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OFFICIAL TRANSCRIPT OF PROCEEDINGS

NUCLEAR REGULATORY COMMISSION

ADVISORY COMMITTEE ON NUCLEAR WASTE

Title: 95TH ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW) MEETING

Docket No.:

TR08 (ACNW)
RETURN ORIGINAL
TO BJWHITE,
ACRS T-2E26
415-7130
THANKS!

Work Order No.: ASB-300-51

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LOCATION: Rockville, Maryland

DATE: Thursday, November 20, 1997

PAGES: 1 - 141

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ADVISORY COMMITTEE ON NUCLEAR WASTE

NOVEMBER 20, 1997

The contents of this transcript of the proceeding of the United States Nuclear Regulatory Commission Advisory Committee on Nuclear Waste, taken on November 20, 1997, as reported herein, is a record of the discussions recorded at the meeting held on the above date.

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

UNITED STATES NUCLEAR REGULATORY COMMISSION

ADVISORY COMMITTEE ON NUCLEAR WASTE

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95TH ADVISORY COMMITTEE ON

NUCLEAR WASTE (ACNW) MEETING

U.S. Nuclear Regulatory Commission
Two White Flint North, Room 2B-3
11545 Rockville Pike
Rockville, Maryland 20852-2738

Thursday, November 20, 1997

The Committee met pursuant to notice at 8:30 a.m.

MEMBERS PRESENT:

B. JOHN GARRICK, Chairman, ACNW

GEORGE HORNBERGER, Vice Chairman, ACNW

F. FAIRHURST, Member, ACNW

RAYMOND G. WYNER, Member, ACNW

HAROLD LARSON, Member, ACNW

JOHN T. LARKINS, Executive Director, ACRS/ACNW

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STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

RICHARD K. MAJOR, STAFF

GIORGIO GNUGNOLI, ACNW STAFF

MIKE BELL, NMSS

ANDREW C. CAMPBELL, ACNW STAFF

LYNN DEERING, ACNW STAFF

CAROL HARRIS, ACNW STAFF

MICHELE S. KELTON, TECH STAFF

SUSAN SHANKMAN

JOHN W. SORENSEN

P R O C E E D I N G S

[8:30 a.m.]

CHAIRMAN GARRICK: The meeting will now come to order.

This is the first day of the 96th 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, Raymond Wymer, and Charles Fairhurst.

The entire meeting will be open to the public. During today's meeting the Committee will meet with NRC's Division of Waste Management to discuss budgets and priorities for fiscal year '98. We will review the Standard Review Plan for spent fuel dry storage facilities.

We will meet with the Director of NRC's Division of Waste Management to discuss items of current interest.

We will prepare ACNW reports on, first, the Standard Review Plan for spent fuel storage facilities; second, ACNW priorities and strategic plan; third, ACNW input on nuclear waste related research to the ACRS report to Congress on NRC's research program; and we will discuss committee activities and future agenda items.

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 or requests to make oral statement 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 staff, and it is requested that each speaker use one of the microphones, identify him- or herself and speak with sufficient clarity and volume so that he or she can be readily heard.

Before proceeding with the first agenda item, I would like to cover some brief items of current interest.

Number one, starting November 17th this year, Dr. Savio will be on a rotation as part of a developmental assignment in the Office of Nuclear Regulation. Dr. Savio will be Project Director for six of the Region III plants. During this three month rotation, Dr. Gail Marcus will be rotating into his position and will be the Acting Deputy Executive Director for the ACRS ACNW.

Starting December 1, 1997, Mr. Sam Duraswami, Branch Chief for the ACRS, will be on rotation as part of a development assignment in the Office for Analysis and Evaluation of Operational Data.

Mr. Duraswami will be involved in this developmental assignment for three months. An Acting Branch Chief will be designated on or before December 1, 1997.

It shouldn't be this difficult because something must be wrong with the microphone because it's never required this much directional voicing. We are having microphone problems.

CHAIRMAN GARRICK: The second item of interest, the Environmental Protection Agency has proposed to certify DOE's Waste Isolation Pilot Plan, which would be the world's first geological repository for permanent disposal of transuranic and transuranic mixed waste. However, there is a long way to go before the $1.8 billion site in New Mexico opens. The New Mexico Environmental Department has not yet issued a key permit. The debate on that permit is expected to last for months.

If both EPA and the state give WIPP the thumbs up, opponents likely will sue to prevent the site from opening, so there is a bit of a road ahead yet on the operation of WIPP.

Item number three, as expected the Westinghouse Electric Corporation announced Friday that it has agreed to sell its conventional power generation business to Siemens of Germany for $1.525 billion in cash. Westinghouse says it expects to complete divestiture of its industrial businesses including its nuclear power assets by mid-1998, leaving it as a pure playing media company. Effective December 1 it is changing its name, in fact, to CBS Corporation.

Are there any other items of interest that Staff or any other members wish to bring up?

MR. FAIRHURST: I am just interested in this Westinghouse announcement, saying that Westinghouse is the operating contractor for WIPP. Does that mean that they will be out of that?

CHAIRMAN GARRICK: It's not clear to me. Apparently Siemens would be the operating contractor.

MR. SORENSEN: This is Jack Sorensen. I think the Government operations are a separate organizational unit and their disposition has not been established yet.

CHAIRMAN GARRICK: Thanks, Jack.

All right. I think that if there are no other comments or suggestions from either the Committee or Staff or anybody in the audience, we will move into our agenda.

The first item on our agenda is the NRC's Division of Waste Management discussion or NMSS priorities for the coming year. The purpose of this is to discuss budget and priorities for fiscal year '98 and proposed interactions with ACNW.

I guess Mike Bell is going to be the speaker for this and he will introduce the topic as well as any other possible participants, so go ahead, Mike.

NRC DIVISION OF WASTE MANAGEMENT, NMSS

PRIORITIES FOR THE COMING YEAR

MR. BELL: I'm Michael J. Bell and for about the past six months now I have been the Acting Chief of the Performance Assessment and High Level Waste Integration Branch in the Division of Waste Management and one of my principal responsibilities is the project management of the High Level Waste Program in the NRC.

Today's presentation is really going to focus on the High Level Waste budget and priorities, since I think that is the area of probably the most interest to the Committee. During his remarks during the Director's session this afternoon, John will say a little bit more about the budget situation and the other areas in the division.

Basically this is a good time for this presentation. It's still relatively close to the beginning of the fiscal year and what I would like to go over with you today basically is some of the things we accomplished in fiscal '97, what are the major things going on in the national program in fiscal '98 and a few years beyond that and are driving some of the work in the High Level Waste Program, how we structured our priorities given the budget that we received, and then based on that, the things that we would propose to be interacting with the ACNW on during fiscal '98.

You may or may not know that the NRC request for the High Level Waste Program for fiscal '98 was for a $17

million program. The appropriation in fact was about $15 million so that early in this fiscal year we have essentially done a lot of reprogramming and prioritizing to deal with the less appropriations.

Basically we are continuing what we call our refocused program that focuses on resolving the key issues most important to repository post-closure performance with the target of trying to come to closure at the staff level on a number of these issues to provide timely guidance to DOE as it prepares its viability assessment, which is scheduled to be published at the end of this fiscal year.

Let me briefly turn to some of the accomplishments and before somebody else points it out, I'll point out that we don't have a new site. We are still considering the Yucca Mountain site -- not the Yacca Mountain site down there in the third from the bottom bullet.

CHAIRMAN GARRICK: It's not so inappropriate.

[Laughter.]

MR. BELL: But basically some of the recent accomplishments have been to reach agreement with DOE on a performance-based program that essentially uses total system performance as the main topic of discussion that focuses all our interactions and is the area that we see as key to coming to closure on if we can reach agreement with the Department on the kinds of things that need to be done to

assess post-closure performance and the results of that post-closure performance indicate that performance is acceptance basically we think the national program is headed in the right direction to have a licensable depository.

One of the important accomplishments of this fiscal year was to develop a pilot -- what we call issue resolution status report on how the staff would approach resolving one of the key issues for repository performance.

We selected the issue, the topic of future climate change and basically developed this report which lays out the Staff Review Procedures, what we would fine acceptable in terms of a DOE submission on that topic, summarized basically what we thought the state of knowledge was, and essentially tried to lay a road map for what issue resolution in that area would involve.

That was transmitted to DOE at the end of June of the last fiscal year. We received a response from DOE that was very positive, that said that the acceptance criteria were the kinds of guidance they needed for their program and encouraged us to continue this sort of document, which was helpful because at the end of the fiscal year we produced five other issue resolution status reports in areas related to unsaturated and saturated flow, the effects of heat on flow, geologic and seismic issues, repository design, and near-field coupled effects.

These have all been transmitted to the Department over the period of about the first month of this fiscal year and we are on the schedule to brief you on those next month in more detail and basically I want to make you aware that those documents are available. The ACNW should have copies of them and we're planning to brief you on them and we would like your feedback.

Some of these bullets in fact are the subjects that are covered in these issue resolution status reports.

I think another important situation is that really some time ago, not before fiscal '97, we had accepted DOE's documented QA program and had been monitoring implementation of that program for some time and basically again their QA program for the work that they are doing in the repository program seems to be of the right level to contain the right activities, that if they continue to apply it while developing the license application it should result in our being able to review the application without the quality of the design or the data supporting the design and analyses being a major unresolved issue.

There are two other issue resolution status reports that are scheduled for the early part of this fiscal year. One of them is the one on igneous activity and then there is another one on total system performance assessment that basically these issue resolution status reports -- in

fact you may see before the next meeting, but I am not sure we are going to be prepared to address them in the briefing.

MR. FAIRHURST: Could I ask you a question? What is the upper bounds? On the last bullet you said you have reached agreement with DOE on the upper bound for the probability. What is it?

MR. BELL: Well, being new to the committee, we have had several briefings and workshops with the committee over the past year and basically we are in the range of an annual frequency of the extrusive disruption or disruption of repository waste, extrusive volcanism of 10 to the minus 7 or 10 to the minus 8. So over a 10,000 year period, performance means it is 10 to the minus 3 to 10 to the minus 4 probability of occurrence.

MR. FAIRHURST: So does that mean that they have to identify the consequences of a volcanic event?

MR. BELL: Yes. We believe that is still sufficiently high probability that the consequences need to be assessed so that the total risk can be put into perspective and the efforts now are on reaching agreement on the components on that consequence analysis.

MR. FAIRHURST: S the agreement is between 10 to the minus 7 and 10 to the minus 8.

MR. BELL: Basically if our goal is to keep pace with the national program, the first question is, well, what

is happening in the national program.

There are three Federal agencies involved with the Department of Energy with the responsibility for developing a repository; NRC, with the regulatory role; and EPA has the role of setting the overall environmental protection standards for the repository.

Some of you know EPA was to have by this time issued a standard that takes into account the recommendations of the National Academies' technical basis report. EPA has been working on this for some time.

There has been at the staff level some number of meetings between the Department, NRC and EPA staff. It's really still unclear to us what their schedule is, but we get some indications that perhaps late this calendar year or early 1998 they may in fact be in a position to propose their standards.

Now actually there is probably one piece of news that you need to know, that Dr. Garrick didn't mention is that legislation has passed both houses of Congress to revise the High Level Waste Programs.

The two bills are different. Both of them provide for some sort of central interim storage at the Nevada test site. Both of them address the content of the overall standard for Yucca Mountain and deal in fact with the role of EPA in setting that standard.

In fact, one of the bills would set the standard itself and EPA would have no role unless for some reason the NRC thought that the standard set by Congress was not sufficiently protective and felt the need to consult with EPA on the development of some other standard.

Now since the two bills are different, the expectation is that there will be a conference committee in early 1998 when Congress reconvenes that something is likely to come out of the conference committee that the President at this point has still said that he would veto but the House passed their legislation with enough, with more than enough votes to override a veto and the Senate was within I think it was two votes of having the necessary votes to override a veto.

So there may be in 1998 new legislation for the High Level Waste Program that in fact would have some impact on our program planning.

The next line addresses the DOE's development or I guess revision of their 10 CFR 960, the siting guidelines for the high-level program. The proposed revised siting guidelines, quite some time ago they have interacted with the NRC on -- NRC has a role in concurring -- the Department would revise and we've had interactions between the two agencies. Basically the Commission has decided that the role -- the type of review they would be -- would be to

determine whether or not there were -- they had an objection to anything that DOE was proposing to do in these guidelines. This is say a different role from when the guidelines were initially established when the Commission went through a very elaborate review and concurrence process.

The two milestones here are NRC activities to revise our Part 60 regulations. We anticipate in either the event of legislation setting a new environmental standard or a proposed EPA standard that Part 60 would either need to be amended or replaced with a standard that would have as its overall performance measure, either dose or risk, that would need to address a number of the recommendations of the National Academy Panel such as developing a stylized intrusion scenario specifying how we would approach issues like what is the critical group, pre-Yucca Mountain use of a reference biosphere and a dose-risk assessment, and related matters.

There is a paper that we have developed for the Commission to essentially get their approval to start this rulemaking that is working its way through the NRC concurrence process. As of today it has not reached the Commission, and by the time of the next meeting in December the -- it's unlikely that we would have a Commission vote and it would have become a public document. So where I

expect us to be at the time of the December meeting is the paper would be at the Commission, ACNW would have copies of it, but it would not yet be a public document, and for your December meeting we would not be in a position to discuss its contents in a very open way. So it had showed up as one of the potential items for next month's meeting, and we're now recommending it should be taken up in the following meeting.

There is a key end date here. Basically the Department has told the Commission in Commission briefings and management meetings we have had that they need to know what our final high-level waste regulation will be by about July of 1999 in order to not delay their schedule for preparing the license application, and basically this is our target end point.

The third line shows our activities, develop the issuing resolution status reports. As I mentioned, actually this star is at the end of fiscal 1997 or the very beginning of '98, the five issue resolution status reports that have already been developed. Our plan is essentially these are the living documents. In the title they have a term status. Each of them deal with a number of subissues, and as we gain new information or are able to resolve additional subissues within an issue that these would be updated, and we're shooting for about the end of June for a set of revisions

plus the publication of a few additional issue resolution status reports in some areas that we haven't covered as yet. Basically we feel this is about the latest that we could make this information available and be useful for the Department for the viability assessment at the end of the year.

The plan would be after we review the viability assessment any new information that we would learn through that review for additional work we've done in our program we would update these again, and essentially these would be building into parts of a standard review plan for the postclosure part of the repository. As I said, some of the contents of one of these resolution status reports are the staff's review procedures and the acceptance criteria that would normally be found in a standard review plan. But at our reduced budget level, we aren't in the position to actually develop a formal document that we would call our standard review plan.

Basically line 4 is the review of the viability assessment that would -- our product would be a paper to the Commission that would allow the Commission to comment to Congress if requested when requested on the Commission's views on the viability of the program. Our plan was if we had received the full funding of the 17 million to in fact resume working on a standard review plan in fiscal '99.

This is one of the potential impacts on out-year work of the $2 million reduction we got in the '98 budget. Basically a number of out-year activities I think are here for completeness leading up to things like the submittal of a license application, the DOE's decision on the sufficiency of data to prepare the license application, our involvement in their development of an EIS, and we're required by statute to adopt that EIS.

CHAIRMAN GARRICK: Mike, you're suggesting that the budget reduction is going to hit you with respect to the development of the standard review plan?

MR. BELL: That's right.

CHAIRMAN GARRICK: Can you elaborate on that a little bit? Does it mean you're not going to have a standard review plan, or you're going to have an abbreviated standard review plan?

MR. BELL: We -- the plan or the impact seems to be that we would have an incomplete standard review plan. The net effect of now the third year of appropriations less than the request has been essentially keep putting off a number of things dealing with preclosure, surface facilities, even some aspects of postclosure that are, you know, less important, that don't rise to the level of the 10 KTIs that we've been working on, and, you know, even some of the work at the Center on three of the 10 KTIs was

eliminated last year.

So, you know, this tremendous bow wave of work that's been pushed out that, you know, the plan has always been that, well, if we ever get the funding restored, we'll start to catch up, so by the time of licensing we would have a standard review plan, we'd have a fully documented performance assessment methodology for both preclosure as well as postclosure, and, you know, we can proceed, for example, if we continue to find ourselves in a situation where we have reduced appropriations that the license application will arise and we'll end up developing our review procedure and our acceptance criteria and our methodology for the operational period while we're doing the review.

Now I'd like to focus on --

CHAIRMAN GARRICK: Just a comment. I realize that last exhibit was a summary schedule, and also that you're going to talk about priorities in the context of the KTIs, but could we interpret that also as sort of a global view of your priorities, that schedule that you just showed?

