UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF THE SECRETARY
***
NRC STAFF BRIEFING ON
INTEGRATED REVIEW OF
DECOMMISSIONING REQUIREMENTS
***
PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Building 1, Room 1F-16
11555 Rockville Pike
Rockville, Maryland
Tuesday, November 8, 1999

The Commission met in open session, pursuant to notice, at 1:32 a.m., the Honorable RICHARD A. MESERVE, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:
RICHARD A. MESERVE, Chairman
NILS J. DIAZ, Member
EDWARD McGAFFIGAN, JR., Member
JEFFREY S. MERRIFIELD, Member

STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:
KAREN D. CYR, General Counsel
ANNETTE L. VIETTI-COOK, Assistant Secretary
WILLIAM TRAVERS, Executive Director for Operations
SAMUEL COLLINS, Director, NRR
STUART RICHARDS, Director, Project Directorate IV, and Decommissioning, NRR
WILLIAM KANE, Director, NMSS
WILLIAM HUFFMAN, Project Directorate IV and Decommissioning, NRR
JOHN GREEVES, Director, Division of Waste Management, NMSS
DIANE JACKSON, Plant Systems Branch, NRR
RAY SAHDIS, NE Coalition on Nuclear Pollution; Friends of the Coast (Maine)
MIKE MEISNER, Chairman, Decommissioning Working Group, NEI
PAUL BLANCH, Energy Consultant
DAVID STEWART-SMITH, Administrator, Energy Resources
Division, Office of Energy, Oregon

P R O C E E D I N G S
[1:32 p.m.]

CHAIRMAN MESERVE: Good afternoon, ladies and gentlemen.

Today we will be discussing the NRC's Integrated Review of Reactor Decommissioning Regulations and Requirements.

Presentations on this topic will be made by the NRC Staff, as well as interested stakeholders, including representatives of the public, including the New England

Coalition on Nuclear Pollution, the nuclear industry, represented by the Nuclear Energy Institute in the State of Oregon.

One of the many challenges that faces the NRC is the appropriate regulation of decommissioned reactors. Decommissioned nuclear power plants pose a different risk to public health and safety from operating nuclear power plants, but under existing NRC regulations, they are subject to substantially the same regulatory requirements.

Today, we will discuss this issue, focusing, in particular, on the NRC's activities and proposals, and comments on those actions from interested stakeholders.

My fellow Commissioners and I welcome you to this meeting, and look forward to an open and candid discussion.

I understand that copies of the handouts are

available at the entrances, and unless my colleagues have any comments they wish to make, we'll proceed with Dr. Travers.

COMMISSIONER MERRIFIELD: Mr. Chairman, I have actually two comments that I'd like to make.

The first one is, I always like to take sufficient time to prepare for these meetings, and given the nature of the days the Commissioners have around here, preparing, just prior to the meeting, generally not a possibility.

And so in order to avoid that, I and the other Commissioners like to take materials home with us at night or over the weekend, so that we are appropriately prepared for these meetings.

Now, I made an admonition in the last meeting that we had last week, and I'll make a similar admonition that it is very unfortunate that we received slides for some presenters today that were either brand new or were amended from slides that we had received earlier.

Because of that, I have not had an opportunity to review those slides, and I do not feel fully prepared for the presentations--some of the presentations that will be made today, and I think that that is most unfortunate.

I would certainly encourage those who are presenting today, in the future, get those slides to us in a timely fashion so that we may prepare appropriately.

I would also suggest to the SECY--I know she works very hard to get people to do that--to the extent that you can continue those efforts, and explain to them that at least from this Commissioner's standpoint on this kind of activity, it will result in additional public lectures.

And I'm not naming names today, but I guess that in the future I may have to.

One additional comment I want to make: NEI, in its slides, seems to spend a significant amount of time on problems associated with our cask certification process.

I note from the Staff slides that it appears that there is not an intention to address this issue in the presentation today, at least from the slides, that is the indication I have.

Before we finish the briefing, I would like to get the Staff's perspective on the amendment-by-rulemaking process, where you stand on the issue related to why the cask certifications are limited, and any process improvements you have in mind, specific to the cask certification process.

So if that might become part of your presentations, and to the extent you can amend your

comments, I would appreciate that.

Thank you.

DR. TRAVERS: Thank you, Chairman. Good

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afternoon. As you have indicated, the Staff is here to discuss our ongoing integrated review of reaction decommissioning regulations.

We will also briefly highlight our approach for coordinating the elements of our decommissioning program among the Office of Nuclear Reactor Regulation, the Office of Nuclear Materials Safety and Safeguards, the Office of Research, and the Regional Offices.

As reactors have permanently shut down, the staff has been primarily using the existing Part 50 regulations to address decommissioning issues and process. This has resulted in a number of problems because Part 50 was primarily written with a focus on operating reactors.

A common result of this situation is that licensees of decommissioning reactors have had to rely on seeking relief, regulatory relief, in the form of exemptions and amendments to their licenses. That process has not been the most efficient with respect to staff and licensee resources.

In an effort to be more efficient, the Staff, with Commission direction, is developing a holistic approach to decommissioning regulation that is intended to be less burdensome for facilities, while continuing to provide assurance that public health and safety are maintained.

