  
23 the operator of the site NFS, decided to shut down  
24 operations, and no more reprocessing occurred.

25          And then in 1980, the West Valley Demonstration

1 Project Act was signed by President Carter. This Act  
2 requires DOE to come onsite, solidify the high-level waste  
3 that was produced from the spent fuel reprocessing,  
4 transport it and dispose of it.

5 In addition, the Act required DOE to decontaminate  
6 and decommission the tanks and project facilities and  
7 materials used with the Project, two requirements prescribed  
8 by NRC.

9 With the realization that the solidification  
10 portion of the Project is almost complete, attention turned  
11 to establishing decommissioning criteria in the late 1990s.  
12 At about the same time, as you know, the license termination  
13 rule was promulgated in 1997, so this led to the beginning  
14 of prescribing the decommissioning criteria for West Valley.

15 The NRC's decommissioning criteria for West Valley  
16 was issued on December 3rd of 1999, as a draft policy  
17 statement by the Commission. Basically what it says is, to  
18 apply NRC's license determination rule to the site as the  
19 decommissioning criteria -- I'll go into a little bit more  
20 detail in the next slide, but after the policy statement was  
21 issued, we held a public meeting up at near the site on  
22 January 5th, 2000.

23 At that meeting, we heard comments from the  
24 public, DOE, NYSERDA, and other agencies and groups. We  
25 received about 60 comments and questions at the public

1 meeting, and the written comment period closed on April 1st.  
2 We received about 28 comment letters with about 200  
3 individual comments.

4 Basically, the draft policy statement consisted of  
5 three components of a process for prescribing the  
6 decommissioning criteria:

7 First of all, it was to apply the NRC's license  
8 termination rules to the decommissioning criteria for both  
9 the West Valley Demonstration Project and for the portion of  
10 the site that would remain under a license to NYSERDA.

11 As you know, the range of decommissioning criteria  
12 range from an unrestricted release limit of 25 millirem per  
13 year, and then if you want to apply institutional controls  
14 to the site, you can do restricted releases up to a range of  
15 between 100 and 500 millirem per year, if those restrictions  
16 were to fail.

17 The next step in the process was for DOE and  
18 NYSERDA to propose a preferred alternative and develop and  
19 EIS to support that preferred alternative.

20 That's what they're working on actually right now,  
21 and that our decommissioning criteria would fit into.

22 And then the final step described in the policy  
23 statement was that the NRC would verify that the specific  
24 criteria chosen for the site meets the range of the LTR, and  
25 prescribes its use after considering the impacts in the EIS.

1 I should mention that NRC is a cooperating agency in this  
2 EIS process.

3 And let me briefly contrast how this to a typical  
4 licensing case: In a typical licensing case, we wouldn't  
5 have to do the first step, because we would already have the  
6 license termination rule to apply to all our licensees. So,  
7 this is one way that the site is unique, is, we've got  
8 actually -- do a two-step prescription.

9 Okay, first, we've got to say that the LTR applies  
10 to the site, and then after they go through the process of  
11 developing a decommissioning plan, specifically how the  
12 criteria would be applied.

13 Okay, as I mentioned, we had a number of comments.  
14 The Staff is currently evaluating and developing responses  
15 to the comments.

16 The comments could fall into basically three broad  
17 categories: A lot of the comments had to do with NRC's  
18 process for finalizing these or prescribing these  
19 decommissioning criteria.

20 A lot of the comments were more on the license  
21 termination rule itself, the guidance and the implementation  
22 license termination rules.

23 A number of comments were also on jurisdictional  
24 cooperation with other agencies that are involved with the  
25 site.

1           Let me briefly try to summarize some of the  
2 comments here, some of the major comments.

3           There were a lot of comments, but I'll try to  
4 summarize the major comments. DOE, their main comment  
5 really focused on the process that we were going to use for  
6 prescribing their criteria.

7           They felt that the prescription of the criteria  
8 should happen after the EIS process is completed. The State  
9 of New York had certain concerns -- and when I say the State  
10 of New York, I'm including NYSERDA, the New York Department  
11 of Environmental Control, and we also got some comments from  
12 the New York State Attorney General's Office.

13           Their main concern seem to focus on not allowing  
14 shifting of federal responsibility onto the state. They  
15 also wanted us to consider the SDA, the state-licensed  
16 burial ground that is in one corner of the site, in the  
17 overall criteria, even though it's under a separate license.

18           And also they were concerned -- and this relates  
19 back to the first comment -- that there be consistent  
20 criteria, decommissioning criteria, for both the Project,  
21 DOE's Project, and the eventual license.

22           EPA had similar comments they have made for other  
23 decommissioning sites of NRC; that the license termination  
24 rule may not be protective; that the groundwater needs a  
25 separate protection; and that there should be coordination

1 with EPA for both the remediation of the hazards and the  
2 radioactive contamination at the site.

3 We received a number of other comments, and some  
4 of these other comments also were made by the agencies  
5 described here, but because of the type of waste at this  
6 site and the nature of the site, a lot of the other  
7 commenters had concerned about relying on institutional  
8 controls to control the dose from this site.

9 A lot of commenters believed that institutional  
10 controls cannot be relied on at this site, and therefore  
11 want all of the waste and material removed from the site,  
12 eventually.

13 At the very least, a number of them wanted to get  
14 a better idea of what was the definition of an institutional  
15 control for NRC; does it include the use of engineered  
16 barriers and to what extent?

17 A number of the other comments also had to do with  
18 the SDA and the fact that that should be considered with the  
19 overall criteria for the site.

20 And there were a number of comments on incidental  
21 waste and the fact that a lot of them did not want DOE to be  
22 able to reclassify any of the high-level waste that is at  
23 the site into incidental waste.

24 This is our schedule for completing the policy  
25 statement. Our plan is to respond to the comments and make

1 any revisions to the policy statement that is needed and to  
2 get that to the Commission by August, the end of August;

3 To receive input from the Commission on that by  
4 the end of October, and then to revise the policy statement,  
5 as needed, and then publish it in the Federal Register by  
6 the end of the year.

7 Briefly, I wanted to touch on some other  
8 activities we've got going with West Valley. We're working  
9 on a cooperation agreement with NYSDEC, the state  
10 environmental control authority up there. They license the  
11 SDA and they're also responsible for the hazardous waste  
12 component on the rest of the site.

13 We're working on a Commission paper that sets out  
14 some guidelines for interacting with stakeholders at the  
15 site. Because of the sort of informal relationship we've  
16 got with DOE at the site and the fact that the license is  
17 actually in abeyance, and the other unique qualities, we  
18 felt that we needed to set out specific guidelines of how we  
19 were going to interact from here on out with the different  
20 parties. As you mentioned, it's a very complicated  
21 situation.

22 We're also reviewing a preliminary safety  
23 evaluation report for a planned facility called the Remote  
24 Handled Waste Facility. This is related to another one of  
25 NRC's authorities at the site, and that is to review and

1 comment on safety evaluation reports for facilities that are  
2 going to be built at the site.

3 And as I mentioned, we're a cooperating agency on  
4 the EIS, and there will be upcoming, hopefully before the  
5 end of the year, review of some technical sections of the  
6 EIS, and the preferred alternative.

7 Our plan for interacting with the ACNW on West  
8 Valley is to provide the Committee with the draft responses  
9 to the comments we received, and the final policy statement  
10 at the same time we submit it to the Commission for a  
11 parallel review.

12 So, with that, that concludes my prepared  
13 presentation.

14 MR. WYMER: I was reading through some of the  
15 testimony that was given back in January. One of the things  
16 that came out loud and strong was that the stakeholders and  
17 the State of New York, the various agencies of the State of  
18 New York, speaking generally, don't -- they don't really  
19 care much about the formalities of who does what, or what  
20 the license termination rule is or what they are responsible  
21 for.

22 What they want is the site looked at holistically,  
23 and they want the whole darn thing cleaned up, and forget  
24 about the legal obligations for the moment. And that's sort  
25 of their point of view; let's clean up the site as best we

1 can to protect the citizens of the State of New York.

2 So, the question I have then is, how broad a  
3 brush, how broad a sweep is the NRC taking with respect to  
4 license termination? Are they narrowly focused on the DOE  
5 license which will kick in 2010, or are they concerned with  
6 that, plus the NRC licensed little piece of the site, in  
7 addition, or are they considering the whole thing and will  
8 the EIS address the whole thing?