MR. BELL: Well, I mean, what the schedule for the most part reflects is the national program, and there are a number of things DOE is doing that we're trying to keep pace with, and so -- can probably put it back up again.

So basically, you know, some of this works back

from the fact that in 2002 the Department's going to submit a license application. Part of their plan is in fact to develop what they call their working draft license application that they would be iterating with us on. Part of the -- you know, at the license application, you know, they also need to have completed the EIS, made the statutorily required recommendation of the site to the President, and basically the triangle shows the DOE activities and the stars are NRC has some actions, to comment, to concur, to adopt, and one of the few areas I guess where there is some flexibility is the standard review plan, which is a guidance document that's proactive and say it's -- it's likely --

CHAIRMAN GARRICK: So in the absence --

MR. BELL: Likely candidate --

CHAIRMAN GARRICK: Yes. But in the absence of standard review plan, what is the mechanism of guidance?

MR. BELL: Basically for the things we're funded to work on, it will be the IRSRs. So for the key technical issues, the guidance will be the acceptance criteria, the review procedures, the rationale for closure of issues that are contained in those documents. For other areas they're just not being worked.

CHAIRMAN GARRICK: How about the technical exchange meetings? Do they -- are they serving --

MR. BELL: We do not have technical exchanges, for example, on preclosure. We have a rule on the design basis events, for example, that was promulgated a year or two, that now requires DOE to analyze, you know, potential events during the operational period to do an offsite dose assessment that, you know, we're just not interacting with them on what their methodologies are, any of the outcomes of those assessments.

I mean, that area of the review of the license application will, unless things change, will just start to focus on it in 2002 when the application arrives on our doorstep. And that's what the, you know, so far at least we've been unsuccessful at, you know, getting the message across to Congress that there's a cost involved in that, and the cost of delay later in the program is going to be much higher than the few million dollars they're saving now.

CHAIRMAN GARRICK: Well, there's some concerns surfacing here. On the one hand you hear the DOE talk about the viability assessment exercise as something to give them experience in the licensing arena, kind of a pilot application, although you might not find much official documentation with respect to that objective, but on the other hand it sounds like the NRC is to have little or no role, and certainly no official role, in the viability assessment. And in the absence of a standard review plan,

one can't help but think that the viability assessment provides an ideal opportunity for the NRC to get some insights on how to license this facility as well. Are we missing an opportunity there?

MR. BELL: Well, we don't think we're missing an opportunity because we think that we're, you know, we're focusing on the key technical issues that essentially the kinds of things that are going to be most important to the viability of the site are postclosure issues, not, you know, how you design the hot cells and the surface facilities for the receipt and handling and packaging of the materials.

I mean, those are design issues rather than some of the postclosure kinds of issues that could in fact render the site not viable if site conditions are unsatisfactory or DOE can't design an acceptable isolation system to accommodate the site. So we think we are focusing on the most important things, but the -- at some point we're going to have to look at the rest of the safety issues and the site-design issues and say a program that really kept pace with the national program would be doing some of that now, and just not continually postponing this issue.

CHAIRMAN GARRICK: I'll try to show more patience. I'll wait to hear some of the rest of the story.

MR. BELL: I guess, you know, we focused a lot on what we are not doing. Here is what we have been doing.

Basically, the Committee has seen this list of key technical issues a number of times before.

Essentially, based on progress made this year, things we have learned in developing our performance assessment models and iterating with DOE on their performance assessment models for Fiscal '98, we have reprioritized our work.

Some things have changed because of changes in the DOE program. For example, radionuclide transport was considered a low priority at one time because DOE's isolation strategy didn't appear to be taking much credit for this.

Now, it seems like the DOE program has changed and we need to be paying attention to it, and so we have increased the priority there.

In some areas like igneous activity, I think we have made substantial progress in resolving some of the issues and we can give less attention and, correspondingly, less funding in that area and use those resources elsewhere.

One of the things you will see in Fiscal '97, the three years, radionuclide transport, container life and source term, or repository design, they don't actually show zeroes. There was a small expenditure of resources at the Center in the first quarter of Fiscal '97, essentially, to produce the annual report that documented the '96 work.

But, essentially, there's no new technical work at the Center in these key technical issues.

The plan, if we had got the $17 million request, was to increase all of those areas. I mean, basically, another change in the DOE program has been much more emphasis on the engineer barrier system, looking at alternative engineering barriers.

You have heard the briefing from them, with all the options they are looking at in terms of things like drip shields and various backfills and getters and inverts. And, basically, you know, we have had to put resources back into both container work and the repository design work.

Now, the appropriation turned out to be $15 million rather than $17 million, basically, we have had to go back and revisit the allocation again, and so, for example, in repository design, you know, we ended up not increasing it nearly as much as we had planned at one time. Whereas, in radionuclide transport, I think we deciding it was now looking sufficiently important that none of the $2 million cut was taken there.

MR. FAIRHURST: Excuse me. Could you explain the figures a little bit?

MR. BELL: Yes. Okay.

MR. FAIRHURST: First of all, "C" mean Center?

MR. BELL: I'm sorry. Yeah, "C" is FTE's, what we

are showing here is --

MR. FAIRHURST: No. Wait. Yeah. But the bottom is 37?

MR. BELL: -- FTE's at the Center and NRC.

MR. FAIRHURST: And the bottom numbers, how do they relate to the $17 million, $15 million?

MR. BELL: Basically, you know, there is a factor that converts an NRC staff FTE and Center's FTE to money.

MR. FAIRHURST: I see, so those are FTE's.

MR. BELL: Yeah, these are in FTE's. I'm sorry.

MR. FAIRHURST: Okay.

MR. BELL: So, basically, fully loaded at the Center, an FTE, I think runs about $280,000, and an NRC FTE is about half of that.

MR. FAIRHURST: So 280 times the sum of the two numbers should equal $17 million --

MR. BELL: No, 280 times the Center column will give you the ballpark of the Center budget. And it is probably about 120-or-so times the NRC FTE's to the get the NRC.

MR. FAIRHURST: Thank you.

VICE CHAIRMAN HORNBERGER: Mike, how -- can you give me some indication of how these numbers translate? For example, the TSPA is still rate a high priority.

MR. BELL: Yeah, it is still -- still our highest

priority, I would say.

VICE CHAIRMAN HORNBERGER: Yeah, the highest priority but you have the biggest cuts in FTE's.

MR. BELL: Well, it has come down only because --Fiscal '97, there was a lot of work here developing TPA 3.1. Now, basically, we are using the code to do sensitivity analyses. The sensitivity analyses are actually being run, not by the assessment staff, but by the technical staff in their areas, to look at what are -- a sense of the parameters. You know, what are the model uncertainties in this?

VICE CHAIRMAN HORNBERGER: So you have apportioned those back out --

MR. BELL: Yes.

VICE CHAIRMAN HORNBERGER: -- into these other KTI's.

DR. WYMER: Mike, what is included in this evolution of the near-field environment?

MR. BELL: That is, basically, the area where we look at the effects of heat generated by the waste packages on the chemistry of the water that reaches the waste packages.

DR. WYMER: An implication of evolution is that it changes with time.

MR. BELL: That's right. Because, you know, the

thermal pulse changes with time. The -- as packages begin to corrode -- you know, the engineered materials, as they degrade, are going to change the chemistry. And, basically, it provides the source turn for the corrosion models that the container KTI needs.

CHAIRMAN GARRICK: It looks like the biggest hits are on the Center, is that correct?

MR. BELL: Well, the biggest hits are on us.

CHAIRMAN GARRICK: In terms of FTE's.

MR. BELL: Well, the Center, basically -- in any of these scenarios, the NRC staff has to manage the Center work, manage the program. And, basically, the NRC resources, you know, have stayed constant for some years.

Basically, all of the $2 million cut, you know, --let's see, a $17 million budget at request would have been, in effect, about a $3 million increase at the Center. Basically, what transpired was about a $1 million increase at the Center.

Now, you won't be able to take those numbers, you know, the $280,000 per FTE and make this come out exactly. Because what happens at the Center when -- when they took the cut, was they eliminated a number of outside consultants. They -- they had some part-time employees and such who were dropped from the program. And the overhead, essentially, goes down in their --

CHAIRMAN GARRICK: Yeah, I was thinking --

MR. BELL: So they actually were running about $240,000 in FTE back here. The plan now would be to restore some of these consultants and other activities that they had to eliminate.

CHAIRMAN GARRICK: Yeah, I was looking mostly at the basis for this reduction from $17 million to $15 million, rather than the Fiscal Year '97 to Fiscal Year '98. And I guess an unfair question here, is this -- this 44.8 to 39.3 reduction science driven or politically driven?

MR. BELL: Well, I mean we think it is technically, you know, based -- based on the needs of the program.

CHAIRMAN GARRICK: All right. Well, go ahead. I said it was an unfair question.

MR. BELL: Well, I guess my plan was to lay this out and give you the opportunity to talk about it. Essentially, you know, we are working in the same ten post, areas that are important to post-closure performance that we have been working on for the past several years now.

The plan is to restore the work in the three KTI's that have been zeroed out at the Center. There have been some changes that just reflect progress that is being made or changes in the nature of the work.

CHAIRMAN GARRICK: Well, if you want to talk about

it a little bit, I am a little bit struck by the fact that you go from a high priority to a low priority, for example, on igneous activity. I don't sense a correspondingly reduction from a high budget to a low budget. And I also know that this same committee has recommended that there be a certain level of volcanic activity sustained and I -- but, it does suggest to me what you mean, what the difference is between high and low, and it doesn't like, at least on the basis of that one entry, that there is much difference.

MR. BELL: Well, I think you may only be focusing on the Center. You notice the staff FTE has come down considerably. And, you know, --

CHAIRMAN GARRICK: Well, actually, I was looking at the totals. That's right. You go from 3.5 to, you know, from 6 to about 3.5. Okay.

MR. BELL: As you are the committee has written us a letter on this --

CHAIRMAN GARRICK: Right.

MR. BELL: -- program that essentially says try to wrap it all up --

CHAIRMAN GARRICK: This year, right.

MR. BELL: -- this year. This is our estimate of the resources, essentially.

VICE-CHAIRMAN HORNBERGER: Can you give me some indication, if I just pick two of your items, the KTI and

unsaturated/saturated flow, isothermal -- which was high in '97 -- remains high in '98 and repository design and thermal mechanical effects -- which was low in '97 and remains low in '98 -- can you give me some insight on how that choice was made?

I mean I think that I could probably mount an argument to suggest that it should have been low to high and high to medium or high to low.

MR. BELL: Well, I guess our rationale is in fact the isothermal flow is becoming more and more important as it appears that there is more and more flow that is reaching the repository horizon. You recall a few years ago that DOE was saying it was a tenth of a million per year and now we are looking at numbers that are in the range of five and maybe even slightly higher than that depending on which DOE expert you talk to.

This is the area that looks at the fracture flow that reaches the repository horizon and the infiltration t the repository has consistently come out in everybody's TSPA as one of the most important -- in fact, we say in the issue resolution status report it is the most important issue for the repository.

Design -- basically the reason that we consider it low initially I think still holds, that many of the issues that are addressed in this KTI are not going to end up

making the site nonviable. There's a lot of analysis and work that needs to be done to review the designs but they don't appear to be things that would eventually make you decide to walk away from the site.

I guess that is the judgment that is behind our continuing to consider that low but increasing the funding in that area.

You just don't find things that are coming out of design that end up being models or parameters in the total system performance assessment that you then say here is this design parameter that has to do with the layout of the repository or the spacing of the drifts or something like that that is really one of the most important parameters in total system performance.

The things that are the important parameters in total system performance are in other KTIs like thermal effects on it. Some people would see that thermal loading is -- if you had the thermal loading in the repository as a design issue it would be a much higher issue but since a lot of the thermal testing issues and the thermal effects on flow are being dealt with elsewhere, that is how the priorities work out.

MR. FAIRHURST: And you have low priorities because of the design and thermal mechanical effects, right?

MR. BELL: Well, thermal mechanical effects, at

least in our models now, do not -- they affect operational considerations, retrievability considerations, but they don't affect our models for long time performance.

MR. FAIRHURST: Currently there is large drift scale experiment being fielded, right, which is a major experiment?

MR. BELL: That's right.

MR. FAIRHURST: And the information from that presumably is going to be fed into an understanding of the repository scale performance and one is not going to gather separate information on the repository scale so the extrapolation is going to definitely affect and the validity of that extrapolation is going to come under intense scrutiny, so it would appear to me that somebody should be -- and I see you have an increase from '97 to '98 -- monitoring these very carefully, that work.

That is going to take a significant effort.

MR. BELL: In the recent past, the place we have been monitoring that work is the KTI on thermal effects on flow.

MR. FAIRHURST: Yes, but -- we can't make at the drift scale mechanical effects due to the proximity of excavations and this of this kind become quite significant, not just thermal. I don't want to make too big of an issue on it.

MR. BELL: Okay. Well, based on that, here are the areas where we will be expecting to interact with the Committee during the coming fiscal year.

When an EPA standard is published, the NRC would be reviewing it, developing it, developing comments for the Commission to provide to EPA on any proposed standards.

We plan to interact with the Committee on that.

Our main concern would be to have an EPA standard that would be implemented by NRC and consistent with the Academy technical basis.

The DOE siting guidelines -- we expect that in the early calendar year 1998 it will be provided to us from DOE for concurrence or for review.

During part of our process for review of the guidelines we would be anticipating to interact with the Committee. As I mentioned earlier, we will be here next month talking to you about the fiscal '97 issue resolution status reports but there will be new ones developed and updates and revisions of this initial set taking place during fiscal '98.

In the absence of a Standard Review Plan, essentially that is the best way to look at the kinds of guidance we are developing for the Department on what is needed to resolve the key issues in the repository program and we plan to interact with you on that.

We expect to see pieces of DOE's viability assessment in draft before the viability assessment is published at the end of the fiscal year.

The Committee may know there's four major parts -- total system performance assessment of the site based on present knowledge; a conceptual design; a cost estimate; and what they call -- I think its their license application plan, which is given the look they have taken at this time in the viability assessment, DOE's assessment of the additional work that needs to be done between now and the end of '98 and the year 2002 to develop the license application, and we see that as being -- that and the TSPA as being very important pieces for our regulatory responsibilities and we will plan to interact with the Committee on that.

We would only review the design pieces I guess to the extent time, resources were available and that it looked like there was some real impact of the design on long-term performance, and we don't expect to pay much attention to the cost estimate part of it at all.

We are aware of the Committee's continuing interest in our performance assessment models and our capability and we'd be expecting to interact with you probably a couple of times during the year on that.

As a matter of fact, I mentioned back in our

accomplishment slides that during fiscal '97 we developed the next level of our total system performance assessment code, TPA 3.1 model. The staff has been using it to do sensitivity analyses and we plan in early calendar year '98 that we'll be coming down to talk to you about the sensitivity analysis.

I guess I would like to recognize the two recent letters that we received from the Committee on the performance assessment and in fact comment on the October 31st letter that I guess repeatedly raised the issue of the conservatism, unrealism, worst case analysis, and I guess other concerns that the Committee had that frankly I don't understand.

Nobody from the NRC Staff coming down to brief this Committee on performance assessment or performance assessment work has ever said we are doing worst case analyses. As a matter of fact, the Committee should be well aware that we are using probabilistic risk assessment tools to do our performance assessments, looking at distributions of parameters, of alternative models -- I guess trying to build the most realistic models that we think are warranted with the information that is available and many of the things that the Committee said in the letter we should be doing I think we feel we have told you in the past we're already doing those things.

I mean you gave the impression that we weren't trying to identify unrealistic assumptions and bounding assumptions that would skew our results on performance. That's been the staff's plan all along and I guess frankly we were disappointed in that letter.

It did not recognize our approach, and I think we will have to be down here again explaining our performance assessment process. And one of the tools that we've been developing, I think Norm talked to you about them, is the workshop in San Antonio last July was trying to adapt reactor importance analysis methodology to apply to the kinds of systems we're analyzing here in the high-level waste program. And we expect that during the course of fiscal '98 we'll be able to talk to you about our ideas there and trying to get some feedback.

CHAIRMAN GARRICK: Yes, I realize this is not the meeting that we want to respond to your observation, and I think it's fair enough to throw that challenge back to us, but I believe there are some genuine issues that the committee continues to have a high interest in and some concern about with respect to assumptions and variables and assignments of values to those variables that we want to share with you and discuss at the appropriate time.