The Staff has engaged our stakeholders on this

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issue. There has been a healthy exchange of information and views on many facets of decommissioning, and we believe we are systematically developing the technical basis that will support proposed changes to NRC regulations.

Today, we plan to provide a status report on our continuing efforts.

Joining me at the table today are Sam Collins, Director of the Office of Nuclear Reactor Regulation; Bill Kane, Director of the Office of Nuclear Materials Safety and Safeguards, John Greeves, who is the Director of the Division of Waste Management in NMSS.

I have Stew Richards on my left, who is the Project Director for Region IV and Decommissioning. Next to him is Bill Huffman, Project Manager in the Office of Nuclear Reactor Regulation, and Diane Jackson, who is the leader or the Technical Working Group in NRR.

Let me turn the presentation now over to John Greeves.

MR. GREEVES: Yes--is this microphone working? Good, all right, thank you.

I'm really just going to address Slide 3, and I've got three messages that I want to covey with this slide:

The first is that we do have an integrated program with the Staff and the Regions on this process.

Second, I would point out that there are

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wide-ranging issues associated with this reactor decommissioning program that actually go beyond the SECY paper that you have and that Commissioner Merrifield mentioned; that a number of the stakeholders, in fact, will be bringing up other issues.

The third point is that the Staff can respond to these other issues. We're fully prepared to do that at

whatever time the Commission wants to ask us to address those questions, especially the spent fuel cask question that Commissioner Merrifield identified in terms of what is limited bout that process, and what improvements we can make. We're fully prepared to address those at your pleasure whenever you're ready.

As far as the integrated approach, we briefed the Commission in the past about forming a Decommissioning Board that all of the entities on the Staff attend. We meet every two weeks.

And there are some examples listed on this chart of activities that come up in this environment. For reactor decommissioning, NRR has the lead. They have a project manager, and they have the early-one issues, a number of which are covered in the subject SECY paper.

In the longer term, these projects get turned to NMSS, and we go through a transition process. So the Decommissioning Board helps in that environment.

The NMSS responsibilities include the dry cask storage issue that Commissioner Merrifield mentioned. There are a number of topics associated with that, and the license termination process, which goes towards the license termination rule, the '97 rule that is very important in terms of setting the decommissioning criteria for the reactors and really all the rest of the sites.

Also, it's a question of how much can you leave onsite? You'll be hearing some of that from some of the other stakeholders.

The Office of Research provides technical support for all the others, including NRR and NMSS, especially on some of the longer-term issues, for the entombment topic, we have a workshop that we have coming on which we sent a paper up to the Commission. So in December, there will be a workshop for that.

There is a lot of concern about sites like Barnwell, and how long are they going to stay open.

Another topic is dose modeling. The Commission asked us to look into unnecessary conservatism that might be contained in the dose models that we use, and Research is working very hard on those issues, and would be available to answer any questions on that particular topic.

And then, finally, the Regions are also part of the Decommissioning Board. They're responsible for the

actual inspection of the site.

I'd also like to point out that they spend a fair amount of time interacting with the site-specific advisory boards that the utilities are setting up. So they go and sit on the meetings with the oversight panels of citizens that the utilities have, in fact, set up for these particular sites.

And all of the Staff do interact with the stakeholders frequently. We have workshops. Recently were up at the Portland Workshop that NEI sponsored, and we have website interactions, and we call for issue papers.

NEI and the Environmental Group recently sent us a set of issues papers on so-called rubble-ization process, and we packaged those together and will be forwarding that to the Commission on an issue-specific type approach.

So that's just a bit of a summary, and as I said, Staff is ready to respond to some of these wide-ranging issues at the point the Commission wants to ask questions. Thank you.

MR. RICHARDS: I'm Stew Richards, and I'd like to provide a little background on what's transpired prior to us coming to this meeting today.

On March 17th of this year, the Staff met with the Commission to discuss decommissioning issues. At that meeting, the Staff related our opinion that the regulations

applicable to decommissioning need to be clarified and risk-informed.

Our intent is to streamline the transition from the operations phase to the decommissioning phase, while maintaining the appropriate level of public safety. The Staff outlined our efforts in this regard in SECY 99-168, dated June 30th of this year.

SECY 99-168 describes the Staff's efforts to assess the risk associated with decommissioning and proposed actions to restructure decommissioning regulations, and to integrate existing rulemaking efforts.

Next Slide, please.

The Staff is here today to provide an update on our actions in this area. In order to go forward with risk-informed rulemaking, the Staff needed a solid technical basis on which to base rulemaking.

Therefore, the Staff established the Technical Working Group to assess the risk associated with decommissioning activities. The Technical Working Group, in turn, has established a process and a schedule to accomplish that task.

That technical assessment is progressing, and we have engaged both the industry and various public groups who are involved in looking at this effort. And as stated previously, when the Technical Working Group completes that

effort, we intend to incorporate their results into rulemaking and move on from there.

With that, I will introduce Diane Jackson, the head of the Technical Working Group.

MS. JACKSON: I will address the Technical Working Group study, the work we've performed, our interactions with the stakeholders, and our continuing work to finalize our project.