9 In other words, how broad a cut is NRC going to  
10 take on this?

11 MR. PARROT: Okay, well, first of all, the EIS  
12 that they're working on for the closure of the site does  
13 consider the entire site, including the state-licensed  
14 disposal area. The EIS is a joint project between DOE and  
15 NYSERDA.

16 They are both lead agencies on the EIS, and they  
17 are considering the whole site. Now, when we put the draft  
18 policy statement out, we tried to take as broad a brush and  
19 sweep as possible, given our limitations and the fact that  
20 we don't license the entire site. Part of the site is  
21 licensed by the state.

22 And that was what was pointed out in the policy  
23 statement. We want the license termination rule to apply to  
24 DOE's portion and the part of the site that's licensed by  
25 NRC. And anything beyond that, for instance, the SDA, that

1 will have to be worked out with the proper authorities.

2 MR. WYMER: Okay, is it your view that the  
3 Environmental Impact Statement effectively replaces the  
4 project decommissioning plan?

5 MR. PARROT: No, no. The Environmental Impact  
6 Statement needs to be done, and a preferred alternative  
7 chosen, and what we'd like to see, I think, at NRC, is that  
8 whatever the preferred alternative is, that it falls within  
9 the range of the license termination rule.

10 But there still is a requirement that DOE and  
11 NYSERDA will have to submit decommissioning plans which  
12 will, hopefully, specifically point out how they intend to  
13 meet the license termination rule.

14 MR. WYMER: And I have one final question. To  
15 what extent will the NRC be involved in institutional  
16 controls after the site is closed?

17 MR. PARROT: Well, only in a very general sense,  
18 from the license termination rule, there would be, you know,  
19 some requirement, if they do a restricted release, to have a  
20 periodic recheck of the site.

21 Now, the specifics of that, it's too early to say  
22 how that would work out.

23 MR. WYMER: NRC would probably accept the  
24 responsibility for carrying out the periodic re-checks into  
25 the indefinite future?

1 MR. PARROT: Well, to the extent that, yes, it  
2 would be an NRC-licensed site, I imagine that it would be  
3 either NRC or --

4 MR. WYMER: Those parts that are NRC-licensed.

5 MR. PARROT: Yes.

6 MR. NELSON: Excuse me, this is Bob Nelson,  
7 Decommissioning Branch, NMSS. We would not -- we do not  
8 envision a role in which NRC would be doing periodic  
9 rechecks. If there are rechecks that need to be done, they  
10 would have to -- the license termination rule does not  
11 envision NRC physically doing those rechecks.

12 The license termination rule requires that  
13 financial assurance be put in place, such that an  
14 independent third party can do the rechecks. That's not  
15 NRC, so --

16 MR. WYMER: That's all I have at the moment.  
17 John, do you have any followup questions?

18 CHAIRMAN GARRICK: Well, I don't think I have very  
19 much. But when you were summarizing the comments, with  
20 respect to the State of New York, one of the comments was  
21 that they wanted to be sure that there was no shifting of  
22 federal responsibility to the state.

23 But isn't there a point beyond which that's what's  
24 supposed to happen?

25 MR. PARROT: Yes. There will be a point where DOE

1 feels that they have satisfied their requirements under the  
2 Act, the West Valley Demonstration Project Act, at which  
3 point NYSERDA would take back the site and the license would  
4 be renewed or pulled out of abeyance.

5 The question is, what is that point? And the  
6 State of New York and DOE are actually in negotiations right  
7 now over where that point is.

8 It's not real clear, and, you know, the Act  
9 doesn't give a lot of definition of where that point is, but  
10 they're in negotiations right now, I think, to work that  
11 out.

12 CHAIRMAN GARRICK: What alternatives are being  
13 considered for the final disposition of the site? Supposing  
14 they can't do what Ray is indicating they want, namely,  
15 complete cleanup of the site? What alternatives are under  
16 consideration?

17 MR. PARROT: In the Draft EIS that they published  
18 in 1996, they looked at range of various alternatives,  
19 everything from cleaning up the site entirely to doing just  
20 a minimal stabilization and leaving everything there.

21 Based on a lot of the presentations that I have  
22 seen from DOE, they seem to be actively considering leaving  
23 at least the structures of the process building and the high  
24 level waste tanks there, and stabilizing them and using a  
25 lot of engineered barriers, and also --

1 CHAIRMAN GARRICK: Does this include subsurface  
2 barriers?

3 MR. PARROT: Yes. And it's the same thing for the  
4 NRC-licensed disposal area, perhaps engineering a new cover  
5 for the facility, but leaving it in place.

6 CHAIRMAN GARRICK: So, they're looking at  
7 alternatives that vary from green fields to some degree of  
8 stewardship?

9 MR. PARROT: Yes, and depending -- there is kind  
10 of a mix they're looking at right now that some areas may be  
11 able to be cleaned up completely, relatively easily, and  
12 then some areas not. But again, they haven't established a  
13 preferred alternative yet though.

14 CHAIRMAN GARRICK: How do you think the NRC is  
15 going to respond to the EPA continued anxiety about the  
16 license termination rule perhaps not adequately protecting  
17 them?

18 MR. PARROT: My guess is that we will, as we've  
19 done at other sites, decommissioning sites, say, well, this  
20 is our criteria and we believe this to be protective.

21 CHAIRMAN GARRICK: Where does the state come down  
22 on this?

23 MR. PARROT: Well, I think that they would like to  
24 see a consistent message, because they are worried, of  
25 course, that the site's decommissioned to NRC criteria, and

1 then EPA might come in and say, okay, we may apply CERCLA to  
2 this site, and require different criteria.

3 So, I'm sure that they would like to see something  
4 worked out beforehand.

5 CHAIRMAN GARRICK: Do you know, is there a  
6 schedule in place yet for what happens beyond the issue of  
7 this decommissioning criteria? What are the future events  
8 and when are they likely to occur?

9 MR. PARROT: The future events would be that the  
10 DOE and NYSERDA complete their EIS, establish a preferred  
11 alternative and issue a record of decision.

12 The trouble is that the completion of that depends  
13 on now these negotiations turn out between New York State  
14 and DOE, and those aren't completed yet. So there is  
15 something of an uncertainty there about when that will be  
16 done.

17 And they're on the line. I don't know if you care  
18 to ask them about that. But then the next step would be  
19 then for DOE to submit to NRC, a decommissioning plan.

20 And then we would look at that, and because of the  
21 unique relationship, we don't actually approve it; we review  
22 it and comment on it. And then they would implement it.

23 CHAIRMAN GARRICK: Now, as far as the action from  
24 this Committee, your final statement said that Staff will  
25 provide ACNW with the draft response to comments and final

1 policy statement at the time of transmittal to the  
2 Commission for parallel review. Is that the action you want  
3 us to take, based on that review?

4 Or are you asking for something earlier than that?

5 MR. PARROT: I think that was the action we  
6 anticipated, yes. We're still working through the comments,  
7 and writing responses to those comments. It really won't be  
8 ready until the time we give it to the Commission.

9 MR. WYMER: We haven't really come to the criteria  
10 yet.

11 CHAIRMAN GARRICK: Go ahead.

12 MR. HORNBERGER: This is a fairly complex site, so  
13 when DOE gets to developing a decommissioning plan, is there  
14 anything in the policy statement that would offer them  
15 guidance on how they would demonstrate that the plan was  
16 successful; that is, is what is envisioned a probabilistic  
17 performance assessment?

18 MR. PARROT: Yes, I believe we would use the same  
19 kind of guidance that we would apply to any licensed site  
20 that's decommissioning. And to the extent that that is a  
21 probabilistic analysis, yes, we would like to see that.

22 And especially this site, with the amount of  
23 uncertainty, it definitely would be important to consider  
24 that, yes.

25 MR. LEVENSON: I have two questions: One is --

1 CHAIRMAN GARRICK: Put your mike down.

2 MR. LEVENSON: I have two questions: One is a  
3 matter of catching up on history. The law setting up West  
4 Valley as a demo project, did it mention at all, any role  
5 for NRC at that time?