The other thing I think that's important, just to say in passing, I don't think the committee is hung up on

application of reactor-type risk-assessment methods to the waste field. I do think we are hung up on being able to do things like importance analysis and prioritization of contributors and what have you in some way, and of course the first place you look is at the reactor applications, since they're well advanced over any other application. But a lot of what we've been concerned about and asking about has not been anchored to a specific reactor use, but rather to the issue itself of being able to do it, and obviously this sounds like an area where we have to do a lot more communicating to express to each other what we mean. So we'll certainly -- we're certainly looking forward to doing that.

MR. BELL: Okay. And I guess one of the things I'd like to invite if, you know, these are the things that, you know, we think that will be useful to interact on given what we're planning to be doing in '98. You know, are there things that are not on at list, for example, that the Committee is interested in.

CHAIRMAN GARRICK: Well, the answer to that probably lies in the details. You know, you have such a general descriptor as performance assessment that covers essentially everything, and in that sense yes, we believe that this is a reasonable list. But there are some specifics that I think that we'll want to be talking about

with you as to priorities, and what this may require therefore is cutting this in a variety of ways, and picking out some subcategories under each of those before we really are able to get down to a level where we can be specific about the Committee's feelings on priorities, but I look to -- I ask the rest of the committee to comment on the list in its present form, or I guess on any other material that Mike has presented here today.

Charles, do you want to --

MR. FAIRHURST: I don't have any specific comments at the moment, but go ahead --

MR. WYMER: I'm in the same boat Charles is. I'm still trying to digest everything that's in these six points. It'll take me a while to think my way through it, I believe.

VICE-CHAIRMAN HORNBERGER: Mike, I assume that these, what are they, six bullets, are in some way tied back to the priorities that you had on the previous slide. Is that -- that's a fair statement, right?

MR. BELL: Or in some cases I think they just may tie to activities on the timeline.

VICE-CHAIRMAN HORNBERGER: On the timeline, which was the --

MR. BELL: Because I don't think -- there's nothing in the KTIs, for example --

VICE-CHAIRMAN HORNBERGER: For the EPA standard.

MR. BELL: Well, actually, there is an issue that involves review the EPA standard and development of our 116 rule. But there's nothing that fits the siting guideline.

VICE-CHAIRMAN HORNBERGER: Right.

MR. BELL: And, you know, the draft liability assessment, you know, that's a programmatic document, and that's going to roll up everything we're doing in all ten KTIs and give our best feedback that we can to the Department.

DR. WYMER: I guess I would like to add one t.ing. There's six things here. If you want input on all six of these things from us, then the sooner you start dribbling them out to us, the better off we'll be, so they don't all come in a lump at the end of the year.

MR. BELL: Well, Dr. Wymer, you'll -- when you get to know the system better you'll know that -- there is this monthly list that gets circulated of future briefings, and it's got about a three-month horizon.

DR. WYMER: I see.

MR. BELL: So we're already, you know, listening to specific topics for December, February, and maybe into March. There is no January.

DR. WYMER: Well, you're right, I don't know the system very well yet.

MR. BELL: Yes. So, I mean, these are sort of general topics that, you know, we see over the next, you know, remaining ten months of the fiscal year we'd be talking to you about, but they would be fleshed out in a little more specific detail in these monthly updates, these briefings.

DR. WYMER: Okay.

MR. BELL: And, you know, I, you know, can understand your feeling, being new to the Committee, not having all the background on this program that you must feel a little buried on new information, but --

DR. WYMER: That's right.

MR. BELL: You know, if it would help, I think we could, you know, just have some just discussions on the side for you and Dr. Fairhurst to get you to meet some of the staff and learn about --

DR. WYMER: Well, I'd find that very helpful.

MR. FAIRHURST: I don't know how general one wants to make comments, but I'm intrigued by what I think was a comment you made about in assessing making an initial overview of critical issues, I heard you saying something that while you see that the engineering design might as I gather it would do, the issues may come up, but they're correctable -- these are not your words, I'm trying to -- they're correctable issues and there's nothing in there that

might feel like a show-stopper for a long-term --

MR. BELL: This is preclosure. Preclosure I think I made that statement about. Basically design of the surface facilities, the handling --

MR. FAIRHURST: Okay. So preclosure. All right.

MR. BELL: So these -- I mean, you know, the NRC might review things and decide that, well, you know, our analysis of the ventilation system says it's undersized, but, you know --

MR. FAIRHURST: So you were not saying that from the point of view of the long-term performance, postclosure issues.

MR. BELL: Well, you know, there's a transcript. I didn't intend to say that.

MR. FAIRHURST: No, no, I don't know.

VICE-CHAIRMAN HORNBERGER: But your KTI repository design and thermal mechanical effects only includes preclosure.

MR. BELL: No, there are some postclosure issues in there. For example, you get into it because there are things like, you know, design control of, you know, components and facilities that, you know, would be part of the long-term isolation.

VICE-CHAIRMAN HORNBERGER: Yes, but basically I guess me -- I didn't realize that, to tell you the truth.

That's my ignorance. But I'm curious then where the thermal mechanical, potential long-term thermal mechanical effects get set in. Is that the evolution of the near-field?

MR. BELL: No, it resides here, and I think this is an area where basically where I say it was, we have never seen in our performance assessments that those kinds of matters really affect offsite dose to the critical group.

CHAIRMAN GARRICK: Mike, it's interesting that there's nothing on that list directly about things like low-level waste, decontamination, decommissioning.

MR. BELL: You mean other programs?

CHAIRMAN GARRICK: Yes.

MR. BELL: Well, I can basically, you know, I'm the manager of the high-level waste program. That's what I'm here to talk about.

[Laughter.]

I can -- I think John as I said in the Director's remarks this afternoon can talk a little bit about the other areas. One of the things I mentioned when we were here last month talking about the research program was in the low-level waste areas, the whole program is 1.3 FTEs. I mean, there's not going to be much done in a 1.3-FTE program to come down and talk to you about.

MR. BELL: The siting commission program is a larger area and, I guess -- I can warn John, he will be

interested in hearing something about the activities there.

MR. JOHNSON: Mike, this is Robert Johnson.

Dr. Garrick, I just wanted to confirm that in planning our presentations today, John Greeves will be proposing --

CHAIRMAN GARRICK: Speak into the mike, I can't hear.

MR. JOHNSON: This afternoon, John Greeves, in his discussion to you, will be proposing interactions in the area of decommissioning and talking to you about how limited we are to interact in low level and recovery. So we just divided it up this way. That Mike would speak to high level waste interactions and John Greeves would speak to the rest of the division's interactions with you.

CHAIRMAN GARRICK: Thank you. Thank you.

MR. BELL: Go ahead, Charles.

MR. FAIRHURST: Forgive my ignorance on a lot of these things, but it seems to me that some of the experiments, in coming back to these drift scale experiments that are being carried out right now, have some quite major implications for the overall application and how one takes this information and uses it in a general sense.

And is NRC going to be giving critical input at a time when it is possible for DOE, or whoever is doing the experiment, to make the necessary correction? Rather than,

you know, the experiment being finished, et cetera. and then five or ten years down the road, someone will say, well, if you had done this, we would have been able to get this piece of information, and because you haven't got it, we can't accept it.

MR. BELL: Well, I mean, our whole program tries to avoid situations like that.

MR. FAIRHURST: Uh-huh.

MR. BELL: We have been reviewing the pl[illegible] the large scale drift experiment. There have been, I think, two letters sent to DOE commenting on aspects of the experiment. I guess I think --

MR. FAIRHURST: Okay.

MR. BELL: -- we are giving it adequate attention.

CHAIRMAN GARRICK: I was curious about -- you seem to have a pretty tight schedule on developing a commission paper on the viability assessment. Is that causing you -- is that causing you to have any anxieties or concerns?

It is a little bit -- it is a little bit difficult to assess the natur of the review in the time that is required because we don't know what the viability assessment is going to consist of in terms of the amount of documentation.

But it does appear that you are putting yourself in a pretty tight position with respect to when you develop

a commission paper.

MR. BELL: Well, I mean you have to understand what the viability assessment is intended to be. It is not a regulatory document.

CHAIRMAN GARRICK: Yes, I know.

MR. BELL: It is essentially an investment decision document to Congress.

We would not be reviewing it from the point of view of, you know, detailed technical review of the DOE program.

I mean we expect that what Congress would ask NRC -- if they get a document from the Department saying here is, you know, our summary of the information we have gathered to date. It shows that the site is viable to develop it as a repository. Here's the kinds of designs, the kinds of costs that it would take, and the additional work that would have to be done.

And, now, Congress, you have to decide whether or not to continue to fund this roughly, you know, half a billion dollar a year, you know, for the next ten years before there is a licensed repository. That Congress will turn to NRC and not want detailed comments on design or the technical program, but, essentially, want to know, does NRC think that it is highly, you know, there is a high probability that if we invest this money, that the site will

be licensable. Do you see any show-stoppers? You know, are there any fatal flaws in DOE's analysis supporting their viability decision?

CHAIRMAN GARRICK: Now, just back on the IRSR's for a moment. I sort of got the sense from your presentation that they were going to be the source of guidance. And they become especially important in the absence of budget to do a full standard review plan.

I guess that raises the question, if the IRSR's can be used to that, or serve that role, why do we need a standard review plan?

MR. BELL: Well, first, you got the message exactly right. We feel that IRSR's are very important documents.

In theory, you could license a facility, a major facility, without a standard review plan. The first, you know, several dozen reactors were licensed without standard review plans. It wasn't until, I guess, sometime in the mid-70's probably when NRR first started developing a standard review plan.

We -- there are benefits to having a standard review plan that is available in a timely manner. That, you now, it lets the applicant, you know, know more precisely what is required. It lets the public know what the process is and what the criteria are going to be for acceptable.

That -- my -- my own experience of just around this agency is that people think standard review plans are more important perhaps than they did five years ago. That, you know, there is a lot of value added in having, you know, laid out in some detail.

CHAIRMAN GARRICK: Yeah, but you have sort of suggested something that could be very important here, and that might even be the basis for the case to not push too hard the idea of a standard review plan, simply because, given that this is a one-of-a-kind, first-of-a-kind facility that we are licensing, and you cite the reactor example, maybe -- maybe a wise decision here would be learn a little more about what this is all about and use the Issue Resolution Status Report as the principal mechanism and driver for guidance.

MR. BELL: Well, --

CHAIRMAN GARRICK: And, actually, maybe end up with a more efficient licensing plan by not trying to anticipate before we know as much as maybe we should know, what a plan for licensing in detail, in fact, should be.

MR. BELL: Well, --

CHAIRMAN GARRICK: All I am suggesting is that maybe -- maybe it is not such a bad situation you are in.

MR. BELL: Well, our plan would certainly be, in developing any standard review plan, to take large sections

out of the Issue Resolution Status Reports that are already written and put them in.

CHAIRMAN GARRICK: Yeah.

MR. BELL: But when you got all done doing that, there would be large gaps.

CHAIRMAN GARRICK: Yeah.

MR. BELL: And incomplete areas that -- you are right, there were reactors licensed early in the process. But that doesn't mean it was a very efficient licensing process without many new rounds of questions and long delays because of absence of guidance.

And always in the back of our mind is the fact that, although Congress seems to forget it when they make the appropriations, that there is a statutory direction to NRC to complete its review of the DOE license application, and the review is including the hearings.

CHAIRMAN GARRICK: Yeah. One other thing that I just want to mention, and it really is my last comment, question, Mike. Is that we hear a lot of employing a systems approach to our activities. And there are some aspects of this design, and some aspects of the business of issue resolution that seem to be things that we can get a very good handle on if we embrace much more of the total concept of the repository than its pieces and parts.

For example, one thing we ought to be able to have

some control over is what goes in the repository. We hear a lot of discussion about heat loads, which, to me -- and maybe I am missing something here -- the whole issue of uncertainty about that is something that, if we were to embrace in our efforts the operational opportunities that exist, and the kind of operations that are involved, and the fact that a head load is something that is very easy to measure, and it becomes especially easy to measure and flexible if we think in terms of interim storage.

So, there are some issues it seems that we could make go away, just because we would invoke a process of knowing exactly in terms of heat load, in terms of radionuclide inventory. If we put a real control on what goes in the repository, is there -- is there an effort to understand operational strategies in establishing that the staff thinks are the high priorities and the most significant issues?

And I cite the thermal loading one simply because I don't see why there should be uncertainty about the thermal loading. If, in fact, we take a systems approach to the repository and account for the operational strategies in our decision-making process about issues.

So, I don't want to get into a long discussion because it is time for our break. But I was just curious about that.

MR. BELL: Actually, I guess I am somewhat puzzled. I mean it seems to be complete antithesis of performance-based regulation to now start specifying design parameters like what the heat load should be.

I mean -- that really seems like, you know, it walks away from an approach where you can here is the performance standard you have got to meet, DOE, it is up to you to design a facility to accomplish that. And we will review, you know, whether or not --

CHAIRMAN GARRICK: Well, there is a whole variety of -- you know, if you are faced with designing something, and you are giving performance standards, there is a whole variety of strategies that you can adopt for meeting that standard, if you look at the total life cycle of the facility from -- from --

MR. BELL: That's DOE's job to do that.

CHAIRMAN GARRICK: Right. Yeah. But at the same time you are also trying to figure out where you ought to put your resources and where you ought to put your priorities.

And it seems to me that you can't decouple that exercise from understanding the total scope of what you are dealing with.

And all my question is -- are you doing that? Are you looking at the effect of different operational

strategies on what you have selected as your priorities and issues and what-have-you? Or are you -- or do you think it is insensitive to that?

MR. BELL: We are not doing it, not because we think it is insensitive to that, but I guess we think that is part of the optimization of the total system that DOE does.

I mean, recall that -- unless this legislation passes, there is no opportunity for long-time centralized storage. That storage, that --

CHAIRMAN GARRICK: Well, I think we have --

MR. BELL: -- place will be at individual utilities.

CHAIRMAN GARRICK: I think we have a disconnect here, and we are going to have to resolve that. Because I am not saying that you shouldn't respond to what you get in the way of an application and address that.

What I am saying, that you put a requirement on an applicant and a licensee on the basis of what you think is important. And in order for you to arrive at conclusions on what is important, you, in seems to me, have to take kind of the same view that the applicant has to take with respect to the thing that you are trying to license.

And I am just asking, how much of that view do you take? How -- it comes, really, back to the question of how

do you -- how do you establish priorities, and how you assign, you know.

We have a lot of discussion about the KTI's, and this committee has had some concern about the KTI's and the importance ranking of the KTI's, and whether or not they were, in fact, performance-based. And by -- you know, I don't make a distinction between performance-based and systems-based. So, I think this -- this is the nature of the question and the comment. And, obviously, we are going to have come back to it and deal with it in more detail.

Are there any more questions?

[No response.]

CHAIRMAN GARRICK: Okay. Then I think that -- thanks, Mike. That's very helpful.

I think that we will take our break at this time.

[Recess.]

CHAIRMAN GARRICK: All right. I think we'll go forward. The next topic on our agenda is the Standard Review Plan for spent fuel dry storage facilities and the member of the Committee that is going to preside over this topic and this discussion is Ray Wymer, so Ray Wymer, it's yours.

DR. WYMER: Thanks.

[Laughter.]

DR. WYMER: I suppose most of you know more about

this Standard Review Plan than I do, but I thought I would say a couple of words, really pretty much reading out of what is in front of me here.

The Standard Review Plan for the spent fuel dry storage facility is supposed to provide guidance to the NRC safety reviews and licence applications for facilities for storing nuclear materials in the dry condition, and that is power reactor fuels exclusively.

The principal purpose of this plan is to ensure the quality of uniformity of staff reviews but also to assist the potential applicants by indicating what one acceptable means of demonstrating compliance with the applicable regulations might be.

I understand then that Susan Shankman will also someplace along the line say something about the Committee's previous input, which I wasn't in on, but I understood took place on the role of probabilistic risk assessment in determining what should be provided in the way of site performance evaluations.

I think without any -- I have something to say about that later on -- but I think without any further comments, I would like to ask Susan to go ahead and make her presentation.

MS. SHANKMAN: I am happy to be here. I'll stand up at the beginning because it makes it easier for me to see

the slides and to see you.

Let me start off just by saying that I am sure that you are well aware of the issue of dry cask storage and I am sure you are aware of what we have been doing to this point.

Charlie was here in the Spring and we have made other presentations but just to recap a little bit, one of the issues of course is -- do I need to tell you about the Department of Energy's case of getting a geological repository? I don't know think so. You know that while that is going on the plants are still running and this is our chart of when plants would run out of the ability to fully offload their core.

Now some plants have that as a requirement. Many do not. However, we have been finding that there are certain tests, surveillances, different things that plants have to do that might require them to offload the core -- so it will eventually have an impact on operational safety of the existing plants.

I think you already saw these slides many times, but this is just to refresh your memory.