Our effort, which started in April, is a study of spent fuel pool accidents and its associated risks at decommissioning plants. Our preliminary draft, which was issued in June, included two key areas:

One was an estimation of critical decay time that was required to preclude a zirconium fire, based on a thermal hydraulic coat analysis and a risk assessment to look at the potential for an accident during that period.

The risk assessment started with a broad set of initiating events as shown in the slide. This starting point was intentional.

For an accurate assessment of risk, all initiating events need to be considered, and it's the product of the analyses that will show us the sequences that are significant.

Since the start of the study, we have had significant interest from our stakeholders.

Next slide, please.

We've held several public meetings during our preliminary study, and after the issuance of the draft, including a two-day workshop in July. Issuing the

preliminary work in June was largely in response to stakeholder interest, however, we felt that stakeholder comments, and particularly industry input, could also assist us in refining our assessment. We received many comments during those meetings and in subsequent telecons, and submittals we received.

A major industry concern that was brought out at the workshop was that the risk assessment did not give sufficient credit to plant conditions and personnel actions.

The Technical Working Group has had many followup activities to address stakeholder concerns, in particular Action Items that were taken from the July workshop.

In the next two slides, I'd like to discuss some of the examples of our followup activities from stakeholder comments.

Next slide, please.

In the area of human reliability, there was a concern raised that there was insufficient credit in the risk analysis for operator response due to adverse plant conditions.

Since there are no automatic systems in spent fuel

pools, there is a heavy reliance on human response. Staff took an Action Item at the workshop to solicit comments from outside experts and from stakeholders to identify conditions that would support the assumption of high human reliability.

These conditions are things such as training\ procedures or alarms. We issued a strawman for comment in mid-August to two human reliability experts and to the stakeholders.

We received no technical comments from the public, however, from our expert feedback, we are reassessing our human reliability assumptions for our final risk assessment, and this work is currently ongoing.

For seismic events, the Staff was concerned that the are some plant designs that would fall outside of our assessment.

NEI took an Action Item at the workshop to propose a checklist that would identify potential pool vulnerabilities, compared with the nominal plan. NEI submitted this checklist to us in mid-August. We had a telecon to discuss it, and currently the Staff and an independent reviewer is looking at the checklist. We plan to have more interactions with NEI on this topic area in the future.

For heavy load movements, the concern was that sufficient credit was not given in the risk analysis for

protective measures for heavy load drops. NEI proposed industry commitments for the prevention and mitigation of heavy load drops.

The Staff reassessed its heavy load analysis with the inclusion of NEI's proposal, and also with additional technical data we had, and improved statistical analysis, and this reassessment is currently undergoing independent review.

Next slide, please.

A concerned has been raised from a member of the public that the draft study did not sufficiently address the potential for criticality. To address this area, we are going back to reassess the issue based on an expanded scope of scenarios, and also to look more closely at the sequence of events that must occur to reach a criticality.

One of the deterministic analyses that was

performed was an adiabatic spent fuel heatup calculation for which there was a concern that it was overly conservative.

The Staff performed this calculation as one of several parallel paths during the preliminary study. For deterministic analyses there is a benefit that we have to look at between using conservative assumptions to make a simplistic calculation using more realistic assumptions that may make the calculations more complex and time-consuming.

We are looking for a manageable calculation that

will produce a useful solution. Our efforts have shown in this area that the calculation is not a useful criterion for generic application, so at this point, we currently do not have any plans to use this as a part of our bases.

These are a few of the stakeholder concerns that we are addressing. There are other concerns that have been raised, such as concrete aging and safeguards that are also being addressed by the Technical Working Group.

In addition to these followup activities, the Staff is continuing with its planned work to finalize the study. We are having additional technical work performed to augment our original assessment, particularly in the areas of thermal hydraulics and PRA.

There is an independent technical review in progress of our draft report. We also provided the independent reviewers with any stakeholders inputs as a balance for their review, and we are working to apply the risk-informed principles of Reg Guide 1.174.

The next slide lays out the principles of risk-informed decisionmaking from that Reg Guide. To have a risk-informed, rather than a risk-based study, we need to apply all the principles of risk-informed decisionmaking.

One of the principles compares the risk from a plant change to guidelines on increases in core damage frequency or larger early release frequency. We have found

that spent fuel pool accident frequencies and consequences do not fully equate to either a CDF or LERF, so we are trying to define an analogous criterion for decommissioning spent fuel pool accidents.

We are also balancing the need for defense-in-depth, safety margin, and the ability to monitor performance.

Based on all these inputs, the risk assessment, the deterministic analyses, the stakeholder input, industry commitments, and the risk-informed decisionmaking principles, we believe we can develop a realistic risk-informed assessment.

I think one of the keys to a realistic assessment are industry commitments that can be credited in our assessment.

Next slide, please.

In summary, the Technical Working Group is following its plan to finalize its assessment, and to address stakeholder concerns.

We believe these activities will result in a solid technical basis for the development of rulemaking and for interim exemption criteria. We plan to release a draft-for-comment report in early January, and the final report, after a public comment period, in early April.

This concludes my presentation on the Technical

Working Group Study.

Are there any questions from the Commission?

MR. RICHARDS: We have two more slides from Bill Huffman on the integrated rulemaking.

CHAIRMAN MESERVE: Why don't we see those and then we'll go to questions.

MR. RICHARDS: We'll do that.