6 MR. PARROT: Yes. The roles that NRC is involved  
7 with are prescribing the decommissioning criteria; also,  
8 reviewing safety analysis reports for facilities that are  
9 built at the site; a monitoring role, where, I guess you  
10 could liken it to an inspection role where we send an onsite  
11 person up there a few times a year, and review things and  
12 write a report, but it's not an inspection report; it's a  
13 monitoring report.

14 And, let's see, there's a role of -- I think  
15 that's it.

16 MR. LEVENSON: But the act does specifically  
17 exclude any activity of NRC with respect to the licensing of  
18 the site until such time as DOE quits the site?

19 MR. PARROT: Right.

20 MR. LEVENSON: It was, of course, licensed by the  
21 AEC up until that is done.

22 MR. PARROT: Right.

23 MR. LEVENSON: My other question, I guess, has  
24 been answered, and that is, you have used the term -- like  
25 for the new remote handled waste facility, you're going to

1 review and comment. So none of those new facilities will be  
2 NRC-licensed; is that right?

3 MR. PARROT: Yes, until such time as the site  
4 reverts to New York control and those facilities are still  
5 there, then they would be licensed.

6 MR. WYMER: Well, as I look at the t.v. monitor, I  
7 see a whole group of people off there in the State of New  
8 York. I'd like to solicit questions of comments from that  
9 group now.

10 SPEAKER: This is Melissa -- I'm the Director for  
11 DOE here, and Paul -- . Paul is with the New York State  
12 Energy Research and Development Authority.

13 I also want to mention we have a number of folks  
14 from our staff, as well as a couple members of the Citizens  
15 Task Force who wanted to sit in and listen to this as well.

16 Ray -- and McNeil. And what we were prepared to  
17 do is just make some comments, some prepared comments, and  
18 if you want to ask any questions of us, we'd be happy to  
19 answer anything.

20 And really, all my comments really do, in terms of  
21 the Department of Energy -- basically, we really appreciate  
22 your involvement in this process, and we just want to sort  
23 of reiterate the comments that we made on the draft policy  
24 statement, if that would be okay.

25 MR. WYMER: Sure, go ahead.

1           SPEAKER: I'm just going to read this prepared  
2 statement: The Department of Energy welcomes and  
3 appreciates the involvement of the Advisory Committee on  
4 Nuclear Waste in the process for developing decommissioning  
5 criteria for West Valley.

6           The West Valley site is unique, and I think you've  
7 pointed that out already, in terms of NRC-licensed sites and  
8 the process for developing policy for West Valley should  
9 consider the unique aspects of the site and be in compliance  
10 with NEPA.

11           Based on the Advisory Committee's expertise and  
12 experience in dealing with complex waste management issues,  
13 the Committee is uniquely qualified to advise the Commission  
14 on the development of the decommissioning policy that is  
15 well founded in terms of risk considerations.

16           As indicated in DOE's formal comments on the draft  
17 policy statement, the Department does not agree with the  
18 NRC's current position of prescribing the license  
19 termination rule for West Valley before the ongoing  
20 site-specific closure Environmental Impact Statement is  
21 completed.

22           Because of the unique and previously un-evaluated  
23 waste management and environmental issues associated with  
24 the former spent nuclear fuel reprocessing facility, DOE  
25 does not believe that NRC has adequately enveloped the

1 potential disposition alternatives and impacts in any  
2 generic Environmental Impact Statements that they have  
3 completed or conducted to date.

4 Therefore, in order to comply with NEPA, the  
5 environmental impacts of dispositioning facilities like  
6 those at West Valley should be evaluated prior to developing  
7 a policy on decommissioning.

8 DOE continues to endorse the process for  
9 prescribing decommissioning criteria that is outlined in  
10 SECY 98-251, and the memorandum of understanding that was  
11 spoken of previously, between the Department of Energy and  
12 NRC that was signed in 1981.

13 Both of these documents envisioned a sequence of  
14 activities where DOE would first perform an analysis of  
15 impacts and risks of potential disposition modes, and then  
16 upon receipt of the analysis, the NRC would prescribe  
17 decommissioning criteria.

18 This type of process is consistent with NEPA, and  
19 essential for informed risk-based policymaking.

20 I just want to thank you again for your  
21 involvement. We really think it's going to be value-added  
22 to the process, and for your consideration of our comments.

23 MR. WYMER: Will that statement -- can it be made  
24 available to this Committee -- that you've just read?

25 SPEAKER: Certainly. Yes, we can fax it to Jack.

1 MR. WYMER: Fine, if you can see that we get  
2 copies, we'd appreciate that.

3 SPEAKER: Okay.

4 MR. WYMER: Thank you very much.

5 SPEAKER: I'm -- with the New York State Energy  
6 Authority. And I'm sure Jack can share with you, the letter  
7 that we provided to NRC and our comments on LTR. And there  
8 is some background letters also.

9 I just want to say thank you that you're taking a  
10 look at the West Valley decommissioning criteria. I think  
11 it's very important.

12 I would suggest that you take a look at the  
13 history of how the site got here, perhaps in an earlier  
14 time, to help you understand the complexity -- help you  
15 better understand the complexity of the issues that are  
16 here.

17 Clearly, it may be likely that some materials have  
18 to stay here at this site, at least over the long term, and  
19 will require some monitoring and institutional control.

20 I think there's help that you can give in helping  
21 to establish that kind of perpetual or long-term management  
22 of the site, and would be very well warranted.

23 There are a number of comments that we do have.  
24 Our last letter to NRC kind of spelled out a number of the  
25 concerns that the state has regarding the future of the

1 site.

2 MR. WYMER: Thank you very much. Are there other  
3 comments from other members of the group there in New York?

4 There was a hand raised.

5 SPEAKER: Yes, this is Ray -- of the West Valley  
6 Citizen Task Force. I'm also a member of the citizens group  
7 known as the Coalition on West Valley Nuclear Waste.

8 I would just like to disagree slightly or  
9 partially with one point that was being discussed just  
10 before you came to talk to us -- while you were talking  
11 among yourselves and with Jack Parrot.

12 The question you were discussing was whether there  
13 was any provision for NRC licensing involved in the West  
14 Valley Demonstration Project Act that might involve DOE's  
15 role.

16 And Jack Parrot and others, I think, said, no.  
17 That's what I want to partially disagree with.

18 If you look at the West Valley Demonstration  
19 Project Act -- I don't have it in front of me, but I believe  
20 it's Section 2(a)(4), I think you will find the requirement  
21 that any disposal of low-level or transuranic wastes be done  
22 in accordance with applicable licensing requirements.

23 The Act does not specify what the licensing body  
24 would be, but since DOE does not license its own facilities,  
25 our presumption has always been that it would be either the

1 NRC or the New York State Department of Environmental  
2 Conservation that would need to provide the applicable  
3 licensing requirements for disposal of low-level or  
4 transuranic wastes.

5 The way I understand it that means that if there  
6 actually is onsite disposal of low-level or transuranic,  
7 that would require licensing in accordance with the West  
8 Valley Demonstration Project Act.

9 It's not been well defined or discussed very much,  
10 but I think that that needs to be considered before  
11 everything is done with this EIS process.

12 MR. WYMER: Okay, well, thank you very much. In  
13 my reading of the minutes of the meeting that was held with  
14 the Commissioners here last January, it came up that there  
15 are legal gaps in area responsibility; that there are  
16 certain parts of the responsibility that clearly belong to  
17 DOE and certain parts to NRC, certain parts to the state,  
18 but there are gray areas which are not clearly spelled out  
19 legally, and these will either require agreements,  
20 understandings, or litigation to eventually resolve them.

21 This may be one of those gray areas where it's  
22 clear that something needs to be done, but it's not clear  
23 who has responsibility for doing it.

24 SPEAKER: Yes, I think that's true. Thank you.

25 MR. WYMER: Are there any other questions or

1 comments from that end of the business? Go ahead.

2 SPEAKER: I was just going to say that I don't  
3 think so.

4 MR. WYMER: Okay.

5 SPEAKER: I think we're finished here.

6 MR. WYMER: Thank you very much. Let us know if  
7 you have any additional comments from either the Committee  
8 or the Staff.

9 MR. LARSON: You said that you were going to write  
10 responses to each of the comments you got. You're going to  
11 do each individually, or you're going to combine them all?  
12 I know there has been some discussion on the way the Staff  
13 handles these.