These are the operating -- I guess that is a strange thing to say because they don't quite operate -- but these are the existing independent spent fuel storage facilities and these are the ones that we have either

applications in, interest in, discussions about. This is what we are scheduling as what is the near-term new ISFSIs.

Have you seen this before?

CHAIRMAN GARRICK: Similar. Yes.

MS. SHANKMAN: Well, this is as of May so I think you probably saw this.

What we are going to talk about today is the Standard Review Plan and I think you may have seen the last one, which was just on the storage systems.

This is more comprehensive and focuses on some of the same things and I can tell you that we have gone to great pains to make sure that we don't contradict ourselves in public more than we usually do.

[Laughter.]

MS. SHANKMAN: The whole idea is that someone who is coming in from and away from a reactor ISFSI where they might have site considerations, where they may have a site-specific application is going to have to consider other things other than the general license, and this Standard Review Plan is meant to give guidance to the staff on how to review those applications.

All of our Standard Review Plans are organized in the same way. We try to key them off of the regulations and the Reg Guides.

We have a Reg Guide that we have been using for a

long time, Reg Guide 3.48, which lays out the format for these applications. The Standard Review Plan is also keyed to that Reg Guide and the regulations.

NUREG 1536 -- you saw that and Mike Raddatz has discussed it I think at length, and he is here today in case you have a question.

So in 1567 we do the same thing we did in the others, which is to organize it in a way where each chapter is self-contained but it also points to how it connects to the other chapters.

We have a review objective for every chapter. We have areas of review. Some of it, I have to tell you, is a little redundant when you read it, but it is a way of focusing the reviewer -- this is what this chapter is about, these are the areas we are going to review, these are the regulatory requirements.

And they might say well, why? -- we don't take verbatim 10 CFR 72. We just try to key back -- these are things that we want to make sure that this application and this facility will comply with.

We also try in the regulatory requirements to point out any connections with any other part of the regulations, Part 20 or any other part, so that it is clear to the reviewer and to the applicant.

Let me say again, this document is for NRC Staff.

They are the audience. Now it is a very much intended consequence that those who are applying have the same guidance available to them. We send it out for public comment. Obviously we didn't have to do that. There is nothing that pushes us to do that, but it makes sense that if we want this document to be clear, if we send it out to people who are going to try and use it, and they give us some comments, we need to understand what those comments are.

In the acceptance criteria I guess the review procedures are the heart of the document, because the acceptance criteria says where the bar is, what we expect.

Have you all had a chance to look through this at all? Okay. Hopefully you are thinking, oh, it was really well-written, clearly articulated --

[Laughter.]

MS. SHANKMAN: You know -- can't imagine why you had to send it out for public comment.

The review procedures -- these are definitely key to the reviewer -- make sure you look at this, review it this way, these are the kinds of analyses, these are the kind of confirmatory analyses we expect you to do -- "we" meaning the Agency.

This is the proof that the acceptance criteria are met.

The evaluation findings are really the words that we expect to see in the safety evaluation report -- the thermal requirements were met this way, this method -- so that it is clear that the document that we put on the record that approves this is, that the wording is basically the same.

Now any reviewer can change those wordings if there is a specific case and we want the reviewer to know the kinds of words that can be upheld if there is any problem.

Then the reference section is, surprisingly, references -- but we try to make sure that anything that has been referenced in the chapter is also clearly articulated at the end of the chapter so someone could go and get that reference.

This is I think the major benefit of an SRP is that it gathers together all in one place for anyone who is interested -- and it is a small world that's interested, I think -- but they are vitally interested. It tells you on what basis the staff is reviewing the application and all of those references are public references so anybody could get them.

So what are the chapters?

This is a site SRP -- so site characteristics, the design criteria, waste confinement and management structural

evaluation. Let me stop here. If you have looked at it and you have any questions on any of these areas, we have different people here who have participated in developing this document here.

We can talk about any one of these areas. I didn't think I would go into detail unless anybody is interested. Dr. Wymer?

DR. WYMER: I think just a good overview to start with, just to put the whole thing in context and then we can come back to some of these points.

MS. SHANKMAN: Okay. I think most of them are self-explanatory, but you'll see that we have tried to get all of them in.

The thermal evaluation, you know, will it handle the heat it has to handle? Will it protect the public in terms of meeting the regulatory requirements in terms of radiation exposure or non-exposure in this case?

We accept no criticality as a standard.

Confinement -- accidental analysis, I have to tell you in an SRP that we've done, Mike talked to you about this morning -- we are re-doing that because we think that it wasn't -- one of the issues in re-doing it was PRA, and I can now or later tell you about the sad story of PRA.

[Laughter.]

CHAIRMAN GARRICK: Sad?

[Laughter.]

MS. SHANKMAN: If you wanted to write a letter, here is an area where you might want -- go ahead, Skip.

Conduct of operations is a chapter in which all the other chapters feed in. Obviously if you have something about structural or thermal or loading or unloading the person working on the operations chapter has to get all that information from everybody else.

In fact, we have -- is it in this one? -- the boxes with the lines? -- yes, you'll see every chapter basically says this chapter doesn't stand alone, you need to get information from these other reviewers and you need to feed information. In the operations chapter everything is coming in -- I mean everything is going out, right? Coming in? It is the introduction chapter, so everything is going out.

I have it in my mind but my arrows are all backwards.

Okay. Technical specifications turns out to be actually this is the box that we draw around how it is going to be operated.

Quality assurance -- this is a part of 72. You must have a quality assurance program that meets the guidelines that we have. We have a lot of information out on that, Reg Guides out on that, and then the whole issue of

what happens when the site gets decommissioned.

Skip Young, to my left, my able turner of slides, is the Project Manager for this SRP and I want him to tell you a little bit about how we have done the public review of this.

As I said, we have no reason to send this out to the public except for the fact that in the past we found that if we sent it out for public review it gets some comments on things that -- you know, you can't think of everything, a lot of people working on it. I'm sure you have worked on documents where you think it's perfect but you give it to somebody else to read and they say "What does this sentence mean?"

So we found that that process for a document that we are going to rely so heavily on, we want to do that.

We have sent the last one out for public review and we sent this one out for public review. Because there is such a close connection between the dry cask storage SRP and this one, we wanted to come up with a process by which these things could be reviewed, comments could be reviewed in a way that we would make sure that both SRPs spoke to the same response, so Skip, do you want to want to tell them how we are doing that?

MR. YOUNG: If you look at Appendix E in the book, it is basically the form that we sent out and asked people,

if they were going to comment on the document, to send in your comments in accordance with that enclosure.

From the public we received approximately 270 comments that we are characterizing at this time.

We also went back and looked at 1536, which is the companionary document that Mike Raddatz worked on. And he looked at all the comments that we had received on those --on that document, and we decided that there was approximately 70 comments from 1536 that needed to be also looked at for 1567.

A breakdown of where the comments are. The nature of the comments basically came into three areas. In each of the chapters you had an area which dealt with the criteria. Most of the comments were looking for clarification. What do you mean by this statement? And adding additional clarification of certain comments in the different chapters.

Another area that people were -- commented on, was the structural. We received a lot of comments on seismic. We are in the process of doing some changes in that area. And we are also doing rulemaking changes in that area dealing with the seismic issue. And once that rulemaking is done, we will do back and update the SRP to reflect that.

Susan has commented on the accident analysis. Based on the comments that we received on 1536, we are in the process of rewriting 1536, accident analysis chapter.

Based on 1536, accident analysis chapter, we will then take that information and go back at a later time, re-do the accident analysis chapter in 1567.

CHAIRMAN GARRICK: Are you going to -- the last time we discussed this subject, there was a lot of discussion about accident analysis, and the scope and what-have-you.

Even though that is in revision, are you going to say a few things about what the scope is now as it is currently envisioned? What kind of analysis that this guidance is going to suggest, the depth, breadth? Is somebody going to give us a little bit of a heads-up on that?

MS. SHANKMAN: Eric, do you want to -- Eric or Mike, do you want to speak to it?

CHAIRMAN GARRICK: Whenever. You do it when you think it is appropriate. If it fits in.

MS. SHANKMAN: No, I think it is appropriate now.

CHAIRMAN GARRICK: Yeah.

MS. SHANKMAN: Yeah. Mike has a contract -- contractor looking at this.

MR. RADDATZ: Good morning. My name is Mike Raddatz. I am responsible for the review of the 1536 and the accident analysis chapter.

The work that we are doing can best be

characterized as not a rehash of it, but a reorganization of the entire accident analysis work.

The accident analyses drive the basic design criteria of the casks. We do accident analysis, but all of it is tied directly right now into the structural analysis chapter. So if you looked for concrete or, let's say, seismic issues, the accident analysis would give you the design basis that you would have to drive for.

What we have done is we have attempted to identify accidents. Following the accidents, then unusual events. And then bringing them down to what will happen if. So that each -- in chapter 11 or in the accident analysis chapter, 1567, it will be clear that each accident category, or specific accident, was covered, considered, and the acceptance criteria met.

So, for example, a tip-over accident, which is the one most people think about when you talk about a cask. Is a seismic event an accident or is it the initiator of an event? A seismic event, in the case of many casks, would initiate a tip-over. Therefore, you don't have to do a separate analysis for seismic if tip-over is the accident. But you have to show that you have done the tip-over analysis, and you have to show that you considered seismic as the initiator.

We are walking through and trying to clarify each

and every one.

This goes through fires, explosions. I'm sorry, I am trying -- I didn't come prepared to discuss this. I'm sorry, I don't have my notes with me.

But if you look at all the potential events that exist, that would be considered in an accident, and that would be a seismic event, fire, flood, wind, tornado, missile, those can all be categorized into very small -- those can -- you know, a broad range of events can be brought down to a very narrow range of accidents. Impact on the cask or cask system.

We are then taking that very narrow range and drawing the data from each of the structural chapters, let's say, or the thermal chapters, or the confinement chapter, and basically bringing it into chapter 11 and showing that it was, indeed, adequately addressed and the acceptance criteria met.

We haven't added any new requirements, and we haven't done anything that -- we haven't -- we are not doing any thing different. We are clarifying to show that we do it, specifically do it.

Does that answer your question?

CHAIRMAN GARRICK: Yes, it helps.

DR. WYMER: I have -- I have a follow-up question, I guess, with that. When you consider accidents and the

consequences, then it is important, of course, to consider what the fuel is that is contained in the storage cask.

And I notice one real outlier in all of this is the Ft. St. Vrain graphite reactor fuel. That is a totally different kind of animal than the -- all the rest of the light water reactor fuel, being basically a big graphite block, 14 inches across and 30 inches high, and a bunch of holes drilled in it.

The -- the question I have is, to what extent do you take into account these kind of real significant aberrations?

MR. RADDATZ: That's a very good question. And when dealing with something like graphite fuel, one, it is considered on a case by case basis, and the acceptance criteria for outliers is always considered.

But, two, for the sake of the discussion, is graphite fuel is also extremely inert and not subject to --in all accident analysis, the first thing you have to have is a release of radioactive material into the environment and a means of dispersing that material.

With graphite based fuel -- TREPO, I think, is the -- it is encapsulated. And to get it into a restorable form, less than 10 microns, is extremely unlikely.

Therefore, it is probably -- not to get into the details, but it is probably bounded easily by our current

accident acceptance criteria. And it wouldn't need to be considered. Again, it has been considered in the site-specific licensing at Ft. St. Vrain.

But the same methods that we use would be applied. Any time there is an outlier that is not -- the standard review plan is guidance to a reviewer on how to meet an acceptance criteria. It also happens to tell the applicant what our acceptance criteria is.

But if an applicant comes in with a new fuel or a new form that doesn't meet our acceptance criteria, we would have to establish a new one -- and that is our right and our responsibility.

We have the ability to use -- the ability and right to use accepted codes and standards. But if they don't cover it, we also have the right to establish our own.

MS. SHANKMAN: Right. That's exactly right. It is a standard review plan. And it is meant to lay out what we ordinarily, usually, most of the time, accept, and, actually, the obligation is on the applicant to show us the delta between what they are proposing and we have laid out and the regulations, and show how what they are proposing they can meet the regulations, notwithstanding the standard review plan. Because it is the regulations that they have to meet, not the standard review plan.

DR. WYMER: You know, I guess the thrust of my

question was to how much do you have to know yourself about the -- about the nature of the fuel in an issue of an accident in order to properly evaluate whether or not they are meeting the standard.

MS. SHANKMAN: Right. Well, yeah. And it is the applicant who first has to lay that out. And to the extent we have the expertise in-house, we use it. To the extent we need additional expertise, we rent it.

DR. WYMER: You -- okay.

MS. SHANKMAN: And that's -- I mean that's the way the agency does business on all of the things that we do. The regulations are clear. If for some reason an applicant can not show us, and then we can't verify that they can meet the regulations, we have to understand the difference and understand, is there an alternate. I mean you can always make an exception, but it is not something that you would do unless there was -- unless there was a compelling reason. And I don't think in our review of Ft. St. Vrain, we had to do that.

Fritz has been the leader of the technical group. And do you want to speak to Ft. St. Vrain in specific?

MR. STURZ: Well, I think on the Ft. St. Vrain reactor, it's the license review, is all the consequences of a canister drop, or that complyment found it was not breached. To get into those type of issues as far as

dispersal of radioactive material from damaged fuel.

DR. WYMER: Yeah. The graphic fuel is more subject, of course, to breaking --

MR. STURZ: Yes.

DR. WYMER: -- than the metallic.

MR. STURZ: And we looked at the issue of, in light water reactor fuel, of the fuel, it is exposed to air, it would oxidize. But it was not an issue with the graphice fuel. So there was a different approach to complyment monitoring and maintaining a helium atmosphere.

DR. WYMER: Well, you know, that is not -- well, it is probably a minor point. It is not exactly right. The fuel in the Ft. St. Vrain reactor is carbide fuel.

MR. STURZ: Carbide.

DR. WYMER: And carbide reacts with water to make acetylene. And so insofar as you fracture it and it exposed the pellets, break the coatings on them, -- you know, they are tri-cell coated things, you do run the risk of making an explosive gas.

So it is just -- you know, just a question of how deep do you go into it and how much does it matter.

MR. STURZ: I think one of the issues we look at Ft. St. Vrain was with the maximum flood potential was also, you know, we did look at that.

MS. SHANKMAN: Any other questions?

CHAIRMAN GARRICK: Well, I've got some questions, but let's go ahead.

MS. SHANKMAN: Well, I'd like to discuss the SRP in detail if you want to.

CHAIRMAN GARRICK: Well, to try to learn from previous presentations, and in the last presentation we had an exhibit that identified the dry storage issues, and I guess trying to use that as a reference against which there's been some changes or resolution in the standard review plan. I'd be interested in having those pointed out in particular.

But, for example, we identified the issue of overall inconsistent performance. We noted that 72.48 evaluations were poorly documented. The NRC expectations not clearly communicated. Public confidence jeopardized. QA programs and principles not observed, et cetera. A sort of an update on some of those kinds of things would be I think valuable for the Committee.

MS. SHANKMAN: Sure. I think right now if I had to characterize the dry storage world, not in the NRC but in terms of vendors, I would say they're shaking out -- I don't think we're going to have a Home Depot when we're finished, I don't think we're going to have one storage system manufacture it, but we're certainly going to have less than we have now.

CHAIRMAN GARRICK: Um-hum.

MS. SHANKMAN: As of October 31 there was a bankruptcy, VECTRA. There's a shakeout I think in the industry right now. Basically VECTRA, which was one of our concerns, Charlie may have talked to you about that last time.

CHAIRMAN GARRICK: Yes.

MS. SHANKMAN: They manufactured the new home system. I always think it looks like you know when you drive down the road these little places that say self-store.

CHAIRMAN GARRICK: Yes.

MS. SHANKMAN: Well, you know, their system has those characteristics. It looks -- anyway. So that system has been pretty well accepted and -- but what Charlie described to you is we found problems that although the design was -- oh, we have pictures. Even though the design was well accepted, VECTRA was having problems in oversight of its suppliers, and some of the as-built was not as designed. We had some serious concerns about how their quality-assurance program was overseeing the work being done at the suppliers.

The net result of that was a demand for information which we sent to Vectra last January, actually January 13, and surprisingly on January 24 VECTRA chose to stop its fabrication. Of course they had a stop-work order

from Susquehanna. So they had some influence to stop work.

This is almost a year later. We went out with a team last -- the end of October, the beginning of November. In fact, Skip Young was the leader of that team. And I went out with the team also. And what we found was that VECTRA had done an awful lot of work to change the culture of their company and to change the attitudes, if you will, of the whole organization and particularly the attitude they had towards the quality-assurance oversight of their suppliers.