MR. HUFFMAN: Hello. My name is Bill Huffman, and I'm the lead Project Manager in charge of the rulemaking effort for decommissioning rulemaking.

Ultimately, the product of this Technical Working Group effort is improved, predictable, concise, efficient, decommissioning regulations that are safe and will elicit the confidence of the public.

As directed to us by the Commission on March 17th, in a meeting, and subsequently in an SRM, we were directed to look at an integrated, holistic approach. To that effort, we decided that first we needed a foundation, a technical foundation, which the Technical Working Group is in the process of providing to us.

Once that foundation is provided, we will carry forward in two different regulatory efforts: One is a near-term integrated rulemaking effort that addresses rulemakings that were already in progress and are amenable to the outcome of the Technical Working Group's assessment.

The second, although not specifically asked for, is a longer-term effort of clarifying the entire regulatory structure of decommissioning in an effort to provide a confidence level of what exactly is required for decommissioning from the time a reactor certifies permanent shutdown to license termination.

The first effort, the integrated decommissioning rulemaking effort, involves five rulemaking areas: Emergency planning, safeguards, insurance, backfit, operator staffing and training.

These rulemakings were in progress prior to the March 17th Commission meeting. We stepped back and looked at them and agreed that all these areas would definitely or could definitely be impacted by the results of the Technical Working Group.

Until the Technical Working Group's effort is completed and recommendations and criteria are developed, we are somewhat waiting for moving forward in this effort. Although we anticipate having an integrated rulemaking plan to the Commission by the 31st of May of the year 2000, which will lay out our long-term schedule for completing that rulemaking effort, and explain to the Commission, how the results of the Technical Working Group will be applied to rulemakings in this area.

Next slide, please.

The Decommissioning Regulatory Improvement Initiative is a longer-term effort. It's a comprehensive review of all of the reactor operating regulations throughout Title 10, and how and if they are applicable to decommissioning as well.

It may be simply an effort of placing decommissioning in the scope of a regulation, or may involve a more detailed review or modifications of the regulations because of nonspecific applicability. These modifications ultimately will clarify and provide confidence to both the industry and the stakeholders, public stakeholders, and the Staff.

In our initial screening of these regulations,

we've identified 41 potential areas for clarifications, such things as technical specifications, quality assurance, fitness for duty, and even the applicability of a control room in a decommissioned reactor site are examples where we have to clarify regulations.

We also have employed a contractor to do a thorough and comprehensive documentation of the applicability of these regulations, and that contract is now in progress. In addition, we have recommended that instead of leaving the regulations where they are, we consolidate the regulations into a separate part of unit so that they will all be located together and will be easily reviewable

and locatable by all people involved in the regulatory process.

We anticipate a rulemaking plan that will lay out long-term resources and schedules for this effort by July of 2000. That completes my presentation.

DR. TRAVERS: That completes the Staff's presentations. We are familiar with the issues that have been raised in the NEI's slides, and at your discretion, we can address Commissioner Merrifield's questions at this time, or following the presentation by stakeholders, whichever you desire.

CHAIRMAN MESERVE: Since the issue has been raised about particularly the casks, why don't we respond to that now, and then proceed.

DR. TRAVERS: Good. Let me turn it over to Bill Kane.

MR. KANE: WE have a presentation by Bill Brach, who is Director of the Spent Fuel Office. Since I did have that assignment myself a year and a half ago, I would like to make some remarks here to place in context, what we're gong to tell you here.

In mid-1998, we had, because of problems with what I will call operating spent fuel cask designs, we diverted a substantial amount of resources over to the inspection in order to gain resolution of a number of issues, one related

to welds, in order to be in a position where we could approve those designs for continued loading of fuel.

Some sites were coming up to a point where they could no longer--where their fuel pools were filling up and they could not offload fuel.

In about mid-1998, we set up schedules to review a large number of dual purpose cask designs that were backlogged at that time. We set up very disciplined review schedules really to look at and review all of the designs that were before us by six vendors.

We established strict schedules for conducting those reviews, and all were met by the Staff with no exceptions.

The process, though, was based on, because of the intertie of all of these applications in the review process, and the necessity to move our resources back and forth amongst these various designs, that we adhere to getting these reviews accomplished on time.

We certified what was submitted and could be accomplished in the timeframes established; that is, where there were open issues that could not be resolved, we conditioned the designs to certify what could be from a safety standpoint, loaded in these casks.

In parallel with that, we recognized that there

were a number of open issues, generic issues, and we

established a process engaging in workshops with utilities, with the vendors, to flesh out basically what these concerns were, where additional guidance was needed.

And we issued over a period of time, some 12 what I will call interim staff guidance memoranda. These supplemented the existing standard review plans.

Nonetheless, we recognized that this process would result in multiple amendments for some applications. The reasons for that are, I think, twofold:

One was that in many instances, the fuel that was in the fuel pools was incompletely characterized, so it was not all identified in the initial applications.

Other reasons included the resolution of the generic issues. Over time, we've given approval for taking credit for burnup, called burnup credit.

We also issued staff guidance that dealt with how failed fuel was to be handled, and that process is continuing. In the area of rulemaking, we're going to have Bill touch on that, and describe to you some of the accomplishments that we have made in the rulemaking area, and some that we are continuing to make.