14 MR. PARROT: My plan was to combine as many of the  
15 comments as I can, summarize them as much as possible.

16 MR. LARSON: Then you wouldn't specifically  
17 address the comments DOE or NYSEC or the West Valley  
18 Coalition or anything, as an individual?

19 MR. PARROT: No.

20 MR. LARSON: Okay. I guess from what you said  
21 that you did not want any comments, or it's almost  
22 impossible for the Committee to give you any comments now,  
23 since you wouldn't give them the final document until  
24 August, I guess, but is there an intention to come in and  
25 explain it to them later on?

1 It isn't in our schedule, I don't think, Rich.

2 MR. WYMER: It would be nice to have something  
3 about the criteria, which we have not already had.

4 MR. LARSON: That's a logistics question for the  
5 Committee.

6 CHAIRMAN GARRICK: And the question is, how do we  
7 get involved in such a way that we can help you? We need to  
8 see the criteria, and I guess that's the thing that you're  
9 talking about making available simultaneously to the  
10 Commission and to us?

11 MR. PARROT: Yes. The criteria -- I mean, the  
12 criteria will be the criteria of the license termination  
13 rule. Now, what's going to be described or explained in  
14 this next document to the Commission is how that's going to  
15 be applied at the site, given the unique features of this  
16 site.

17 MR. WYMER: So it would be premature of us to  
18 comment on the comments before we see the criteria on which  
19 the comments will be made.

20 CHAIRMAN GARRICK: We haven't heard anything about  
21 what the West Valley -- how the West Valley people view the  
22 criteria; in other words, what are some of the trouble  
23 spots, if any.

24 MR. PARROT: Well, I can give you what I  
25 understand what, if they have a problem with it, what they

1 are. DOE mentioned in their comments that specifically this  
2 NRC-licensed disposal area will not be able to meet the  
3 license termination rule.

4 And the question is, where does that leave them if  
5 there's a part of the site that can't meet the license  
6 termination rule? You know, a number of questions come up:

7 Does that mean that DOE can't leave the site?

8 MR. WYMER: You're talking about that five-acre  
9 lot?

10 MR. PARROT: Yes. Does that mean -- DOE has got  
11 some questions about institutional control or permanent  
12 license, perhaps, if that's what's needed.

13 MR. HORNBERGER: That's something then totally  
14 different from the license termination.

15 MR. PARROT: Yes.

16 MR. HORNBERGER: That's not covered in the license  
17 termination rule.

18 MR. PARROT: Right. You know, we're not --

19 CHAIRMAN GARRICK: This is on a much gander scale.

20 MR. PARROT: It may impact DOE's ability to meet  
21 the requirements of the Act.

22 MR. HORNBERGER: But presumably then is this the  
23 main conflict here as to whether it makes sense to have a  
24 policy before you have the EIS, or wait for the EIS and then  
25 develop the policy? Is this the sticking point?

1 MR. PARROT: Yes, that is -- maybe I could go back  
2 to one of my slides here. Page 3.

3 SPEAKER: Jack?

4 MR. PARROT: Yes?

5 SPEAKER: I was just going to suggest that you  
6 might want to provide the Advisory Committee with a copy of  
7 our comments. It kind of describes that whole issue in  
8 pretty good detail.

9 MR. WYMER: That's an excellent idea.

10 SPEAKER: I think the question surrounds if the  
11 criteria actually apply to the whole site, the whole site.  
12 You know, we're supposed to look at this as one picture that  
13 includes the NDA and the SDA, and the license termination  
14 rule includes those.

15 And those units must be considered in the  
16 performance assessment that looks at the whole site. So  
17 it's just not clear how it all might work out.

18 So our thinking was that, you know, if the  
19 criteria were prescribed as draft criteria and incorporated  
20 into the final Environmental Impact Statement, then you  
21 could get a picture of truly how the criteria might apply to  
22 this site, specifically, and to the preferred alternative.

23 And then NRC could finalize their criteria, after  
24 which time, DOE and NYSERDA could issue their records of  
25 decision.

1           SPEAKER: I think the other part of the issue is  
2 that you've got to look into -- and you can do this by, as  
3 you suggested, looking at the policy statement or the prior  
4 staff requirements, and also the comments from the various  
5 commenters.

6           There is the issue of having -- being sure that  
7 there is the same set of criteria. NRC is tasked with  
8 establishing decommissioning criteria under the Act, whereas  
9 the state, as the licensee, would be held to the criteria of  
10 the license termination rule, since this site was licensed  
11 by a Part 50 license.

12           So it's very important that whatever happens,  
13 whatever the criteria are that are established by the  
14 Commission, that those criteria are the same for the  
15 Department as well as for the state.

16           Nobody wants to have a situation where a facility  
17 is decommissioned under the Act, and yet has to be cleaned  
18 up again.

19           The NDA creates some challenges for that. The  
20 SDA, as Jack as said, is regulated by the state, and will  
21 have to be managed in the future, probably under a state  
22 license.

23           And the NDA may also have that issue. There are  
24 some materials in the NDA, for example, spent nuclear fuel  
25 in a DOE facility, that raise some very unique challenges

1 for this site.

2 MR. WYMER: West Valley, when you fax us your  
3 prepared comments, can you also fax us a list of people  
4 sitting there in the audience with you, attendees?

5 SPEAKER: Certainly.

6 MR. WYMER: Thank you.

7 MR. PARROT: I was just going to say that based on  
8 the comments, what this issue seems to boil down to is --  
9 and, admittedly, it's somewhat ambiguous in the draft policy  
10 statement -- is when exactly are the criteria prescribed?

11 Let me put this in terms of a licensee: Do we  
12 prescribe their decommissioning criteria with the  
13 promulgation of the license termination rule, or is it  
14 prescribed when they send in their decommissioning plan and  
15 we review and approve that? Then is there decommissioning  
16 criteria prescribed?

17 When is it prescribed? I'm not saying I know the  
18 answer yet, but --

19 MR. WYMER: We don't have a rhetorical answer.

20 Are there any other --

21 MR. LEVENSON: I have one comment. You said you  
22 would like the ACNW --

23 MR. WYMER: Microphone. We can't get you.

24 MR. LEVENSON: Your last slide says you would like  
25 the ACNW to review this policy statement in parallel with

1 the Commission. The schedule you have shows it going to the  
2 Commission on August 1st. The ACNW does not have a meeting  
3 in August. The September agenda is pretty full.

4 What did you have in mind about this?

5 MR. PARROT: Actually, the plan is to get to the  
6 Commission by the end of August, and I think our thinking  
7 was that any comments that you had on it would be given to  
8 the Commission because they will be reviewing it at the same  
9 time.

10 MR. WYMER: Sure, so we can do it a little later.  
11 Well, are there any other questions, comments, gratuitous  
12 remarks?

13 If not, why, thank you very much. This is  
14 certainly and interesting --

15 SPEAKER: I'm sorry, I'd like to make one more --

16 SPEAKER: I'm sorry, Ray from the Citizens Task Force wanted  
17 to make one additional comment.

18 SPEAKER: Let me just add one last point: There  
19 has been some discussion of whether the issuance or  
20 prescription of the criteria should precede or follow the  
21 EIS that is being prepared by DOE and NYSERDA with NRC as a  
22 cooperative agency on that.

23 I think part of the thinking on that is erroneous.  
24 My concern is this; that DOE certainly, and, I think, to  
25 some extent, NRC staff, view this EIS that's now in progress

1 as something that NRC can rely on to support its  
2 decisionmaking with regard to criteria.

3           There are some substantial questions about that.  
4 They mostly revolve around the question of whether, on the  
5 one hand, the legal requirements have been met to comply  
6 with the NEPA requirements on scoping, the proper degree of  
7 involvement for an agency that really has decisions to make,  
8 as opposed to exert advice to offer.

9           And on the other hand, there are the problems with  
10 relying on West Valley EIS is that the West Valley EIS does  
11 not really go into the major issues that NRC would have to  
12 consider, namely, the durability of institutional controls.

13           That is a very tough question. As you probably  
14 know, 10 CFR 61, the LTR, and various other NRC policies  
15 have had to try to look at that question of the long-term  
16 durability of institutional controls. For a site like this,  
17 we're talking about thousands of years into the future.