However, they haven't fabricated anything. So it's pretty hard to tell whether it works or not. In the meantime they ran out of money. They went into chapter 11. And they were in bankruptcy court. They put the company up for sale in September. And they have a buyer. I think within the next day or so you'll have an official announcement from the bankruptcy court that Trans Nuclear, Cogema Trans Nuclear, is the owner, the proud owner, I guess, of VECTRA for storage.

The transport business, strangely enough, is going to Chem Nuclear, because Trans Nuclear didn't want that, and Chem Nuclear had made a bid for the whole company. So the bankruptcy judge as I say did what Solomon did, he split the baby. He sent the transport business off to Chem Nuclear and the storage business is now with Trans Nuclear.

Trans Nuclear has not made any public

pronouncements about what they're going to do, although they have told the bankruptcy court that they will meet all obligations in terms of schedule to the utilities that have been made by VECTRA. I think that will be interesting, because it means that they have to get permission from us to start fabricating again, and I don't think we're right there quite yet. So that's -- now Sierra, another one of the major players. Did Charlie talk to you at length about the weld issues at Sierra?

CHAIRMAN GARRICK: They were discussed some; yes.

MS. SHANKMAN: Right. Okay. We could tell you more about that, but basically we sent a demand for information to Sierra Nuclear asking them why we shouldn't stop them from formally fabricating and why we shouldn't stop all work on the material that they've sent to us for review, because of their poor performance related to these undocumented welds. And we are now in the middle of several requests for additional information. The upshot of all of that is that the three utilities that have casks manufactured by Sierra Nuclear with their suppliers are going to do ultrasonic testing of the welds in question, and I think of the whole cask, Eric?

MR. LEEDS: No, just the actual structural leak -- weld.

MS. SHANKMAN: Right. Okay. That's Palisades

Point Beach and Arkansas Nuclear. So that will give us assurance about the existing casks. And right now Sierra is in no position to make any more. They had some that were on the shop floor. Some of them were delivered; some of them have not been. So that's where we are with Sierra.

Now there was a -- since I thought you might ask about this, this is dated Wednesday, November 19, Nuclear News Flashes. British Nuclear Fuels will begin negotiating its option to buy Sierra Nuclear Corp. So that's another -- plans an immediate infusion -- consider the source; I don't know the accuracy of this -- but plans an immediate infusion of money and expertise at combined value of half a million dollars into the company. So that's what I mean by a shakeout. I also understand that there are some negotiations for other companies.

NAC, we just closed out a CAL with NAC. It was a very extensive confirmatory action letter. You know how those work. I don't see any shaking of heads. Shall I tell you just a second? Okay.

When a company proposes to do something that we think is necessary for them to correct some immediate concern we have, we often confirm their actions in a letter, and the shorthand in the agency for that is a CAL, confirmatory action letter, and it's a confirmation of their commitments, and we take it seriously, and so does the other

entity on the other end of the, you know.

So we just had a very extensive confirmatory action letter last September with NAC because of problems with their quality assurance program, and it's only within the last month that we told them that they've satisfactorily completed all those actions. So these are -- it was over a year that they worked on it. They changed their QA program. They hired more people. They did extensive systematic review of how they were doing business. They changed their procedures. So that's where we are with NAC.

Are there any others that you'd like me to update?

Okay. Well, anyway, that's by way of saying that I call it a shakeout of the storage industry. I think you're going to see more and more of the companies either melding or being bought by a bigger company. It's interesting to me, and I don't know whether it's interesting to you, that we have a Brit and a French company who will own the two storage systems, and NAC I think is based in Atlanta, but I don't know -- that's also an international company, but I think they're owned by the -- they're a U.S.-based company.

Another topic that I think -- you talked about the legislation; I'm sure you know about what's going on with the Nuclear Waste Act amendments -- but is the whole issue of multipurpose casks. And we have several systems in house

for review that call themselves multipurpose, universal, all things to all people, whatever. They're really dual-purpose casks, and we're reviewing them against Part 71 and Part 72.

I don't think we have an application that we would characterize as multipurpose, because the last purpose, the geological repository purpose, is not part of any of the applications, and the congressional interests and OMB's interests and all the phone calls that we've gotten are about multipurpose casks. They want to know are there any. And I think the answer is right now there aren't any. The issue of the criteria against which you would judge the last purpose is still something that we have to work through as an agency.

MR. FAIRHURST: The duel-purpose is considered what?

MS. SHANKMAN: Transport and storage.

MR. FAIRHURST: Transportation and storage. All right.

MS. SHANKMAN: Right. Fill 'em up, put 'em out on the pad, don't have to repackage them to send 'em off someplace. But then when it gets there, what happens? Do they have to go into a hot cell? Do they have to be repackaged for the repository? That's the issue.

DR. WYMER: What we have seen with respect to Yucca Mountain Repository is it probably would have to be

repackaged, wouldn't you think, since it's an entirely different kind of a containment?

MS. SHANKMAN: Let me let Eric, who is the -- Eric Leeds.

MR. LEEDS: I am the Licencing Section Chief in the Spent Fuel Project office.

We have talked with our brethren over at BWM about what the final waste package will look like and DOE has not promulgated a spec for what they want from these manufacturers, what they would propose to the NRC as acceptable, so really we need some -- first of all, DOE needs to specify what their expectations are and, secondly, the NRC needs to develop its criteria, so what Susan was talking about is that the multipurpose cask being fictitious, at this point it still is.

You have criteria for temporary storage and transportation but we do not have criteria, DOE does not have criteria for what we expect the final waste package to be.

DR. WYMER: They don't have criteria but we certainly have seen several conceptual ideas of what would go into the Yucca Mountain Repository and it no way resembles that example you just saw a second ago.

MS. SHANKMAN: Well, that is not the cask. That is the storage overpackage. That is the concrete bunker.

MR. LEEDS: A bunker that a metal walled cylinder that actually holds the fuel will actually go into that concrete bunker.

That concrete bunker is for shielding it from the elements.

I don't know if Skip has got a good photograph of the actual cask.

MS. SHANKMAN: We are making dual presentations. Charlie is out at --

MR. LEEDS: We certainly can get you some of that information.

MS. SHANKMAN: Charlie is at the Nuclear Waste Tech Review Board making a presentation.

DR. WYMER: Okay, that helps.

MS. SHANKMAN: All right --

MR. LEEDS: See where it says "dry shielded canister" -- that is the dry shielded canister. That is about a half inch to an inch thick depending on the design, a half inch or an inch thick metal cylinder that holds the fuel.

DR. WYMER: That's good --

MS. SHANKMAN: That is a cask in a cask and what you are seeing is the outside cask which is what they use to transport it from the spent fuel pool, where it is filled, drained down, you know -- that's where we have all our heavy

load issues, and then it transported horizontally and then for this one it is basically shoved into the concrete bunker.

But the point is, will the fuel be in something that provides protection, shielding that it doesn't have to be reexposed and people don't have to be reexposed to repackage it. That is the issue.

You know, can we get it down to a cylinder with fuel in it that provides protection where that cylinder can be moved from a transfer cask to a storage system to a transport vehicle and then to something, even maybe an overpack -- whatever it is, it goes into the repository.

The answer is right now, no. We are working on reviewing things that can be filled in the spent fuel pool, stored, and then some kind of an overpack to transport it, and that is where we stop.

DR. WYMER: I notice that you start with the design construction of the storage module and then you talk about operations and then you jump to decommissioning.

Does the plan assume any responsibility for the storage modules after they are full and everything is essentially in interim storage?

MS. SHANKMAN: Sure.

DR. WYMER: I didn't really pick it up in here.

MS. SHANKMAN: I guess, Dr. Wymer, I am not

exactly sure. If it's -- operations means when it is stationery in a storage mode whether there is a reactor next to it or not.

DR. WYMER: I assume that operation meant the operation of the facility, bringing in the fuel, storing it in the storage modules --

MS. SHANKMAN: Right.

DR. WYMER: -- but then after you're done with that, it sits there for 50 years.

MS. SHANKMAN: Right, but we have requirements for security, for monitoring, surveillance, so that is all part of the concept.

DR. WYMER: All part of this plan? I haven't had really a chance to read the whole document.

MS. SHANKMAN: Right. You know, the idea of periodic to make sure you haven't had any degrading of the system.

Yes, you're right, it is a passive system and we don't operate something per se.

DR. WYMER: You consider that to be part of operations.

MS. SHANKMAN: Yes.

DR. WYMER: A little different than what I considered operations.

MS. SHANKMAN: Well, that's when I chuckled when I

said "operations" -- because it is not quite operations, but it is the idea that the facility has to exist in a certain state and you have requirements for that.

Physical security requirements, that's something that actually is going out now, is not quite final, but we have revised our rules for that -- Part 73.

Do you guys want to say anything else?

MR. LEEDS: Well, environmental monitoring is continuous. Certainly security, environmental monitoring. Depending on the design there may be specific technical specifications that like you would have on a reactor -- moderate temperature or pressure, depending on the design.

MR. RADDATZ: Maintenance.

MR. LEEDS: There are certain ongoing requirements even though it is a very passive system.

DR. WYMER: Okay, and that is not a separate activity -- it's part of this plan.

MS. SHANKMAN: It's part of operations.

MR. YOUNG: It's art of the operations.

We define operations as the passive operations that we're trying to talk about that address the technical specifications and the different -- surveillance -- things you need to do.

DR. WYMER: The reason I bring it up, it's maybe not quite as obtuse as it sounds. I am involved in another

study that has to do with what is closure and what is interim storage and this sort of seemed to fall into the interim storage area that DOE has to wrestle with.

MS. SHANKMAN: Right.

MR. YOUNG: Well, these are being licensed for 20 years.

DR. WYMER: 20 years?

MR. YOUNG: Yes, sir. It's the anticipation that this fuel will be moved on to its ultimate disposal facility somewhere along the line.

MS. SHANKMAN: Right. Well, that could be renewed for another 20 years.

DR. WYMER: Well, that sounds like a good plan.

MS. SHANKMAN: Right -- we are pragmatists, right?

Now there are a lot of questions that need to be answered and I don't think that we know the answers to them.

The kinds of things that come to mind -- are the monitoring systems we could have licensed for longer than 20 years so will the new legislation that speaks to central interim storage, is that the DOE monitored? No? Is it like an SFICI? Maybe. We are going to have to work all those things out once it is clear what the legislation say, and then is it a 20 year license?

Could it be longer if you have -- we have had some issues about shine related to the array where you have a

small facility and you are thinking about the radiation shine from two rows versus four rows. I mean there are lots of issues to be looked at when you have a very large facility and you are going to have movement in and out.

There are a lot of groups -- I didn't talk about public participation but, just as I said, Charlie is at another meeting today. I am here. This clearly isn't part of our public participation but we have been to Atlanta for, quote, a "corridor" meeting -- citizens who are concerned, League of Women Voters organized another one that was held in Indianapolis. I am going out to Las Vegas -- and yes, I will put 25 cents in the slow machine for you but I am sure you get more opportunities than I do, right?

But there is the regional radioactive waste transportation committees from the different states -- I mean there's lots of interests in whether it is central interim storage or whether it is the ultimate repository.

When you start to move this, we go to the American Association of Railroads has done an independent study of what happens when you transport spent fuel, where it would have to go, and they have postulated three different sites in the country for central interim storage.

We have been out and above to lots of meetings where people have expressed their concerns about what is going to happen and what kind of transport and where it is

going to go and how it is going to be stored.

Don't ask me -- we tell them what we tell you. We are reviewing them. We have certain criteria. We are reviewing against those criteria. We believe that those criteria are conservative.

DR. WYMER: When we had our little pre-meeting discussion, I said that what sort of things can the ACNW do for you, and you said, well, no, it's really the other way around -- what do we want to know. I think it's just two sides of the same coin and it probably would be helpful to get some idea from you of what you think are the areas where we might be making the best contribution.

MS. SHANKMAN: One area clearly is the environmental area, where you have strong expertise.

Eric?

MR. LEEDS: Yes. We really appreciate the offer.

We are currently working on branch technical position on environmental monitoring for these independent spent fuel storage installations and we would like to come to the ACNW and present our branch technical position to you probably within the next few months -- hopefully by early Spring of next year -- and get your comments and your suggestions.

That's one of the areas that we really feel we need to fill that hole.

MR. FAIRHURST: Could I ask an even more general question? You said you had 207 comments and then you found some comments elsewhere that were relevant.

Did those comments tend to focus on particular areas or were they just across the map? Were there large segments of this that are of little or no concern?

MS. SHANKMAN: Skip can speak to individual comments but let me just make a general comment.

When you say 207, you know, some of those are editorial. Some of them sound as if they are editorial and they are not -- do you know what I mean? They will say "I don't understand this sentence, can I add this word?" and the word is "damaged fuel" -- you know.

That changes the entire meaning of what is approved. That in fact is one big issue, which is what is the definition of damaged fuel. And I can tell you that I asked Eric and Fritz to make a list of what we haven't solved, and I think it's all on one sheet, right?

MR. LEEDS: Oh, yes.

MS. SHANKMAN: Yes. Okay. But let me let Skip tell you about the comments, and then let me let Eric and Fritz speak to some of the issues that we're still wrestling with. But they're all tied together, because the comments are usually asking us to -- some of them actually asked us to change our regulations. You know, we don't like what it

says in the SRP, we want it to say this, and I know that's based on the regulation, so change your regulation. You know. So -- go ahead, Skip.

MR. FAIRHURST: Oh, maybe I can just interject this. I notice you've got a lot about things -- hydrology, seismicity, et cetera, et cetera. Are there many people challenging your basic --

MR. YOUNG: The only comment that was challenged in that area was the seismic criteria, and there's work afoot in the reactor area to change Part 100, which just got changed. We're going to use that to try -- we're also doing rule changing in that area to change our requirements for siting criteria. So we received -- in that chapter we received a lot of comments on the seismic criteria that basically the standard review plan was addressing at the time. We are going to address that through rule-changing based on what came out of the reactor area.

Generally across the board the other area that was commented on was the definition of damaged fuel, and we've gone back and we've run a revised -- revised the definition that we're using in the standard review plan for damaged fuel.

Most of the other comments went across the board. We had a couple comments in the structural area that dealt with the -- the codes that we called out there, and we're

addressing those issues of what the codes -- if you go in there and look at it, we've called out specific codes for some comments that basically wanted us to make a more generic, allow the individual to come in and say I want to build to this code type thing. So we're addressing those comments.

The rest of them were basically editorial and clarification. What do you mean by this statement? There's a lot of criteria in there, and most of the comments were would you clarify what you mean by this statement?

DR. WYMER: Thank you.

MS. SHANKMAN: So we didn't have any basic challenges to that.

MR. LEEDS: A number of issues that we're wrestling with in the policy issues. A number of policy issues that we're still pursuing that you won't find. The failed fuel is a good one. We're still wrestling with that. Another one is cask recovery. When you go to a Part -- a site-specific Part 72 license, when a licensee gets that, that means that they can decommission their pool, their spent fuel pool. They can do away with their Part 50 license. Well, now you've got a pad with a bunch of casks on there. What if we have an issue with one of those casks that you have to recover the fuel?

Right now the staff is considering an application

from Rancho Seco, from the folks at SMUD, that they would have a transportation cask overpacked which would be qualified for storage such that if the storage cask, if there is a problem with the storage cask, you can take that cask and put it into this transportation overpack, a cask within a cask, that would be qualified for storage, and that way you don't have to handle bare fuel. It's something that can be done, even though the reactor license, the Part 50 license, has gone away And that's one potential recovery mechanism.

But then we have the issue of larger facilities. We've got an application from the private fuel storage folks to build an independent spent-fuel storage installation out on the Goshute reservation in Utah where they're talking about 4,000 casks. For that situation would we be willing to go with this overpack, or would we prefer for them to install a dry transfer system as proposed by the Department of Energy?

These decisions haven't been made yet. We're working those at the staff level. Obviously for the Department of Energy they can't put something in an overpack and send it to DOE to get it fixed. They're the last remnants. They're the final defense. So for a central interim storage facility or monitored retrievable storage facility that the Department of Energy would propose to us,

we're going to insist on some sort of capability to handle fuel elements, some sort of dry transfer system, or else they'll have to build a pool. They're going to need something. But those are the types of issues that we're still wrestling with.

DR. WYMER: Let me ask another question that sort of will come at you at right angles, reflects my background a little too much maybe, but they say problems that you're facing with respect to not having any Yucca Mountain to put this power reactor fuel in will be faced by the people that are producing canisters of high-level waste and there may be some NRC oversight or some of the DOE facilities down the line, so I wondered to what extent would this same plan be applicable to casks of high-level waste produced in a vitrification plant? Have you thought about that?