I believe that more can be done in the amendment process. I think further gains can be made. But I'll have Bill now go into a discussion of what were the outcomes, what have we accomplished, and, in more detail, what work is

yet to come.

MR. BRACH: Thank you. My name is Bill Brach. I'm Director of the Spent Fuel Project Office.

In response to Commissioner Merrifield's question, we did receive the NEI slides in advance, so I have a few comments that are prepared in having an opportunity to review those before the meeting.

What I'd stress is that I believe it's very important to keep in context, the NEI slides with regard to current spent fuel management activities. The slides do identify a number of concerns which have been recognized, some of which have been addressed, some of which are in stages of being addressed right now.

I want to highlight three examples to support my observations and comments: First, one of the NEI slides states that decommissioning plants can't decommission their pools. As Bill had mentioned, that's been a significant lesson learned in the past with regard to the need on the part of the licensees and vendors to closely coordinate to ensure the cask application clearly encompasses and envelopes all the fuel in the spent fuel pool.

I'll will mention as a positive example, just recently, Mr. Meisner, who is representing Maine Yankee, had discussions with the vendor for the Maine Yankee facility. And they described to me how in preparing the application to

us for the casks, they sat down with the utility, with Maine Yankee, and reviewed the fuel characteristics for all the spent fuel in the pool so that the application to us would envelop all the fuel in the pool so that we would have hopefully just a one-time-through in a cask review with subsequent amendments, as Bill had mentioned.

Another, second point and example I wanted to raise: One of the NEI slides as well points out that operating plants cannot unload their fuel. I want to stress that clearly within the Spent Fuel Project Office, as well

as the Agency, that safety is always our top priority.

When a safety issue arises, we reschedule and re-lay out our work plans with regards to addressing that immediate safety issue.

I want to stress that in the Spent Fuel Project Office our second priority, the priority following the safety issue is the operational need of the licensee, and clearly off-load capability for a reactor is an operational need.

That second priority is clearly very high on our list, and I believe we're adequately addressing those needs. Personally, I'm not aware of a reactor whose operations today are currently limited by the inability to off-load their fuel.

A third area I want to mention and that Bill

identified as well, is the area of rulemaking, and that is one, Commissioner, Merrifield, that you had highlighted as well.

Yes, I do agree with the NEI comments that it's a very resource-intensive activity. I will stress, though, however, that the rulemaking process really is well-defined and also very predictable. There clearly are areas and room for improvement in the rulemaking process.

In the last year, the Commission gave approval for the Staff to proceed with three initiatives to improve the rulemaking process, to streamline it and improve timeliness.

The three examples: One is that the Staff no longer has to prepare a rulemaking plan for each cask rulemaking, as that proceeds; secondly, authorization has been delegated from the Commission to the EDO for the review and approval and signature of the rulemaking for cask activities under Part 72; and, the third initiative is that we have tried and are implementing, a direct final rulemaking approach to try to expedite the rulemaking activities for amendments to casks.

That's an activity we've just initiated and with regard to experience, we are yet to be able to demonstrate the resource savings, but we clearly anticipate that if we are able to go through direct finals instead of a proposed rulemaking process, there would be many efficiencies gained.

I do want to stress that over the last year, we have established schedules for all of our major casework, all of our dual purpose, spent fuel storage and transportation cases, as well as all of our site-specific independent spent fuel storage installation facility reviews, and we've met all of those schedules over the last year.

So, in closing, I do want to note that I very much agree that there is much more work to do with regard to spent fuel management activities. I believe we're working with the industry. We've had a number of workshops, just in the last six months on a number of technical issues.

But I believe we have made much progress, but there is much more to make. Thank you.

CHAIRMAN MESERVE: Commissioner Dicus could not be with us today, but she did have her staff send me a few questions. There are several of them, but there is one that she raised that bears on the initial presentation you made on the decommissioning rulemaking.

She expresses concern that this whole rulemaking process is one that's going to extend over three or four

years at least. And she wonders whether there is a way to do some of these things in parallel.

And if you'll point--as an example, point to Slide 13. One of the bullets indicates that you need to have the

spent fuel pool risk study in final before proceeding with the rulemaking.

And she has raised the question as to whether it might not be possible to at least collapse this by several months by finding a way to be moving out on the rulemaking with obviously a draft in proposal form while that study is being completed. And that period will assume draft to final.

MR. HUFFMAN: There may be some efficiency gained by moving forward in parallel, once the Staff issues a draft final report. We have to presume that most of the conclusions in there will be pretty close to an endpoint at that point in time.

The thing is that I don't want to get in front of the Technical Working Group. I can't presume what their answers are until I get the answers.

As soon as I have fairly good confidence of what the answers are, then I believe, yes, we can move forward in parallel and perhaps gain some efficiency of several months in that area.

MR. COLLINS: Mr. Chairman, I believe there are opportunities within the planning and budgeting process to receive direction from the Commission on those priorities. Clearly, if the Commission were to determine that accelerating rulemaking is one of those priorities, then the

staff has the capability under our current budgeting methods to provide those options to the Commission, and what the impact would be.

CHAIRMAN MESERVE: I think that the thrust of the question was not so much whether it's a priority issue, but whether it was essential to complete the Technical Working Group product before you could proceed on the process of developing the rules, and if there is a way to collapse that, that would make some sense to do it, and not significantly affect resources.