18           The ongoing West Valley EIS looks at what happens  
19 if institutional controls remain in place, and takes at  
20 least a quick look at what happens if they fail.

21           But the important ethical and social questions of  
22 how much dependence should be put on institutional controls,  
23 that sort of serious discussion is absent from this EIS.  
24 That's the sort of thing that NRC has traditionally grappled  
25 with with regard to institutional controls.

1           So I question the idea that NRC will be that much  
2 further ahead from a NEPA standpoint in waiting for answers  
3 from the West Valley EIS. I don't think it provides the  
4 sort of thing that NRC needs to make its decision, and I  
5 don't think NRC has ever been involved as a full-fledged  
6 party to this EIS.

7           Thank you.

8           MR. WYMER: Thank you very much.

9           CHAIRMAN GARRICK: It might be appropriate to ask  
10 what has been the NRC's involvement, if any, in the EIS.  
11 Has there been any kind of an exchange process?

12           MR. PARROT: The NRC became a cooperating agency  
13 in the EIS in 1991. The draft EIS was issued in '96, and it  
14 discussed four or five alternatives, but it did not have a  
15 preferred alternative.

16           And NRC didn't have decommissioning criteria, but  
17 we reviewed it anyway. I think we looked at it against the  
18 criteria in Part 61. That was the best we could do at the  
19 time.

20           And then since then, they've been working on  
21 different sections of the updated EIS, and we've looked at  
22 parts of those that have to do with more of the performance  
23 of the site.

24           MR. WYMER: It's my understanding that as far as  
25 responsibility for the EIS is concerned, it's DOE and New

1 York State.

2 MR. PARROT: Yes, they're the lead agencies, yes.

3 MR. WYMER: They have the responsibility?

4 MR. PARROT: Yes.

5 MR. WYMER: Okay, well, thank you, Jack. We'll let  
6 you off the hot spot now. We want to thank the participants  
7 from West Valley, and we look forward to receiving the  
8 various pieces of information that you've said you would  
9 send to us.

10 We'll continue to look at this issue.

11 SPEAKER: Thank you very much for allowing us to  
12 participate by video conference as well. It was very  
13 informational.

14 SPEAKER: Thank you.

15 MR. WYMER: I don't know, but the agenda says we  
16 have a roundtable discussion of possible elements of an ACNW  
17 report.

18 CHAIRMAN GARRICK: One of the things here that is  
19 very important is to, of course, apply the NRC's license  
20 termination rule as the decommissioning criteria. That  
21 suggests that there was considerable study, was there not,  
22 of the applicability of the rule to West Valley?

23 Obviously, you want your regulations to be  
24 generic, to be general, but I'm sort of reminded a little  
25 bit of Yucca Mountain where we have a high-level waste

1 regulation, and we decided it was not applicable because of  
2 the uniqueness of Yucca Mountain.

3 Do we have a similar situation here?

4 MR. WYMER: The problem, John, is that there is  
5 not "a" West Valley; there are West Valleys.

6 CHAIRMAN GARRICK: I know, I know. Well, I'm  
7 talking about the complexity of the site, that's right. Are  
8 we trying to force-fit something here that just was not a  
9 part of the criteria that went into the development of the  
10 license termination rule in the first place?

11 What kind of a problem do we have?

12 MR. NELSON: Well, I'll try. This is Bob Nelson,  
13 Decommissioning Branch, NMSS.

14 I'll try to answer that. I think it's safe to say  
15 that when the license termination rule was formulated, we  
16 did not envision within the EIS that supported that rule,  
17 this type of site, if you include all the elements at the  
18 West Valley Project, including the NDA, in that.

19 And so -- but when the decision was made, at least  
20 to propose using the license termination criteria rule at  
21 the site, a lot of the logic elements that went into the  
22 formulation of the license termination rule were still  
23 there.

24 For example, what is the appropriate does limit  
25 for an unrestricted release? At what point should you

1 require institutional controls?

2 Those types of questions seem to be rather  
3 generic, and would be somewhat independent of, in my mind,  
4 anyway, of the specifics at the site.

5 At what point do you require durable institutional  
6 controls, so what should those institutional controls  
7 consist of? Those types of questions, to me, anyway, are  
8 generic and seem to apply to this site.

9 Why should you develop, for example, a different  
10 unrestricted release criteria for West Valley?

11 Why should you change the upper limit for  
12 institutional controls? There doesn't seem to be any  
13 compelling reason to do that.

14 So, I think that the decision was that we had a  
15 framework for decommissioning; there really didn't seem to  
16 be a compelling reason to significantly alter that  
17 framework, at least at the time the draft policy was  
18 formulated.

19 So, in short, that's basically the logic and the  
20 thinking. Was there an extensive detailed analysis done? I  
21 don't think that would be correct to say that that's what it  
22 was.

23 I think it was looking at the framework, and did  
24 the framework appear to bound the elements at West Valley,  
25 and the preliminary answer was yes.

1 MR. WYMER: Are there any other comments?  
2 Questions?

3 I don't know what the possible elements would be  
4 of a report, but we will have to think about that.

5 The issue is so complex, and there are so many  
6 gray areas. For example, you have some of the problems here  
7 that DOE has on its site with respect to closing out tanks.  
8 That's sort of a novel area for the NRC to be getting into  
9 and discussing what are you -- they've not closed out those  
10 tanks, and those are clearly within the West Valley  
11 Demonstration Project Act, because they're part of the  
12 high-level waste associated with the reprocessing, with the  
13 vitrification, and getting the high-level waste off the  
14 site.

15 And so there is the whole idea of can you fill the  
16 tanks with a friable grout, as is being proposed, say, at  
17 Savannah River? Can you have incidental waste left on the  
18 site? What are incidental wastes?

19 And so there are a lot of new issues here that  
20 certainly were not contemplated in the license termination  
21 rule.

22 CHAIRMAN GARRICK: It reminds me a little bit of  
23 at Hanford you have a 460 square mile site, and it looks as  
24 though the opportunities for decontamination are pretty  
25 good, except for the 200 area.

1 MR. WYMER: Yes, that's very similar.

2 CHAIRMAN GARRICK: Those are the high-level waste  
3 tanks. And so here you have 3300-plus acres, of which five  
4 acres are high level waste?

5 MR. WYMER: No, it's an NRC-licensed waste  
6 disposal area, mainly for the stuff that came out of the  
7 reprocessing activities.

8 CHAIRMAN GARRICK: But it's basically the  
9 equivalent of a high-level waste tank?

10 MR. WYMER: No, it's related to reprocessing, but  
11 it's not the equivalent of the tanks, no.

12 CHAIRMAN GARRICK: Oh, okay.

13 MR. WYMER: That's my understanding that it's not,  
14 certainly. And then there is the other state licensed  
15 15-acre site, which is totally separate. But of the 3345  
16 acres, I suspect that a lot of those are buffer and can  
17 eventually be turned over totally green field and shrink the  
18 site down substantially over time.

19 CHAIRMAN GARRICK: Well, that was the point I was  
20 going to make. The opportunity for Hanford is maybe to go  
21 to complete green field is one thing, but to go from 460  
22 square miles maybe down to 20 square miles is very  
23 reachable.

24 So what the equivalent of that here is from 3300  
25 acres down to maybe 20 acres. I don't know what the amount

1 is.

2 MR. WYMER: But if the thrust of our report is to  
3 comment on the decommissioning criteria, then clearly we  
4 need some information about the criteria, and we need the  
5 West Valley input with respect to their view on the  
6 criteria. So it means we're not done with this topic with  
7 respect to even formal --

8 MR. LARSON: I don't see how you could write a  
9 letter on the final policy statement and the comments, which  
10 is what the Staff has asked you to do, until you see them.

11 CHAIRMAN GARRICK: Well, one of the things that  
12 would be helpful has already been suggested. That would be  
13 for us to see the comments.

14 MR. WYMER: Then we could work backwards and  
15 figure out what the criteria were.

16 CHAIRMAN GARRICK: Then when we get the comments  
17 and we get the criteria, we can put it together.

18 MR. LEVENSON: I think what Howard said is a key  
19 point. In August, we are going to get the draft policy  
20 statement with the comments and replies to comments, and  
21 there's only a little we can do before see that  
22 documentation.