MS. SHANKMAN: Well, first of all we have to start with what regulations, against what regulations would we be assessing it. If they want to apply under Part 72 it would apply, but there'd be a lot of -- we'd have to look at the nature of what they wanted to store. Okay? The regulations would still apply, but some of the guidance in there is actually speaking to spent fuel, and so we'd have to look at it on a case-by-case basis.

MR. STURZ: Our acceptance criteria may change.

MS. SHANKMAN: Right.

MR. STURZ: You know, the criteria in the standard review plan is for light-water reactor fuel, and we'd have -- like with the Fort Saint Vrain fuel, we'd have to look at the waste form and see what -- they would have to propose acceptance criteria to demonstrate compliance with the regulation, and we'd have to evaluate what the licensee proposes.

MS. SHANKMAN: t the basic criteria, which is the regulations, would. change. It would still have to meet the same radiologica standard. It would still have to meet the same storage standard.

DR. WYMER: It would seem to me that it's so similar that practically everything would be --

MS. SHANKMAN: Right.

DR. WYMER: Would be transferable.

MS. SHANKMAN: Right.

DR. WYMER: I just wondered if you had even --

MS. SHANKMAN: Well, that's assuming they want to apply under Part 72, and that's what we've had right now. I mean, the Department of Energy has come in to have us review a -- a storage for TMI-2 fuel.

DR. WYMER: Um-hum.

MS. SHANKMAN: We're reviewing it against the standard review plan.

DR. WYMER: And you would review the high-level

waste canisters against the standard review plan and see what changes?

MS. SHANKMAN: If they applied under the Part 72.

DR. WYMER: The waste is pretty similar, there's a lot of fission products and there's some actinides.

MS. SHANKMAN: Yes, but I think they have more damage issues, more issues of damage.

DR. WYMER: You mean in the vitrified glass?

MR. LEEDS: We would have to take a look at -- you know, obviously the criticality issues and the form. There's a number of chapters which would not be affected. They're still going to meet the structural integrity, decommissioning security, the accident analysis, what you're looking at when you're talking about different fuel form, there we're very concerned about the criticality containment. You know, we'll have to see how that balances against our standard review plan.

MS. SHANKMAN: Yes, I wasn't thinking of vitrified waste, but there's other waste that DOE has that doesn't have any -- doesn't have anything analogous to the cladding, or it's so different, or it's aluminum, or, you know.

Dr. Garrick?

CHAIRMAN GARRICK: No, go ahead.

MR. YOUNG: Just a general comment. This is the first attempt for us to write a standard review plan in this

area. This is supposed to be a dynamic document. As the regulations change and as Congress, whatever Congress does, we're going to have to respond to that and the standard review plan will then -- we'll change the standard review plan to reflect what our business is at the time.

DR. WYMER: It would seem prudent to keep in the back of your mind.

CHAIRMAN GARRICK: Yes, and there's a good data base developing. There are canisters now at Savannah River, and the glass characteristics are pretty well understood, and certainly the specifications are there, and it is a different problem, because you couldn't -- if you have a product that -- where the uranium and plutonium has been separated out, you don't have the criticality issue, for example. Maybe in the context and in the spirit of the investigations that are going on as to the nature of the DOE oversight, that would be a place to look and get some sense of what you're dealing with that's quite different from spent fuel. I would think that for the most part it would be a simpler problem.

DR. WYMER: I would too.

CHAIRMAN GARRICK: Yes.

MR. LEEDS: We hope so.

CHAIRMAN GARRICK: One of the things, since Susan said the word, not me, but I want to hear before we end is

about your sad experience with PRA.

MS. SHANKMAN: Okay.

CHAIRMAN GARRICK: Because that was a subject of considerable discussion the last time we did this, and there wasn't much to go on at that time. Evidently there's more to go on now.

MS. SHANKMAN: Okay. We pursued it. I think Charlie told you we were going to pursue it.

CHAIRMAN GARRICK: Right.

MS. SHANKMAN: We wrote a user need in April. We wanted to look at one specific case, what would be the mechanism for an offsite consequence. And we developed a user need. We sent it to research. We got a lot of support from our office director and from research. We met on how would be the best way to do it. And because of that we selected a contractor in August which, you know the way we work, that's pretty fast. We asked for it in April.

We got a response and we got a contract in place by August, and while that was happening the NMSS budget for PRA was totally zeroed, and so was research's budget for '99. We noped that we could still continue and try to get it done within fiscal year '98, so we continued to pursue that. The contractor began work.

However, just recently, within the last couple of weeks, we were told that the contract funds for fiscal '98

have also been eliminated, and that the contractor has to stop work. So is that a sad enough story?

VICE-CHAIRMAN HORNBERGER: I was curious whether you were going to be able to bring tears to John's eyes, and I think maybe you did.

CHAIRMAN GARRICK: Well, at least it wasn't as a result of the bad experience with PRA. It's a bad experience with budgeting.

MS. SHANKMAN: Right. And I think that we've been pushed very hard on this budgeting. I'm sure you read the same newspapers we do. The PRA for dry cask storage I guess was seen as the lesser of all the PRA work that's going on, and I think you can -- I mean, I can appreciate that the offsite consequences we thought were going to be minimal if any, you don't have something that propels it. The idea of doing the PRA was to look at the relative risk. We think it's exceedingly low. We wanted actually to prove that by doing a systematic PRA using the expertise that's available, and certainly the expertise in PRA is much better than it ever was. Stacy Rosenberg is here. She has her own -- I mean, she could tell you in much more of the details of the user need, but as far as I could see we got as much support as we needed within the Agency. The issue was the budget.

For us, it is not dead. For us, it is on hold. If we were to get some extra money, we would pursue it

again.

On the other hand, I have to be part of the agency, and if our budget is cut and that is specifically, in a sense, line item cut, it would not be appropriate to do it with monies that were appropriated for something else. So we would have to re-request. And both Charlie and I feel strongly that we would like to do that, because we would like to have this PRA on the record.

VICE CHAIRMAN HORNBERGER: Well, your review is that it is really just to prove a point. That is, you already believe --

MS. SHANKMAN: Well, --

VICE CHAIRMAN HORNBERGER: -- that the risks are -- in other words, it is not going to feedback to either an accident analysis or any kind of acceptance criteria.

MS. SHANKMAN: Well, you do it because you think it is going to turn out one way, and you do it to prove that, you know. And if any issues were to be raised in it -- Stacey, do you want to say something? You have to come to a microphone.

Yeah, you know. Obviously, you do it because if knew totally what the outcome was, you wouldn't have to -- go ahead, Stacey.

MR. LEEDS: Before Stacey gets here, I'll tell you another reason we would really like to have a probablistic

risk assessment completed on these casks is we are going to go to a pre-hearing trial in Utah here in January. We feel that if it did come out the way we wanted it to, it certainly would be a very powerful tool to use in the courts. It would really help the staff.

And even if it doesn't come out, well, then we should our emphasis on those areas of risk. It would be a very valuable tool to us. It is very -- you know, we are very disappointed that we are losing it.

CHAIRMAN GARRICK: Well, that's an important observation, because one thing we wouldn't want to hear is that the sad experience was a direct result of a lack of interest on the part of the staff, or foot-dragging, or whatever, in trying to bring about the Chairlady's wish for risk-informed regulation. So.

MS. SHANKMAN: And, in fact, I was going to tell you where we are using risk in one of the projects we are using.

CHAIRMAN GARRICK: Right.

MS. SHANKMAN: Stacey, go ahead.

MS. ROSENBERG: Well, I was just going to kind of expand on the reasons that it would be useful to have this PRA. And one of the reasons is we are getting questions, what is the risk or dry-cask storage? And although we can say it is low, we can't really say what it is. And this

would help us do that.

Another reason is that we do want to change the regulations for seismic siting. And we really don't know where to go with that. You know, we feel that the reactor siting criteria is overkill for this. But where to go? Well, if we had a PRA, we would be able to pick what the standard should be for this, a lot better, I think. And other issues about nature.

MS. SHANKMAN: Yeah, it would be very useful to us.

Thanks, Stacey.

You know, clearly, the reactor seismic requirements, as Stacey said, we believe may be too conservative. But we have -- it would be much more helpful if we could show what this external event, precipitating events might do and what accidents they would cause.

And now we are postulating them, but we are not --we don't know the relative risk of them.

Did I bring tears to your eyes? I'm sorry.

CHAIRMAN GARRICK: No, no, no, no. I have developed --

MS. SHANKMAN: Well, we will continue --

CHAIRMAN GARRICK: -- reasonably thick skin.

[Laughter.]

MS. SHANKMAN: We will continue to try and have

that accomplished. But we have to take our direction from the budget.

One of the other areas, I wanted to just touch base with you and tell you that we continue our very vigorous coordination with the Department of Transportation. And for the spent fuel area, that, I think increasingly will become very important. But there is one voice. We go to all the international meetings with the DOT. They are the competent authority as these things go, and, you know, in the way, the hierarchy within the IAEA. However, we go to all the meetings and we have all done all their technical reviews related to spent fuel. And I think that is working quite well.

We just put out a joint document with them on LSASCO and the transport of there. But there are a lot of documents to come. We indeed to do one spent fuel with their -- it will be a combination document, just a discussion of spent fuel routing. It won't be any new information, but it will be a document that we can use to help educate public -- public participation groups, stuff like that.

And, in fact, we are going with DOT, there is an LSASCO research coordination meeting for IAE, December 1st through the 5th in Oak Ridge, and we are sending two representatives along with DOT's two representatives. So I

think that is working quite well.

The other -- the last topic I wanted to just tell you about, which really doesn't quite have to do with -- with, I guess, your main charter, but I thought you might be interested in it, and, particularly, since I think we will do it in a risk-informed manner, is the transport of the Trojan reactor vessel.

I don't know how much you have heard about it, but Trojan wants very much to transport its reactor vessel with the internals intact. That turns out to be 2.2, give or take a curie or two, million curies of, basically, radioactive metal.

They want to grout it. And they use the basis of shipping it, the fact that the volume, when you average this amount of radioactive material over the volume of the reactor vessel, you meet the branch technical position that went out a while ago on transporting what, at that time, were small sources in 55 gallon drums.

We don't believe that that is exactly what the branch technical position was meant to do, and we have said that to the State of Washington. And, as I am sure you understand, it is the U.S. Ecology site, it is licensed by the State of Washington, that Trojan would want to transport this vessel to. So it is the State of Washington and U.S. Ecology that makes the decision about whether it can be

buried in a shallow land burial site.

However, as an agency, I think we don't believe --and right now that whole discussion is at the Commission. Whether the waste classification is appropriate or not. And the Commission has not spoken on it yet. So I am just telling you the staff's position right now.

When the State of Washington makes a decision about whether it can be transported to U.S. Ecology, then our group, Spent Fuel Project Office, particular the transport, we will make a decision about whether it can be transported.

Now, we have waited to make that decision, because if it has no place to go, we didn't want to take the staff resources. However, because it would take so long to do both of those reviews, the waste classification review and the -- because what they will probably have to do is some kind of performance waste classification review. We have developed a statement of work and we are looking to have a contract to do the initial transport review.

But I think it is an interesting case, because of the issues is should we grant an exemption to the normal type B transport standards based on operational controls. Can you lessen the risk to the public when you send one large, grouted, heavy, float it up the Columbia River from the Trojan site, which is on the Colombia River, to the port

of Benton, take it -- you know, the transporter, it looks like a centipede -- up five miles and put it in the U.S. Ecology site?

Is that of less risk if it is -- if the tugboats are there, if locks are manned by more staff?

You have to look at the relative risk of that. Or, if you cut it up, you put it in a regular type B transport, and you have -- according -- according to Trojan, because we haven't analyzed all of their -- we haven't verified all their information -- but Trojan says the difference would be 44 shipments up the same river.

I don't know. Stacey is going to do the risk analysis for us.

DR. WYMER: And that risk analysis, I suppose, will include all the risk involved in cutting up the core.

MS. SHANKMAN: Well, it will be the risk to the public.

DR. WYMER: Yeah.

MS. SHANKMAN: And occupational risk, workers are considered part of the public, so, yeah.

So that's -- we are sort in the middle of the book. The last chapters haven't been written.

Okay. Well, we have two more SRP's. One will be on spent fuel transport. We have another one that is coming out in maybe two weeks, it is in the printer's now, on

non-spent fuel transport.

The spent fuel transport will be done --

MR. YOUNG: We just received a copy from the contractor today. So we are going to be sending that out at the beginning of the year for public comment.

MS. SHANKMAN: Okay. And that will complete the whole shelf that SFPO was developing, the bookshelf, which will be four SRP's. One is on the cask systems, one is on the facility that has a storage system. The third one is on non-spent fuel transport -- that's transport of radiography cameras, fresh fuel, all the other things other than spent fuel. And the last one will be on the transport of spent fuel.

And that will give as much guidance -- and think of them as looseleafs. Because as we gain experience, we will change. The standard review plan is never a static document.

We will be glad to send them to you as we send them out for public comment, and meet with you if you so desire.

I think, I hope I have given you enough information.

CHAIRMAN GARRICK: We talked about spent fuel canisters early on, and the unresolved state that that whole issue is in. And, of course, we know that the President

isn't showing much interest in spent fuel canisters and spending money on them.

Who do you see as the responsible entity for resolving that rather central issue associated with the whole spent fuel management problem? Who is going to solve the problem of a standard canister, for example, or a standard spent fuel container of some sort?

MS. SHANKMAN: You mean for the repository?

CHAIRMAN GARRICK: Who is going to -- yeah, that will eventually be delivered to the repository. Who is -- who is coming forward and saying we are going to solve that?

MS. SHANKMAN: Well, I think we are working with our Division of Waste Management, but I don't -- go ahead, Eric.

MR. LEEDS: Yeah. I don't know if I am going to answer your question, but I am going to try.

Right now we have got six vendors with six different designs for these casks for storage and transportation. We haven't had that much of a shake-out --as Susan mentioned at the beginning, we are having a shake-out in the industry, but we don't have one knight on a white horse coming in and saying we are going to have the design that is going to be universal that all these utilities can use.

And all these -- the six -- the five, six vendors

that are involved have all got backing from different utilities. So just like in the reactors -- on reactors, they have all gone different ways. So we have got six different designs.

When it comes to the actual waste package, I think the driver on that will be the Department of Energy.

MS. SHANKMAN: Right.

MR. LEEDS: The Department of Energy will have to make that happen.

MS. SHANKMAN: I think that it works -- if the Department of Energy would say these are the standards, this is what you have to meet, all the vendors would fall in line.

In fact, in some discussions I had with the management at VECTRA, they have been tailoring each of their storage modules to specific specifications from each utility. And it has been -- in many ways, driven them, I think, into bankruptcy. Because they had to produce specific drawings for each storage system for each utility. Where is the economy? If you have a design -- and they had to make sure that the design modifications were acceptable within the certificate of compliance that they got from us.

So I said, well, why don't you just have a standard design? You have a certificate.

Well, we have learned that. We are going -- we

are not going to do modifications for each utility.

Maybe we should have done that ourselves. Maybe we should have made the design certification more stringent.

I am not sure that NRC has ever decided that we are -- we are going to prevent anybody from making any -- making everything standard, I mean we are going to insist on that.

We haven't in the reactor world. We didn't when we did the advanced reactors. And we haven't in the certification area.

But the Department of Energy has a repository. When they have -- when they are clear on what they want to put in the repository, they can set the standard and it will drive it backwards. So.

CHAIRMAN GARRICK: Well, it doesn't mean we shouldn't have tried to standardize our reactor designs, for example, and the lessons learned from there would certainly suggest the more standardization we do on the spent fuel containers, waste package containers, I would think the better.

MS. SHANKMAN: Okay. I can't say that I particularly disagree with you, but I think that right now the standard is that we have to meet the regulations and all the packaging that we have -- the storage systems that we have approved meet those standards.

Eric, did you want to say anything else? Skip?

[No response.]

MS. SHANKMAN: We appreciate being here and we'll be glad to come back if you have any interest in any of the other things.

I guess Charlie has committed to come back periodically so he will come back next quarter.

Do you have any other questions?

CHAIRMAN GARRICK: It's your show.

DR. WYMER: Well, I think I have heard all I can absorb.

If there's no other questions, I guess we can go.

We'll look forward to seeing you and hearing more about your desires on environmental aspects of this whole problem.

MS. SHANKMAN: Okay, thank you. Thank you very much.

CHAIRMAN GARRICK: Thank you.

DR. WYMER: I guess we go to lunch early.

CHAIRMAN GARRICK: Okay. Why don't we adjourn for lunch and since we have other people that are involved, we will resume at the scheduled appointed time of 1 o'clock.