Mr. Diaz, do you have any questions?

COMMISSIONER DIAZ: Yes.

Let's see, 78.

(Laughter.)

COMMISSIONER DIAZ: Let's see if I can collapse this for the sake of our anatomy or whatever it is.

Let me start at the end, on the rulemaking effort. I'm concerned that if this rulemaking has progressed, that there has really not been an effort to focus the rulemaking into those issues that are really, really important.

There seems to be a certain amount of proliferation of issues, and I think the Commission looks to the Staff to start a rulemaking and zero in on those things that are really significant.

And we have two tools in this Commission now to do

this: One is the old one, which is the technical basis, which has been referred to and about which I'm going to ask in a minute, what does it mean, a sound technical basis?

Because without a sound technical basis, you cannot progress. And it seems to me like you have taken an inordinate amount of time to come up with a sound technical basis or what does sound technical basis means.

It is indispensable, not only in this rulemaking and in others, that the Staff discriminate against issues that are not safety-significant, to zero in where the issues at hand are, not to keep continuing to be looking at things that are on the side, and that are not significant.

It is not possible to continue to do that, because we are a safety focused-agency. Having made that comment, I would look forward to reviewing what this decommissioning rulemaking plans will be.

But now let me turn to the two questions: There are two issues in here that are playing into the decommissioning plan. The first things is the development of a sound technical basis.

And the Staff had many months to develop it, a sound technical basis. It's not the argument of the adiabatic, you know, calculation, or where it goes, although I think that started some of this process. In essence, that's the only thing that the NRC has complete control of,

of what is the technical basis in which we make the decisions.

And, therefore, it is imperative that that work goes fast, goes accurate, zeros in on what the issues are. So, my first question is, what do you mean, what does it mean in rulemaking grounds to have a sound technical basis?

What does it entail? What are the issues that are a part of that sound technical basis?

MR. RICHARDS: I'll take a stab at that, Commissioner. What we were looking for from the Technical Working Group was to take a look back in time at all the previous review efforts that have been done to address the decommissioning area. And there has been a lot of work done to bring that all together, to update that with any additional knowledge they were able to bring to bear, and basically to bring together an integrated knowledge of the risks associated with decommissioning.

I think that the industry maintains that the risk is very, very low, and that for that reason we can provide them relief in the regulations from things such as emergency planning, financial protection, and safeguards areas.

We've done that on a case-by-case basis with plants, and we continue to entertain those exemption requests while this effort is ongoing. But rather than do it on a case-by-case basis, which is resource-intensive for

both the industry and the Agency, we'd rather just enter it into the regulations.

We felt that in order to do that, we needed to have a solid understanding of the risks, because, you know, the assumption here is that the risk is low, and, therefore, you can provide relief on these items.

So, like Diane Jackson explained, the Technical Working Group took a look at all the different events that they could think of that could occur with a plant undergoing decommissioning. They came up with a very extensive list of events. We shared with that the industry and with our other stakeholders, early on in the process.

They went through a screening process where I think they whittled out the things that they felt were pretty obviously not of great concern, and they zeroed in on the issues they thought had the potential to cause offsite releases.

They gathered together the information they had

from past studies, and they have tried to apply PRA methods to come up with a risk-informed feeling for where are the vulnerabilities here, and what are the probabilities that some of these kinds of events could happen.

It's boiled down to three that Diane mentioned: the heavy load issue, the personnel errors, and seismic. We've shared that with our stakeholders, we have gotten a

lot of good feedback, and we're trying to characterize how likely those events are to cause a zirc fire.

I think that when you get down to the bottom line, if you don't have a zirc fire, you don't have a means to transport that spent fuel offsite, that can cause a problem, and then the other risks associated with decommissioning tend along the line of problems with liquid and gaseous rad waste onsite, those kinds of things.

COMMISSIONER DIAZ: My concern is how long does it take to achieve convergence on a sound technical basis? I mean, obviously the NRC should be the world expert on spent fuel pools. It's not a new science. There is nothing that you discovered last year.

MR. RICHARDS: No, sir.

COMMISSIONER DIAZ: No, you got it, right? So, convergence on spent fuel technical basis should not be an issue of months and a laundry list that then you can go down; it's something that you could zero in on it.

This is my concern with this. I have not seen that process quickly acting, making sure that we are focused on those things that we have significant technical knowledge of, and we can pare down quickly, so our efforts, which are resource-limited, can go into those areas that are important.

MR. RICHARDS: Let me just provide one thing. I

don't know if Diane touched on this before, but one of the things we've learned about decommissioning plants is that they don't look like operating reactors.

Mr. Meisner and NEI will probably tell you about their nuclear island concept, but when they shut down and go into decommissioning, they quickly have the potential to eliminate a lot of the systems that previously would have been able to provide backup support to the spent fuel pool.

They may put in a stand-alone spent fuel pool cooling system. They may eliminate the emergency diesel generators and put in a smaller backup diesel.

And all of these things seem to be appropriate. I'm not criticizing the actions taken by the industry, but it's not something I think previous staff studies had considered as far as assessing the risk.