23 The other thing, as has been mentioned, this is a  
24 very complex site with some highly fractured lines of  
25 responsibility, and most of the members of this Committee

1 have their own opinions on many topics, but for a Committee  
2 letter, we have to limit ourselves to those things that are  
3 NRC responsibilities.

4 CHAIRMAN GARRICK: Right, right. But the comments  
5 on the NRC criteria would be very relevant.

6 MR. WYMER: Maybe we ought to close it out for now  
7 and revisit this after we've had a chance to review some of  
8 the information that will be sent to us.

9 Thank you very much. We'll close out this topic.  
10 Thank you for your participation from West Valley.

11 CHAIRMAN GARRICK: Thank you. Well, we've got two  
12 choices. We can jump into the next topic, if the people are  
13 here.

14 We'll take a break now, and then by the time the  
15 break is over, the viewgraphs may be ready.

16 [Whereupon, at 2:30 p.m., the recorded portion of  
17 the meeting was concluded.]

18  
19  
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24  
25

REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

NAME OF PROCEEDING: 120TH ADVISORY COMMITTEE  
ON NUCLEAR WASTE (ACNW)

CASE NUMBER:

PLACE OF PROCEEDING: Rockville, MD

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.



Mike Paulus

Official Reporter

Ann Riley & Associates, Ltd.

**TECHNICAL REPORT ON  
LOW-LEVEL WASTE  
PERFORMANCE ASSESSMENT**

**RESOLUTION OF PUBLIC COMMENTS**

**PRESENTATION BEFORE THE ACNW**

**JUNE 13, 2000**

**MARK THAGGARD, SR. SYSTEMS PERFORMANCE ANALYST  
NMSS/DWM**

**301-415-6718  
mxt3@nrc.gov**

# PRESENTATION OUTLINE

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- Purpose
- Background
  - ▶ History of BTP Development
  - ▶ Attributes of LLW PA Presented in the Draft BTP
  - ▶ Regulatory Positions in the Draft BTP
- Key Public Comments and Proposed Responses
- Proposed Revisions to the Document
- Summary

## **PURPOSE**

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To get feedback from the Committee, prior to finalizing the NUREG, on the proposed resolution of public comments.

# BACKGROUND

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## HISTORY OF DEVELOPMENT

- Late 80's/early 90's significant activities in LLW area
  - ▶ States were attempting to meet milestones of the LLRW Policy Amendment Act of 1985
  - ▶ NRC formulated a PA strategy
  - ▶ SNL developed a PA methodology (NUREG/CR-5453)
  - ▶ 6/14/91 SRM directed staff to develop a plan for enhancing staff PA capabilities in LLW
  - ▶ SECY-92-060 called for the development of PA guidance

# BACKGROUND

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## HISTORY OF DEVELOPMENT (CONT.)

- Early/mid 90's staff developed a preliminary draft of the BTP
  - ▶ Coordinated effort between NMSS and RES (PAWG)
  - ▶ Developed in parallel with a test case
  - ▶ Public workshop, ACNW briefing, interaction with national and international groups
- SECY-96-103 sought Commission approval to seek public comments on the draft BTP
- In a 8/7/96 SRM to SECY-96-103, Commission directed staff to seek public comments

# BACKGROUND

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## HISTORY OF DEVELOPMENT (CONT.)

- May 29, 1997 FRN sought public comments
- Completion of the BTP has been slowed because of the cut back in the NRC's LLW program
- Completion of the BTP is an output measure in the NRC's Performance Plan for FY-00
- Staff plans to finalize and publish as a NUREG and not as a BTP

# BACKGROUND

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## CONCERNS WITH EARLY APPROACHES TO PA

- PA conducted as a separate analysis - not necessarily integrated with site characterization or design
- Site characterization activities largely focused on ground water
- Generally little consideration of uncertainty or sensitivity