[Whereupon, at 11:41 a.m., the meeting was recessed, to reconvene at 1:00 p.m., this same day.]

AFTERNOON SESSION

[1:00 p.m.]

CHAIRMAN GARRICK: The meeting will come to order. Did I wake you up?

MR. FAIRHURST: That scared the hell out of me.

[Laughter.]

MR. FAIRHURST: I was thinking.

CHAIRMAN GARRICK: Well, I am especially sorry that I interrupted that.

One of the agenda items that has kind of become a standing item that is very important to the Committee is to meet with an executive of the NMSS and get a heads-up on a number of topics. John Greeves is most often tapped to do that. So we are looking forward, John, to getting an update from you on what I think are some very important topics. They are especially important because a lot of the Committee is new. So do not hesitate to repeat a few things that maybe one or two of the others of us might have heard in the past.

So, with that, we turn it over to you.

MR. GREEVES: Okay. Well, let me offer my welcome to the new members. I would like to spend some time with you and offer both of you an opportunity to come in and sit down with my staff and me to kind of go over things.

I have found in the past that it helps to have a

little bit of that type of interface. So, if either of the two of you are in town, let us know and we will spend a little bit of time with you and go over some of the issues.

You are probably feeling a little overwhelms. Well, I will share with you, I am not too far from that remark myself much of the time. There is a lot going on in the areas that I am responsible for, including high-level waste issues, low-level waste issues, decommissioning, and uranium recovery. It is basically four program areas, and I will be speaking about pieces of those today. So I look forward to spending some more time with you. Actually, any of the staff, we get together with Dr. Garrick on occasion and go over some things. So I offer you that invitation and welcome you to these types of meetings.

What I plan to do today is go over the high-level waste program. I know Mike Bell was in here speaking to you on some of the topics this morning. I hope I do not duplicate items he has already gone over. If I am get too much into it, I am sure you can let me know.

I would like to give you a little feedback on the program review activities. My sense is that ACNW is probably going to be involved in this in the future, and I just want to give you a little sense of what life is like on my end in terms of explaining these four programs to the executives within the agency. It sort of gives you a chance

to see how the resources and the output measures, et cetera, mesh up. So I will give you a little flavor of that.

I will talk a little bit about the low-level waste program and finish up with the decommissioning program. So it is kind of a snapshot of the majority of the topics that Margaret Federline and I are responsible for.

I will pass on some news to you that Margaret has been detailed to a group working on the strategic planning activities. So, probably through the end of the year, she will be working with the chief financial officers group and looking at some of the strategic planning. So, just a heads-up, you will not be seeing a lot of Margaret in the next month and a half, and that is why. We are all looking forward to these plans that they come forward with. So we are pleased to have Margaret representing our interests in that process.

As far as the high-level waste program, the project -- I understand that -- I think all of you were out there not too long ago, and you got a good chance to look at things on the ground out there. Anybody who is watching this program knows that a big piece of effort that is in front of us is this thing called the viability assessment. It is not a licensing action, but it is a piece that is in legislation, and DOE, about the end of '98, is required to come forward with the viability assessment. The staff is

planning on developing a set of comments suitable for the Commission to use, for whatever reasons they may need shortly after that, and I think Mike has probably conveyed that to you.

A lot of the work that we are doing at the present time involves the so-called KTIs, and I hope the members are catching up with the terminology. It is a challenge, but at the same time, we are focussing our review on things that will show up in the viability assessment. For example, there will be a total system performance assessment attached to the viability assessment. So that is a good tool for us to be reviewing, looking at, what is the reference case that the Department of Energy is considering. So that is a tool that we are looking at and giving them real-time feedback in that process.

I think you are aware or you should be aware that they are going to start construction of the east-west cross-drift tunnel, and I am told that is scheduled to commence in December and would take approximately 8 months. I have heard some stories about how much science is going to be attached to that. I do not have a lot of detail on that myself, but I know there are budget constraints, both on DOE's side and our side, in terms of how much science can be attached to these issues. I expect your staffs are probably somewhat familiar with what they are doing in the field out

there.

As far as the EPA standard, another element of the high-level waste program, there have been discussions with EPA and the staff on this, and our understanding is EPA is proceeding to move forward and promulgate such a standard. I think anybody who has been watching this process knows that there are some issues still out there that do not seem to be totally pinned down, one of which is this groundwater issue. Is it in? Is it out? I think you can look at what is going on with groundwater issues maybe in other areas and see why it is a difficult topic.

We have gone through the decommissioning rule in our program which has no groundwater standard, and I see there are some activities going on in the Superfund front on this. So it is one of those difficult decisions. I think that is probably part of the reason why it has taken so long for this particular standard to come forward.

CHAIRMAN GARRICK: John, do you have any sense of how that is going to be resolved?

MR. GREEVES: I really don't.

We know where we are in this process. I think you can look at the Chairman's statement and some of the legislation that I will speak to shortly. Basically, we do not see the need of a separate groundwater standard, consistent with the decommissioning rule, and that is one of

the pinch-points-to-rub areas that people are still looking at.

MR. FAIRHURST: So are you saying, in essence, now that EPA is the one that feels that there should be such a standard?

MR. GREEVES: Well, I think the standard goes back to legislation that calls for EPA to come forward after the Yucca Mountain study that was done; that they should come forward with a standard. Then NRC would come forward after such standard with a rule compliance. That is all set up in the legislation front.

In fact, I think the EPA standard -- Mike, help me out, but it was supposed to be last year?

MR. BELL: This is Michael Bell from the NRC staff.

The Nuclear Waste Policy Act Amendments specified that EPA should publish their standard within a year after the National Academy meeting report. So it is considerably overdue.

MR. FAIRHURST: You were saying that the groundwater standard was pinch-point, which suggests that if you are not in favor, somebody else is pushing it.

MR. GREEVES: Well, you can look at the decommissioning rule, and EPA favored a groundwater standard in the decommissioning rule. Maybe it is an area you were

not that familiar with, but there has been a lot of discussion between NRC and EPA on the implementation of separate pathway standards. In the decommissioning arena, the Commission came out with a single pathway standard of 25 milirem. It is a little bit more complicated than that, but that is where a lot of the discussion was over is there a need for a separate groundwater standard and what should that standard be.

These things actually go on. On December 11th and 12th, EPA is hosting a meeting for feedback under the Safe Drinking Water Act regarding the MCL process, and we are going to put together some notes; that we are considering going down and participating in that process. They are asking for feedback, and we have got a responsibility to identify what our concerns are.

So this is a thread that goes across the high-level waste standard, the decommissioning standard, and into Superfund activities. So I would be happy to sit down and give you some of the background on this when we get a chance. I think some of the other members are a bit more familiar with this.

So, as I said, there is a process where NRC's regulation would have to be revised to catch up, and the clock is ticking. So, effectively, the staff is putting together a paper describing what we think our strategy ought

to be for a high-level waste standard, and we will be forwarding that to the Commission. The Committee, of course, in process will get a copy of that. We would be looking for the Commission approval to go forward with that rulemaking.

As I understand it, DOE needs some standard in a statement from NRC. So we are trying to, in a timely way, sometime next come out with a standard from us so that they would have something to start looking at.

So, as I said, you will see the Commission paper on that, and we expect to brief the Committee on that in, I think, the February time frame, Mike, if my memory is correct. So we will be back talking to you about that, and you would see the paper in advance of that.

It is consistent with your defense-in-depth letter, one of the letters you did forward to us, I think, not too long ago. So I think you will be seeing some of the same type of thinking in the paper as it moves forward.

On a separate track, the legislation track, I think most of you are probably familiar that the House did pass a piece of legislation by a rather large vote here recently, the end of October, and separately, the Senate last April passed a different version of the bill. So the result of all that is that there would be a conference meeting to see if they could not bring these together, and

our expectation is that that will occur sometime in January. So that is sort of an update on the legislation, just some things that happened.

The Senate version looked like it was a standard about 25 milirem in terms of receptive to the critical group, and the compliance period was a 10,000-year period. It did also call for NRC to report to Congress on the repository performance beyond 10,000 years. These are issues that you commented on in some of your time frame letters. So, at least in terms of identifying the issues and commenting on them, those were elements of that particular bill.

The House bill is similar in a number of ways, and the House bill identified a limit of 100 milirem to the average member of the public, and I think the Commission would expect that the ALARA process would bring it down into the range, similar to the Senate bill of something like 30 milirem. So we are continuing to evaluate the implications of those bills and we will just keep you informed as time proceeds on this.

A lot of the work that we are doing involves what we call issue resolution status reports, and I expect that Mike and others have talked to you even this morning and in sessions in past meetings. I think you probably have a good idea that we are working on nine or more of these.

They seem to be moving along. In setting up, essentially, the acceptance criteria that you could expect to find in a review plan, once we get the resources to put together a review plan, I was pleased to see a recent document from DOE commenting on the climate resolution status report, one of the ones that we had done some time ago, and we indicated that they recognized the review was thorough. They were pleased to see some acceptance criteria in writing, so they know what they are dealing with, and it was in sufficient detail that they could prepare licensing documents in that particular area.

So I would look forward to getting the same kind of letter back from DOE on these other status reports as they go out. I think the word that we all use is "transparent," where are we, what do we think we need, what are the acceptance criteria, and in this case, at least, DOE sees that process as working.

We will briefing the Committee in December on a number of these issues. I think it is December 17th and 18th, Mike, as the next Committee meeting?

On the recent total system performance assessment technical exchange, I believe your staff was at the meeting, and we found that it was quite useful. It gave us a chance to see where DOE is on these issues.

We did notice some difficulties in terms of

implementation, and I think your staff probably picked up on some of these issues while they were at the meeting. They seemed to have some modeling difficulty in areas like corrosion and tectonics in terms of the match-up of the site work and the laboratory investigations.

Also, as they go through this viability process, a vision of what we sort of see, is that you have got to make a bunch of decisions on am I going to turn left at the fork or am I going to turn right. It looks like a number of those decisions have not quite been made yet. So there is quite a bit more. They have got quite a challenge in front of them in order to put this viability document together. We identified some concerns about matrix diffusion and the consequences of seismicity.

We do agree -- or we did agree with the need for transparency of documentation supporting these issues, and, again, this was one of the items you mentioned in the letters that you passed on, which we quite support ourselves, also.

So, as this viability assessment comes in, some of the areas that I expect we will be focussing on are the matrix diffusion area, what kind of credit are they going to use for fuel classing in terms of reducing the releases, treatment of disruptive events, and what kind of assumptions will be applied in terms of the dilution in the saturated --

so this is just kind of a flavor of the things that we think we are going to need to focus on.

There are going to be follow-up meetings. In March of next year, the staff and DOE expect to hold another technical exchange to go over many of these issues, and we expect to be briefing the ACNW on the interim results that we are working on in the spring time frame.

At this point, let me just turn to the letters that we have received recently. As I mentioned earlier, the defense-in-depth letter, I think we will understand what you said there, and it fits, I think, very well in the kinds of thinking that we have and is consistent with our intentions in terms of moving forward. As I said, you will see some of that in the strategy paper that you will be getting a copy of.

The performance assessment capability letter was good, and we did not see anything in there that was a concern to us. We agreed with the points on trying to make sure things are documented and the process is transparent.

The third letter in terms of our work on the TSPA code, we generally agree with the recommendations there, but we do have a concern with some of the language in that letter. In fact, the one that -- Carl uses the word "jarring," and I think it might be appropriate in this case, but the language that states "ultraconservative model

assumptions and parameter values" should be replaced. It struck a nerve with us.

Part of this process, the regulatory process, of balancing what you do in terms of conservatism, realistic, bounding cases and staying away from a position that is not defensible, it is a balancing process, and those of us, you who have been working in this area, know that you have to be careful in walking through there.

We, management and the staff, are at all times looking at this kind of a problem. Margaret and I are asking the staff constantly where is this in terms of the real case, and we need to make sure that we aren't in an ultraconservative mode. By the same token, we can't be on the other end of the spectrum because, if you move too far in the other direction, you are not in a defensible mode.

So I must say I was surprised to see this type of language in the letter, and I didn't detect any examples of this type of activity in the letter. So what I would like to do is ask you to make your staff available to us and sit down and go over what is behind this so that we can look for anything that might be characterized this way because we certainly do not see ourselves in an ultraconservative model assumption or parameter value situation.

When we first started looking at an early version of this latest code, we did detect some things that showed

answers that you just could not visualize. They did not make any sense. We went back in and made some adjustments. So the staff is on the lookout for anything that has this type of connection in terms of an ultraconservative assumption. So I would ask, if you would, please make your staff available, and I wanted to sit down with my staff and understand what is behind us, and come through and make sure we have got something that is realistic.

So I just wanted to express that concern. It does not happen often, but when it does, I think you want to hear back from us what it is that gets their attention. I don't think we can go through it here, but I think you, too, would appreciate the need for me to ask. Let's have a better understanding of what this is, and we will work on it.

So that is pretty much what I had on the letters. We will be responding to the letters.

CHAIRMAN GARRICK: Let me just comment on that briefly.

MR. GREEVES: Okay.

CHAIRMAN GARRICK: It is an important issue, and the Committee certainly appreciates that kind of feedback. I think that, most likely, when we do have a detailed exchange on it, we are going to find that probably there is not as much differences as would first appear in terms of what we meant to say by the letter and how it was actually

interpreted.

I think the idea and the concept that we were trying to advocate here is that the real strength of PRA is that -- and one of the reasons the whole concept was invented was to have an alternative to worst-case analysis and upper-bound analysis in assessing the performance of systems with respect to risk, and so we as a Committee are very interested in that aspect of PRA being carried forward.

So that, when decisions are made, usually they are made on the basis of rather specific criteria, and often numerical criteria. One has a reference against which to judge where those values fit with respect to the range of values that were put forth by the PRA.

So I think that those of us who have some confidence in this concept have confidence in it when it is applied in the spirit of why it was invented, and if you get the sense that the results are not in the fashion of a realistic model, you have some concern, and I think that the Committee had that when they heard the IPA, TPA results in San Antonio.

So I do not think it is a big deal. I do not think it is a serious problem, but I do think we want to preserve one of the hallmarks of a quantitative risk assessment, namely that of being able to have a way of measuring just how conservative or non-conservative one is

when it comes to making decisions.

So I am hopeful that when we talk to -- and, you know, the Committee members are happy to be very much a part of those discussions as well, and I am hopeful that when we have those discussions, there will be clarification and maybe we will learn something about the details of the analysis that we can't get in a quick presentation and on a quick review of the transcript of that presentation, on the basis of the documents that we receive, in which case, of course, we would take that into account, but, based on what we heard and based on the questions that some of the Committees had about such things as the effect on waste mobilization of the water in the bathtub kind of representation and the interest that some Committee members had in clearly understanding the REDOX potential of some of the modeling and the effect it had on neptunium and technetium transport, I think at that level we clearly felt there were undue conservatism, as well as the information that was presented to us with respect to the disillusion rate of the waste package itself, the rate of disillusion and the time at which complete disillusion was assumed. Those are a couple of specific examples of what concerned us and signal to us that maybe the real spirit of PRA wasn't being practiced here, but if we can be convinced otherwise, we are very happy to be so.

We look forward to working with you.

MR. GREEVES: Okay. And I look forward to discussions across the staff.

My sense -- and, you know, I don't go down and operate these codes -- my sense is you just about have to grab a hold of this thing, operate it, test it, and look for those unrealistic counts, and the staff found some of those and they made the changes. They moved in a different direction.

So I would like to encourage that your staff become more familiar with what we are doing real time. Almost all the staff members are working with this thing. Maybe some people in your unit could jump in and work with this code also to make sure that, if these areas exist, if we have parameters and assumptions that are ultraconservative, we need to root them out. We also need to look on the other end. If we have parameters and assumptions that are not defensible, we need to root them out, also.

CHAIRMAN GARRICK: But I think the issue that we were trying to make or the point we were trying to make in the letter was not so much just the issue of being ultraconservative, but was also the issue of doing the analysis in such a way that it provided context; that it provide transparency, to pick a work that you have already

used, with respect to relating the conclusions and the results back to the model itself.

Really, maybe the key point here is that we see tremendous opportunity to use a risk in foreign practices in such a way that we have a scale against which to measure how conservative or un-conservative we really are, and that is what we want more than anything else out of these analyses.

The Committee is certainly not suggesting that we should not be conservative, but we are suggesting that the conservatism has to be accountable, and the accountability comes in the context of the way in which the results are presented and to what extent they illuminate context. That was the underlying anxiety that I think we had.

George, did I --

MR. FAIRHURST: Can I just jump in with a comment?

CHAIRMAN GARRICK: Yes.