For instance, NUREG-1353 is frequently referenced as a good Staff effort to assess the risk associated with spent fuel pools, but that NUREG was based on an operating reactor with all the additional safety systems and multiple sources of offsite power and what have you to go along with it.

So, I think when we went into this after March, a lot of us felt that it would not take a lot of effort to determine that the risk was small, but I think to the Technical Working Group's good measure, they decided to take

a hard look at this and they decided that, no, you can't usually dismiss these things.

I think there is some convergence, though, because the industry has come back to us and provided us with a lot

of valuable information on how they go about doing what they do, and they provided us commitments on steps they're willing to take to ensure that the risk is small.

I think the Technical Working Group still has a ways to go. Our schedule calls for the draft report at the end of the year for public comment, and we're still getting, I think, valuable input from our public stakeholders, but we're miles past where we were in March and a long ways since July when we had our workshop.

COMMISSIONER DIAZ: I'm sorry, Mr. Chairman, but just to finish with this, of course there is the risk-informed program that the Commission charged the Staff with doing. Do we have goals? Do we have a program that the Commission can look at that clearly says this is what the risk-informed objective regarding decommissioning is?

What are we trying to achieve? In other words, I get concerned that people go into risk-informed probabilistic assessment with kind of an open charge, you know, let me find whatever it is. But in this case, the issue is framed, just like it doesn't have, you know, the redundancy capabilities of multiple sources of power, it

certainly doesn't have the complexity, it certainly doesn't have the source term. It certainly doesn't have the heat load.

There is a series of issues, one after the other, that would allow risk-informed to say, okay, I'm going to look at these issues, I'm going to have a program that meets a series of goals, and I'm going go to that program, and I'll make sure that that exists, if it exists.

MR. RICHARDS: That's a very good question. I think Diane touched on that with the slide that talked about Reg Guide 1.174.

Basically, when you're looking at this particular event, it doesn't fit well into that Reg Guide, and the Technical Working Group is challenged to determine what is the acceptable criteria. We don't have an answer today for you.

That is on their list of things to do, so to speak. We need to enter into dialogue with our stakeholders further on that issue.

The good news, like you said, is that the system is very simple. It's passive. It's a big pool of water sitting there. You know, kind of the bad news is that you have no containment, and you have maybe multiple cores in the spent fuel pool.

So it presents a different challenge from that

addressed by Reg Guide 1.174, and, again, we don't have the answer, but we recognize the question, and the Technical Working Group is working on getting that answer.

COMMISSIONER DIAZ: Thank you, Mr. Chairman.

CHAIRMAN MESERVE: Mr. McGaffigan?

COMMISSIONER McGAFFIGAN: I'll try to run through a series of shorter questions, but I'll start off by saying that my reaction to the question that you, Mr. Chairman, raised for Commissioner Dicus, and that is that we probably do need this study in final before we go.

It's been very controversial and the study that we put out in January may not be the final word, depending on what it says, and people, including myself, don't know what it's going to say.

This whole area--we were on multiple tracks, each

of which needed this technical basis. And we didn't have it, and that's why all those rulemakings came to a grinding halt.

I think part of the answer to Commissioner Diaz's--I'm sort of answering other Commissioners' questions--I think part of the answer to Commissioner Diaz as to why it's taking so long is that we have a lot of precedents that aren't necessarily that aren't necessarily the greatest precedents as we handled these things one-by-one on an ad hoc basis.

Mr. Zwolinski is sitting behind Mr. Greeves over there, and Maine Yankee exercised its rights for a backfit review on certain Staff decisions, and Mr. Zwolinski's panel was quite critical of the Staff, and the Staff, in turn, argued with Mr. Zwolinski. But it's clear that we had some significant disagreement that needs to be worked through, and in public and in an open, transparent way.

My questions, let me just run through them--

COMMISSIONER MERRIFIELD: Commissioner?

COMMISSIONER McGAFFIGAN: Yes?

COMMISSIONER MERRIFIELD: Just so it's a clear record, if I may state that I agree with Commissioner McGaffigan that this is an area which has engendered significant interest and input from the Commission, and one which I think we will need to continue to closely follow, given the significant nature and impact on the licensees and our Staff as we move forward.

COMMISSIONER McGAFFIGAN: Lt me just run through of series of what I think are bite-size questions:

Who is the independent contractor supporting your group?

MS. JACKSON: The independent technical review we're having done is done by many groups.

COMMISSIONER McGAFFIGAN: By many groups? It's not a single contract?

MS. JACKSON: It's not a single contract and depends on their area of expertise. Then we went to different groups.

COMMISSIONER McGAFFIGAN: The rule itself, you lay out a group of areas -- I think it is on Slide 13 --that the rule is going to cover, the comprehensive rule. And I will tell you that I'm not sure you have them all yet.

I mean, these happen to be the rulemakings that you had underway in one form or another, but things like fitness for duty come up that isn't on the list, but I think that it was promised at some point; that a technical error we may or may not have made back in '96 might be corrected in this rulemaking.

I don't know the process for tech-spec amendments. Maybe that's something that you just transpose over, but one of things that Oyster Creek was going to do before it decided that it's going to run and be sold, but they were going to come in for what they called Mode 7 tech-specs in advance of shutting down.

It would have been the first time that had been done, and it would have been an interesting experiment to have done it.