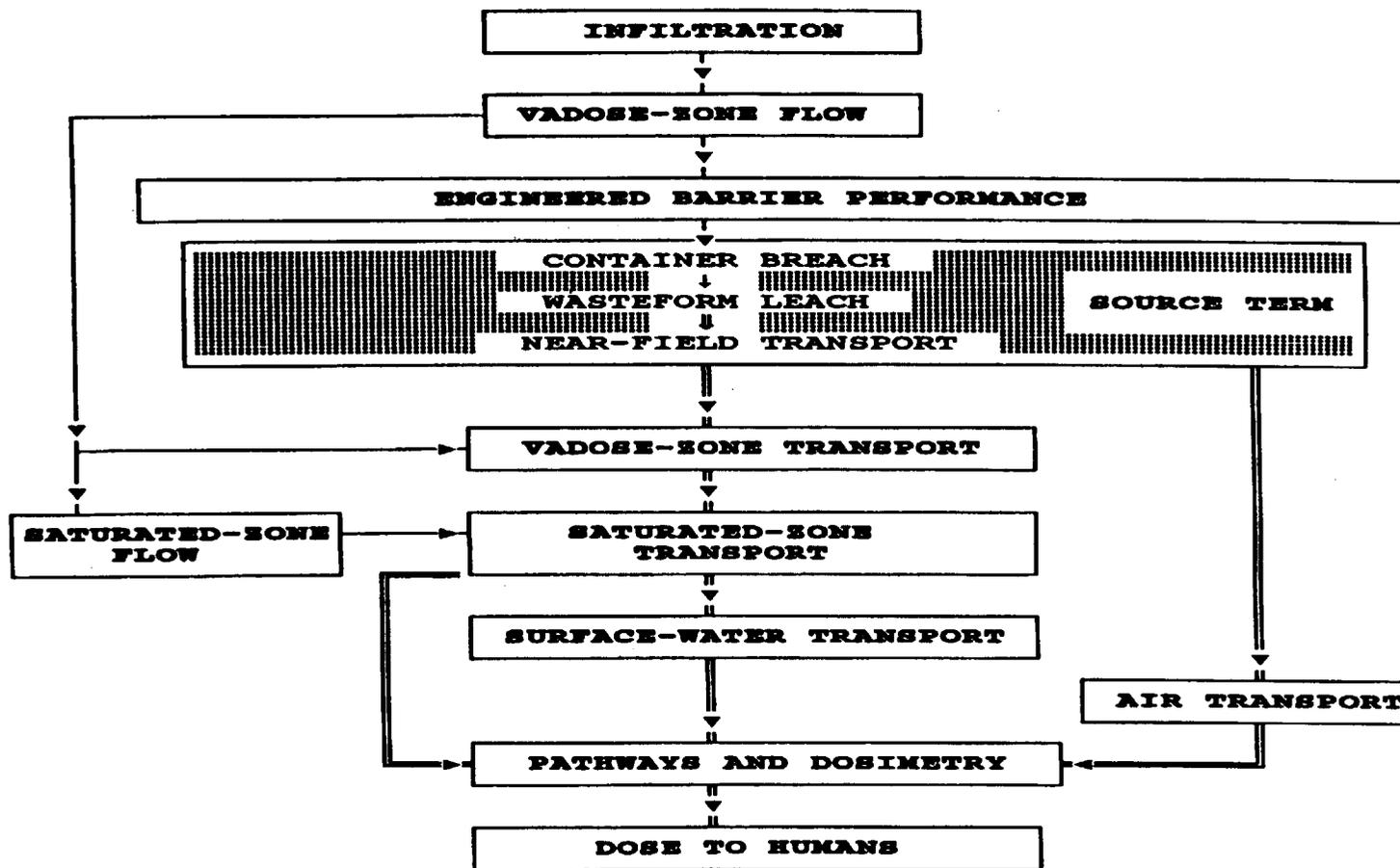
# BACKGROUND

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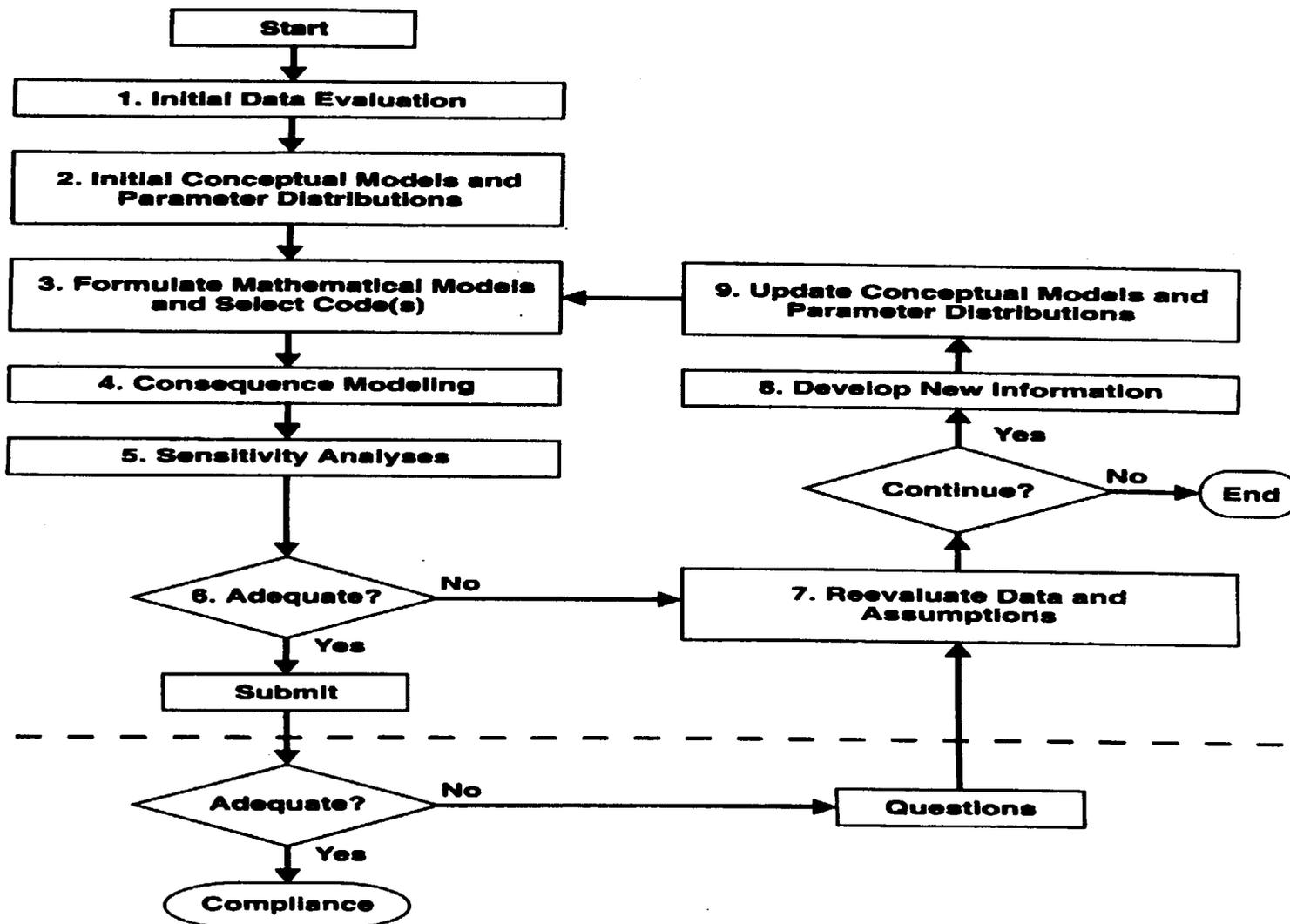
## ATTRIBUTES OF LLW PA

- Analyses of long-term performance (post-closure) to demonstrate compliance with 10 CFR 61.41
- Structured after PA Methodology
- Iterative process
- Integrates site characterization and engineering design with the PA
- Incorporates a formal treatment of uncertainty

# PERFORMANCE ASSESSMENT METHODOLOGY



# INTERACTIVE PROCESS



# BACKGROUND

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## KEY REGULATORY POSITIONS

- Timeframe for LLW PA
  - ▶ §61.41 does not specify a time of compliance for meeting the performance objective
  - ▶ Draft BTP position: 1) 10,000-year compliance period and 2) qualitative evaluation beyond 10,000 years
- Consideration of future site conditions, processes, and events
  - ▶ What assumptions should be made about long-term dynamic or transient site conditions?
  - ▶ Draft BTP position: use a “reference geosphere” and “reference biosphere” based upon current conditions

# BACKGROUND

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## KEY REGULATORY POSITIONS (CONT.)

- Performance of Engineered Barriers
  - ▶ How long should engineered barriers be assumed to be effective in isolating the waste?
  - ▶ Draft BTP Position: Assume that beyond 500 yrs, barriers are degraded; structural stability and chemical buffering can be considered for longer periods

# BACKGROUND

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## KEY REGULATORY POSITIONS (CONT.)

- Treatment of Sensitivity and Uncertainty
  - ▶ Deterministic vs Probabilistic analysis?
  - ▶ Compliance metric for probabilistic analysis?
  - ▶ Draft BTP position:
    - Bounding estimate for deterministic analyses
    - For probabilistic analysis: mean of the distribution  $\leq$  the performance objective and the 95th percentile of the distribution  $\leq 1$  mSv.

# PUBLIC COMMENTS

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## OVERVIEW

- More than 175 comments were received from 17 different organizations
  - ▶ Agreement States (MA, SC, IL, NE, TX)
  - ▶ Non-Agreement States (PA and NJ)
  - ▶ Federal Agencies (DOE and EPA)
  - ▶ Others
  
- On balance favorable reaction
  - ▶ Document fulfills a need
  - ▶ Document well written
  - ▶ Document reinforces on-going efforts
  - ▶ Document provides helpful, useful, and logical guidance

# PUBLIC COMMENTS

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## OVERVIEW (CONT.)

- Key comments focused on:
  - ▶ Four regulatory positions
  - ▶ Dose methodology
  - ▶ ALARA
  - ▶ Institutional controls
  - ▶ Ground-water protection
- Key revision
  - ▶ Staff positions in the Draft BTP are being withdrawn
  - ▶ NUREG is being published, in place of the BTP, and reflects views of PAWG

# **PUBLIC COMMENTS**

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## **TIME OF COMPLIANCE**

### **■ Comments:**

- ▶ A shorter time should be used (e.g., 500 years)
- ▶ A 10,000-year compliance period is appropriate
- ▶ PA calculations should be to peak dose

### **■ Responses:**

- ▶ A 10,000-year compliance period will generally include the period of time when the waste is most hazardous
- ▶ It is sufficiently long to allow an evaluation of natural site conditions
- ▶ It is consistent with other regulations

# TIME OF COMPLIANCE (CONT.)

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## PAWG POSITION

- Time of compliance should provide the technical basis for distinguishing between good sites and bad sites
  - ▶ The goal of the PA analysis is not to predict the future but to test the robustness of the facility against a reasonable range of possibilities
  - ▶ Ensures consideration of multiple barriers consistent with the NRC defense in depth policy (i.e., ensures that emphasis is not shifted from selecting a good site to developing engineering “fixes”)
- The time of compliance should not arbitrarily limit information to decision makers (NAS -“Technical Bases for Yucca Mountain Standards”)

# TIME OF COMPLIANCE (CONT.)

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## OTHER CONSIDERATIONS

- PA calculations are generally more reliable for estimating dose than estimating time of occurrence of dose (i.e., complex analyses may be needed to demonstrate compliance that rely on delaying releases)
- Limited support for shorter compliance periods (e.g., 1000 years) in comments solicited by EPA on a 10,000-year compliance period in EPA's LLW Pre-Proposal Draft Standard
- A 10,000-year timeframe was used by several states in their assessment (e.g., CA, NE, and TX)
- Analyses in the draft EIS for Part 61 were carried out to 10,000 years.