MR. FAIRHURST: This is based, as you know, on the WIPP experience in the performance assessment of that. It is a learning experience. One of the things that I learned, at any rate -- I don't know if anybody else did -- is that sometimes it is because resources are limited and time is limited, and we have been going at two issues which one feels little or no concern. So you take a very conservative stance on that. That is perfectly okay as long as it is identified and stated that you are taking a very

conservative position because you feel it is a relatively unimportant issue, but then it may come back and bite you because it may turn out that in a scenario that had not been anticipated, that turns out to be the driving issue.

I refer to the idea of the permanent disturbed rock zone and the Spallings issue, which came up in a human intrusion scenario and found to be almost the one that resulted in -- I forget what it was -- several orders of magnitude more releases than had ever been imagined. When you looked at the physical possibility of that particular situation, it was not very realistic. It was not very significant, the original situation. Later on down the road, it became one that one had accepted and had to live with, and it was very difficult to defend.

Fortunately, it was possible to defend it, and, again, that is something that I would not have anticipated, and I don't know if anybody else would, but that is why I think it is very clear if one is making a conservative position, which one should make, but to identify the basis for it so that later on it does not come.

CHAIRMAN GARRICK: Yes. Certainly, the thing that we did not want to convey is that you have to take this massive model and characterize it in a probablistic framework all at once. Modelers frequently, and most of the good ones work this way, do simple calculations, first

upper-bound calculations, whatever calculations will enable you to take a big problem and get it down to a manageable size.

If we are talking about a risk assessment as a structured set of scenarios and we have through a simple analysis lots of scenarios, we may want to screen a lot of those out with rather simple bounding-type calculations, but when we get down to reduce our thousand scenarios down to ten that we know were important, then that is when we want to really turn up the microscope on the issue of realism.

I also have to say, John, that, unfortunately, risk assessments are not always practiced in the spirit of what I am describing here. They are not always realistic. In fact, one of the criticisms that you will hear from a lot of reviewers of risk assessments is that absolutely too few of them are.

So it is not just a case of how we are applying it here. It is partly a problem of how the discipline is being practiced, but this is the agency that has had a lot to do with the invention of the concept, and so if there is a place to try to do it in the spirit of its birth, if you wish, or creation or development, then it seems that this is what we should insist on, is that if there is one place that it is done correctly, it ought to be here.

MR. GREEVES: Well, I think that we need more

discussion on this topic. You are aware of our resource constraints, and as Dr. Garrick mentioned, a lot of what people do is a simple process. The first pass model that you put out your paper on serves in some areas, and I think as Dr. Fairhurst mentioned, in some areas maybe you can exercise this technique. I think communication between the ACNW and the staff on where these areas are and where we should invest our resources, because they are limited, and how many of these things can we chase down, I think there is a lot of room there for follow-up. This is, I think, precisely the kind of thing that we should be doing in this environment. So I would just ask as follow-up if we can have some more communication on this, and maybe we can identify those areas, and that will help us balance the energy levels.

CHAIRMAN GARRICK: Thank you.

MR. GREEVES: Okay. At this point, I am going to leave high-level waste, unless you had a question or a topic.

I said I would talk about the program reviews. I don't know how much the new members know about this. Effectively, the executives within the agency are asking program area managers to come in front of them and identify where we are going in terms of strategic goals, strategies, how the resources are lining up, and what the outcome of the

use of those resources are.

I think John Larkins went to the recent senior management meeting and a lot of this was discussed, and it is kind of the planning tool that is going to be used with the agency in the future. As I mentioned earlier, we have four program areas. Margaret completed the program review on the high-level waste program. I will be doing the low-level waste and the decommissioning review next week and Joe Holonich did the rem recovery program review.

Part of what is going on in Government is the resources are shrinking, and people want to see us work smarter in terms of how we make sure that the outcome in term of safety has some payoff. So I think all of us are learning how is this process going to work through these program reviews. So that is a lot of what has occupied my time and Margaret's time in the past couple of months.

So I just wanted to give you some feedback on that. For example, in the area of low-level waste, this is a program which a few years ago had tons of resources attached to it. In 1998, it has less than 2 FTE attached to it. It was a program that we were doing a lot of work on the technical position, on performance assessment. We were developing a lot of guidance. We were interacting regularly with the Department of Energy and the low-level waste compact community.

When you get into a year, which basically I am in now, with less than 2 FTE, it becomes very difficult to keep up those activities. So I am just giving you some feedback.

I wouldn't expect a lot of interactions on low-level waste with the Committee over the next year. I am just not resourced to do that.

I think the Committee is aware that we did put out the branch technical position, and we have received comments on it, but with this funding level, we are not going to be able to go over those comments and refine that position within this fiscal year. That just gives you a flavor of the difficulties.

CHAIRMAN GARRICK: On low-level waste, John, is there anything you could say in reference to our letter that we wrote some months ago that had the approximate title of an adequate low-level waste program, where we attempted to define at least from the perspective of the ACNW what the Committee thought would be an adequate program for NRC, knowing full well that you had budget constraints and what have you? Of course, with your less than 2 FTEs, it does not sound like even much of what we were suggesting can be implemented.

MR. GREEVES: I have read the letter, but it is not fresh in my mind. There are things like the branch technical position. I would very much like to be working on

that. It is a real time issue. There is a lot of interest in it, and I cannot work on that. So you can make your own comment about the word "adequacy" in that light.

Another example if the Envirocare facility, which I was going to give you a little feedback, and it will kind of answer your question.

I have briefed the Committee on the status of the Envirocare facility. You were aware that there were some problems out there in terms of their SNM inventory. I am pleased to report that as of July 18th, they were able to reduce their SNM inventory within the limits of the regulations. So they seem to -- and they have a path forward to stay within that limit.

However, anybody that is familiar with that operation knows that to really operate the way that they need to that they need another license. So Envirocare is coming in here with a license application for basically a storage and treatment facility at Envirocare so that they can handle special nuclear material.

I met with these people a week ago. They put an application on my table. It is about seven or eight volumes, and they are submitting an application in December. I have essentially no resources to review that product. So this gives you a flavor of how tight things are in this particular program area.

Now, I am sure we can expect the usual cards and letters to come in on this issue, but with less than 2 FTE, it is really hard to bite into substantive issues. We will do an acceptance review of that document, but, essentially, it gets into the backlog, unless I get the resources to work on that particular topic.

I had to tell a licensee that, and he is not happy to hear that. The licensee sits there and say, "Well, you are a full-funded agency. Everything I do, you get paid for." True, but I have to have FTE. I have to have dollars to be able to start the project. So I think you understand what I am saying. This just gives you a little insight of the difficulty in some of these programs.

This is kind of the outlier in terms of this particular year. It actually bounces up a little bit next year, but all four of the program areas are actually shrinking in terms of actual resources we can apply to the issues.

So, as I said, I am going to talk about decommissioning, but I would see over the next year, high-level waste interactions, as we have discussed here, and maybe increasing some of the discussions in the decommissioning program area.

I am going to move off of low-level waste, unless you have got a question.

Decommissioning. Again, we are doing a program review on that, and it is shrinking, but not quite the same magnitude that the low-level waste program is.

We had a recent briefing for the Commission. I think most of the members are familiar with the site decommissioning management program where we have a number of sites that we keep an eye on and try and work expeditiously. There are about 40 of them. Some come off, some come on over time.

The staff believes that since about '89, '90, when we started getting regulations and guidance in place -- and for the new members, in decommissioning the commercial sector, frankly like the DOE sector, has some legacy issues out there. People just weren't thinking about how to clean up after they were finished. Fortunately, it isn't quite the same degree as in the DOE program, but only as of about 1988 did we start getting into our regulatory elements that attack the decommissioning issue.

It started off with financial assurance in '88, and then stepped through things like documentation, making sure the licensees have to keep a record of what spills, contaminations they have; timeliness, what is the expectation level of how soon somebody needs to decommission, and then, most recently this summer, the actual criteria, which was a painful process to bring that

forward, but this summer we sort of capped off the things that we started to plan to do in the '89-'90 time frame. It took us this long to put it all together.

So now our vision is there is an infrastructure in the regulatory space to do decommissioning. It is short in the guidance area, and I think some of you are familiar with the fact that the Commission asked us by February to put out some guidance on how to follow up in the decommissioning area.

So these are areas that I think we could have some useful and good interactions with the Committee in terms of that follow-up. I think that the Commission recently has sent down an SRM indicating that they want to know how this transition is going to take place, going from the site decommissioning management plan to a program approach in decommissioning. Frankly, there is a lot more sites than the 40 on that decommissioning plan that, in many ways, have the same types of problems, and they just don't get the visibility.

So we are working on this guidance, and we need to explain to the Commission the criteria that was used to release some of the sites that have come off of the list. How does that match up with the new criteria, that is a question they are asking. They are asking did we close out all the issues that Congress and GAO raised in the '89 and

'90 time frame. So we need to put together a story on that, a schedule. They want to know how we are coming forward with this guidance development process. So these are things that are on the Commission's mind, and I expect you may be asked about how this process is going forward.

So I would look forward to us coming down and talking to you about that guidance development process, particularly the modeling aspect, again, you know, what we talked about extensively a few moments ago about one of your letters, how is a screening-type approach used, where can you stop, and also, importantly in this area, how do you go from a screening level to a more site-specific approach. So it is actually much the same topic, just a different arena, and the staff and research are working very hard on this. Some of those products will be coming forward. So I would ask that we jointly put them on the table for some discussion.

Just a couple of other things. You are going to hear tomorrow from Rick Weller some material on incidental waste issues. I ask you also to look at that closely. I think there is some policy decisions that are going to be coming through on that, and we have got the Hanford tanks, West Valley high-level waste tanks, Savannah River tanks, and we have pretty much defined how you come up with the classification and the material that comes out of the tanks.

The issue is the residual, what is left, what is in the ground, what is it, and what criteria do you lay on leaving it in the ground per chance. You do leave it in the ground. And I think there are some options here. You could look at it through the decommissioning-rule set of glasses. You could look at it under a Part-61 type performance objective set of glasses, and there is a third category of just continuing a license for these things. So I would invite you to be thinking about that because we are going to have to characterize that, and I would appreciate some feedback on it. I think this is one of the areas that is deserving of our collective attention.

I am going to stop it at that point. I have kind of just jumped around, but I wanted to give you a sense of what the things that were high on my radar screen were and the areas where I thought we could make some progress and just give you a heads-up on some areas where I just am not resourced to come down and engage you. I wish I could, but it just is not in the cards the way the resources are stacked up.

Is this helpful? It is kind of the end of my summary.

CHAIRMAN GARRICK: Yes, of course. It is very helpful.

One of the things, of course, we were quite

interested in, you started to get into with this incidental waste question and the high-level waste tanks. One of the issues that we are interested in is the whole matter of the pilot program, if you wish, for the regulation of selected DOE facilities and the current position on NRC's possible oversight of some DOE activities. I don't know if you could add a little moire to that topic.

MR. GREEVES: That, I would be a little bit out of my depth on that, in the sense that John Austin has the lead on that. In past meetings, we have asked John to join us --

CHAIRMAN GARRICK: Right.

MR. GREEVES: -- to give you the update, and John is just not available. He is out of the building at this particular time.

We will try and have him available the next time we meet. From my knowledge, they are looking at the Berkeley facility. I don't know if it was last week that they were out there doing a review of that facility, and the one down in Oak Ridge, I think you probably have that information.

So I really don't have at the top of my fingers the information update on the DOE oversight program. I think the best thing to do would be to have John come back the next time we are here. He is pretty much doing that under a task force process. I don't have the day-to-day

details on that one.

CHAIRMAN GARRICK: Okay.

Let me turn to my colleagues here and see if they have some comments, questions, amplifications, or what have you.

George?

VICE CHAIRMAN HORNBERGER: No. I am set.

CHAIRMAN GARRICK: Ray?

DR. WYMER: Well, I either have nothing to say or too much. I will probably let it go for the time being.

CHAIRMAN GARRICK: Charles?

MR. FAIRHURST: Nope.

CHAIRMAN GARRICK: Okay. Well, as usual, we want to thank you for giving us the updates because they help us a great deal.

As you know, we are going through an exercise right now trying to establish our own priorities for 1998, and this feedback is very, very beneficial. We have gotten similar kinds of information from other executives of the agency, and I guess there is a continuing frustration all right with respect to the low-level waste program, and the fact that it seems to be struggling with no facilities being licensed and compacts being uncompacted and kind of a sense that a losing of some momentum that was created in the past with the agreement-state concept and what have you, and I

guess the Committee is going to have to study this issue a little bit, but we are wondering where it is headed.

MR. GREEVES: I read a couple of speeches, I think one by Senator Domenici. Maybe you have seen it, up at Harvard. And there was another one by Ralph Beedle at NEI. You ought to take a look at those.

For example, in the NEI presentation, he identified that for the life of the reactors we have now, decommissioning of those facilities is a -- I may have the number wrong, but I think it is the right range -- a $40-billion process by the time you have to do everything, and that is a lot of money. A piece of that is dependent on low-level waste disposal.

Fort St. Vrain was able to go forward with their decommissioning of that facility in large part because Hanford was available to them at a reasonable price, and the utilities are making these decisions about, gee, do I decommission now or do I go into safe storage long term, and a number of them have kind of reserved. They said wait a minute, as high as this cost is today, I think I may be better off paying this cost today than waiting 5, 10 years from now when the cost is who knows what.

So reliable disposal capacity is a real issue. In the briefing I gave on decommissioning, some of the people afterwards commented and said that they were surprised that

the cost of disposal didn't come up because a lot of the issues were turning on if you had reasonable disposal costs, these sites could be cleaned up faster, quicker, to a standard that is more acceptable maybe to some of the local community.

So you need a full circle for this thing to work efficiently. I am just frustrated as you or others are.

CHAIRMAN GARRICK: Well, it is interesting that you would mention the reactor decommissioning activity and the role that low-level waste decisions have in that regard and that you would note a $40-billion price tag associated with it because it sort of reminds me of another problem that has a similar number attached to it, namely the remediation of the high-level waste tanks just at Hanford alone has also been priced in the 30- to $40-billion range, and also the driver -- one of the critical drivers there is what is the low-level waste, and the classification and decisions on near-surface storage or disposal and a whole litany of issues.

So it seems as though the problems are not going away, but the energy and the will to solve them as well as the resources with respect to low-level waste do seem to be going away. So this is a bit of a -- for organizations that are supposed to be worrying about the waste -- the management of radioactive waste, something that sooner or

later, it seems to me, something is going to have to happen.

DR. WYMER: I think I will say something about the incidental waste problem with respect to the tanks, the Hanford tanks in particular. That strikes me as an extraordinarily difficult problem, and you won't be surprised to hear me say that, I am sure, largely, though, because somewhere between 1 and 10 percent of the waste has probably already leaked out of the single-shell tanks.

So what is incidental waste, what does it mean with respect to what is left in the tanks when you have already got probably as much in the ground as will be left in the tanks and you don't really know for sure how much is in the ground. So it goes to be a logical problem of what is sensible.

MR. GREEVES: What is left in the tanks, you stand a chance of doing something about.

DR. WYMER: But should you do something about it when you have got that much around the tanks? You know, it really becomes --

MR. GREEVES: You have added another issue to my list now.

[Laughter.]

MR. GREEVES: I think these discussions would be quite useful, and we are really wringing our hands over how to proceed on these issues. So Rick will be giving you some

background where we are now. So I would look forward to maybe visiting with you at some other time to talk about how these alternatives rack out. So, hopefully, Rick will give you a good briefing on the background of this.

I think there is plenty of work in front of us. It is a question of managing our resources to do it efficiently.

CHAIRMAN GARRICK: Sounds like it.

Okay. Well, thanks again, John and Mike. We always learn a great deal from these exchanges, and we look forward for them to continue.

If there were no points of disagreement, they wouldn't be half as interesting as they are, and maybe not much progress. So I think I am not discouraged by the fact that there is a disagreement here and there. I think that is part of the process.

MR. GREEVES: We are not, I don't think, skin-thinned, but I think when we do come across something, it is incumbent upon us to give you some feedback and let you know because we have a responsibility to chase these issues. So I appreciate the insights you have, and we just want to make sure we understand them better.

CHAIRMAN GARRICK: Okay. Thank you.

Now we make a transition in our agenda. This is when we go to preparation of reports and letters and what

have you. I think it is also the time when we can terminate the court reporter requirement. So why don't we adjourn this part of the meeting right now, okay?

[Whereupon, at 2:00 p.m., the open meeting was recessed, to reconvene at 8:30 a.m., Friday, November 21, 1997.]

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: 96TH ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW) MEETING

DOCKET 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.

Jon Hundley

Official Reporter

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