# PUBLIC COMMENTS

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## ENGINEERED BARRIER PERFORMANCE

- General comments:
  - ▶ The assumed 500-year performance life is arbitrary and without technical justification
  - ▶ It will discourage research to improve barrier performance
- Responses:
  - ▶ 500 years is generally sufficient to allow decay of short-lived radionuclides
  - ▶ Performance periods greater than 500 years can be assumed, but must be justified
  - ▶ Reiterating the need for justifying the performance period should encourage research into barrier performance

# PUBLIC COMMENTS

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## FUTURE SITE CONDITIONS, PROCESSES, AND EVENTS

### ■ General Comments:

- ▶ Uncertainties in human activities should be considered
- ▶ Use of the “Critical Group” concept is not justified

### ■ Responses:

- ▶ Consideration of future human activities is highly speculative with no scientific or technical answer
- ▶ Use of the “reference biosphere” and “critical group” concept is consistent with international opinion and practice

# PUBLIC COMMENTS

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## TREATMENT OF UNCERTAINTY

### ■ General comments:

- ▶ Use of the mean is not justified
- ▶ Use of the mean is appropriate, but may be difficult to communicate to the public
- ▶ Use of probabilistic analysis is an invitation to failure in the current socio-political climate

### ■ Responses:

- ▶ The position taken has both policy and technical considerations
- ▶ Use of the mean provides the best estimate of the system performance
- ▶ The approach in the NUREG is intended to provide a clear understanding of the sources of the uncertainty which should build confidence in the results
- ▶ The proposed approach in the NUREG is consistent with approaches used in other NRC regulatory programs

# **PUBLIC COMMENTS**

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## **DOSE METHODOLOGY**

- **General Comment:**

The Draft BTP recommends using a conventional TEDE calculation while the standard explicitly calls for the use of the older ICRP 2 Methodology

- **Response:**

As a matter of policy, the Commission considers 0.25 mSv/yr TEDE to be an appropriate dose limit to compare with the range of potential doses represented by the older whole body dose limits

# PUBLIC COMMENTS

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## ALARA

- **General Comment:**

BTP should provide guidance on how to comply with the ALARA requirements of §61.41

- **Response:**

The NUREG will include a discussion on how to address ALARA requirements by looking at the costs and benefits of various designs

# **PUBLIC COMMENTS**

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## **INSTITUTIONAL CONTROLS**

- **General Comment:**

Institutional controls should be maintained at disposal sites for as long as the waste remains hazardous

- **Response:**

Although Part 61 conservatively limits reliance on institutional controls to 100 years, in most cases they will likely be maintained indefinitely

# **PUBLIC COMMENTS**

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## **GROUND-WATER PROTECTION**

### **■ General Comment:**

Meeting §61.41 will not ensure that EPA's MCLs will be met

### **■ Responses:**

- ▶ The comment is beyond the scope of the document
- ▶ Current regulations provide adequate protection
- ▶ MCLs were not developed specifically for ground-water protection
- ▶ MCLs are based on an out-dated modeling approach

# PUBLIC COMMENTS

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## OTHER

- Test case should be published as an example
  - ▶ The test case was presented as part of a two-day public workshop
  - ▶ The NRC has limited resources
- BTP should advocate the use of peer reviews
  - ▶ The NUREG will encourage the use of peer reviews and expert elicitation
- BTP should address criticality
  - ▶ Potential for criticality is extremely remote
  - ▶ Appropriate measures are expected to be taken during facility operation
  - ▶ Additional guidance is being developed

# **PROPOSED REVISIONS TO THE DOCUMENT**

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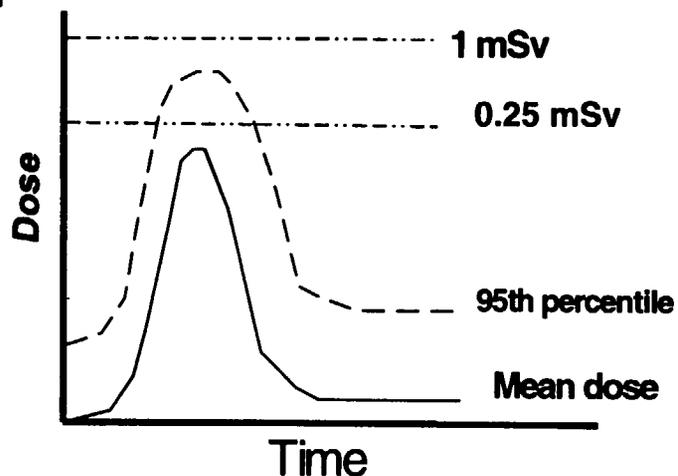
- Resolution of comments (included as an Appendix)
- Commission's Policy Statement on the Use of PRA Methods in Nuclear Regulatory Activities (included as an Appendix)
- Bibliography on Engineered and Natural Barriers
- Revised approach on the treatment of uncertainty
- Discussion on the Commission's position on the use of TEDE
- Information on demonstrating ALARA
- Recommendations on the use of peer reviews and expert elicitation
- Additional clarification provided in some areas
- Expanded glossary
- NUREG reflect views of PAWG

# **REVISED APPROACH ON TREATMENT OF UNCERTAINTY**

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- Previous approach: mean of the distribution should be less than 25 mrem; 95th percentile of the distribution should be less than 100 mrem.
- New approach: peak of the mean dose as a function of time should be less than 25 mrem; plot of the upper 95th percentile of doses as a function of time should be less than 100 mrem.
- Generally, consistent with approach used in HLW and decommissioning.
- Better representation of risk to an individual; therefore, more in line with the agency's risk-informed regulatory philosophy.

## Proposed Approach



$$\text{Mean}(t) = \frac{\sum_{k=1}^N \text{Dose}_k}{N}$$

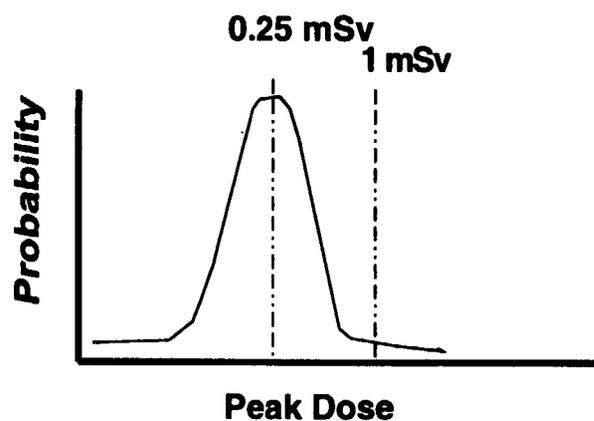
where:

$\text{Mean}(t) \equiv$  mean dose at time  $t$

$\text{Dose}_k(t) \equiv$  dose for run  $k$ , at time  $t$

$N \equiv$  total number runs

## Previous Approach



$$\text{Mean} = \frac{\sum_{k=1}^N \text{Peak}(k)}{N}$$

where:

$\text{Mean} \equiv$  mean peak dose

$\text{Peak}(k) \equiv$  peak dose for run  $k$

$N \equiv$  number of runs

# SUMMARY

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- On balance the comments on the document were favorable
- Positions taken in the document remain largely unchanged; however, reflect views of PAWG
- Position on the treatment of uncertainty revised to be consistent with approach used in other program areas
- Responses provided for all comments
- Some additional information provided



*United States*  
*Nuclear Regulatory Commission*

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**NRC's Draft Policy Statement on  
Decommissioning Criteria for the  
West Valley Demonstration Project and  
West Valley Site**

Jack D. Parrott  
Office of Nuclear Material Safety and Safeguards  
Division of Waste Management

ACNW Meeting  
June 13, 2000

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*United States  
Nuclear Regulatory Commission*

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## **NRC's Decommissioning Criteria for West Valley**

- Issued December 3, 1999
- Apply the NRC's License Termination Rule
- Public Meeting held at West Valley January 5, 2000
- Comment period closed April 1, 2000



*United States  
Nuclear Regulatory Commission*

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## **The Draft Policy Statement**

### 3 Components

- Apply the NRC's LTR as the decommissioning criteria
- DOE/NYSERDA proposes a preferred alternative/develops EIS to support
- NRC verifies specific criteria meets the LTR, and prescribes its use after considering the impacts in the EIS



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Nuclear Regulatory Commission*

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## **Summary of Comments**

- DOE
- State of New York
- EPA
- Others



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## **Schedule for completion of Policy Statement**

- Submit responses to comments and any revisions to the policy statement to the Commission (8/00)
- Receive input from the Commission (10/00)
- Revise Policy Statement as needed and publish in the Federal Register (12/00)



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## **Other NRC West Valley Activities**

- NYSDEC Cooperation Agreement
- Commission Paper on Stakeholder Interactions
- Reviewing Remote Handled Waste Facility PSAR
- Upcoming review of EIS technical sections
- Upcoming review of EIS preferred alternative



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## **Future Interactions with ACNW on West Valley**

Staff will provide ACNW with the draft response to comments and final policy statement at the time of transmittal to the Commission for parallel review