But I don't know whether the integrated decommissioning rule will deal with how one comes in and gets their decommissioning tech-specs ahead of time, so that

that process can be efficient.

Are there other things that you plan to cover in this integrated decommissioning rule?

MR. HUFFMAN: No.

On page 14, the second rulemaking effort, which is a longer-term effort, is where we had put in fitness for duty, addressing criteria for decommissioning tech-specs and other related things like quality assurance clarifications, what the quality assurance should be at decommissioning reactors.

COMMISSIONER McGAFFIGAN: That's all in the longer-term?

MR. HUFFMAN: That's a longer-term effort.

COMMISSIONER McGAFFIGAN: It's not that much longer-term, May 31st and July 2000.

MR. HUFFMAN: Longer term because it involves a significantly larger cross section of rules, and we felt that probably it would be more resource-intensive over the long term.

We wanted to get something out more quickly that addressed the near-term transition from operating to decommissioning reactors where there seemed to be some financial incentive on the part of the licensees to correct these five areas.

COMMISSIONER McGAFFIGAN: But the Mode 7

tech-specs will continue to be done just as a normal license amendment under the current process? Is that how it's done?

MR. HUFFMAN: It is done as a license amendment. It comes in and is actually done on a case-by-case basis.

MR. RICHARDS: Again, the reason we picked these is that these are the ones that the industry typically presses for, because the most resource savings occur there. And then the others, we -- you know, we tried to prioritize this based on, basically, I think, the industry preferences.

COMMISSIONER McGAFFIGAN: On the backfit piece of this, that's responsive to -- again, that wasn't one you were working on, but we have given you guidance that we do want to apply a backfit rule in this area. We told you to apply the current one, 5109, but it doesn't totally lend itself at times.

The plain English clearly didn't have decommissioning in total mind as it was drafted. So that's part of this process?

MR. RICHARDS: Yes.

COMMISSIONER McGAFFIGAN: The technical analysis itself is going to be required. Whatever requirements you do put in in this rule, the technical analysis will have to support a backfit analysis associated with this rule.

When does CRGR get involved in terms of -- you know, whatever your technical results in, they're then going

to draft a rule and you're going to have requirements, you know.

CRGR will look at the requirements and decide whether they meet, I guess, the 5109 backfit test. Will they?

MR. HUFFMAN: Yes, that's true. The rulemaking process is very prescriptive, and when we propose a rule, we'll have regulatory analysis, backfit analysis, additional packages to support the rulemaking.

And as the review of that proposal goes through the process defined by our procedures, administrative procedures, CRGR, we'll be involved, as well as the ACRS.

COMMISSIONER McGAFFIGAN: That's another thing. The technical analysis, as I understand it, is going to make judgments as to what -- how safe is safe enough, what the risk is, the zirc fire.

In the backfit analysis, you'll do for the rule, that will be another place where your analysis could be challenged.

If individuals do not agree with the analysis -- I remember that the shutdown rule was a classic case where there was a wide range of views as to what the benefit of a shutdown rule was, and that got adjudicated later in the rulemaking. Indeed, I guess that on the second proposed rule, we finally decided we wouldn't do a shutdown rule,

based on analysis that we had later.

MR. HUFFMAN: I think that when you get into the --you get down the road a ways, I think you could probably make the argument that changing these requirements and requiring the plants to do a few things that they're not doing right now, are not going to pass muster with the backfit.

But I think our view is that we're going to repackage this and offer it up to the utilities saying, well, you know, here's a package deal that if you meet certain requirements, you can get certain relief without coming in with exemption requests, or you can do business with us as a Part 50 licensee as people are doing now, which is resource-intensive, and those are your two options.

And in that way we wouldn't backfit these new requirements on licensees, though they would always have the option.

COMMISSIONER McGAFFIGAN: This is a fairly important point. This rule would probably be a voluntary rule? Is it sort of like risk-informed regulation?

MR. HUFFMAN: Unless we can come up with a sound basis to require them to do it -- and I'm having trouble imagining that -- but I think there is a lot of incentive for people to go to the straight-line rule, rather than trying to provide a lot of correspondence back and forth

with us on a case-by-case basis.

COMMISSIONER McGAFFIGAN: On the human reliability item I know that there has been some progress made. The Staff today sent us this August 19th paper that had been sent out for public comment, but I do want to note that I think there was concern from the July discussions that we were making very conservative assumptions. That one comes particularly to mind and it is easier for a layman like myself to try to grapple with how conservative the assumptions were, but I hope that we are making some progress in rationalizing because I don't think any sort of risk analysis starts always with the worst or the ultra-worst case and chooses all the parameters out there, but I think it is clear from the August 19th paper that you are soliciting views.

I will ask the industry later. I will warn them why they have not commented on the August 19th paper, which was put out for comment. I can see that lots of folks were copied on it, and as I understand it you didn't receive external comments from industry or other stakeholders on i t.

MS. JACKSON: Yes, no technical comments.

MR. RICHARDS: One other point, Commissioner, I would like to mention that the Office of Research is also an

organization inside the NRC that is providing us some

independent review and I believe they have some comments on that paper. Is that right, Diane?

MS. JACKSON: Yes. One of our human reliability experts that I mentioned came through the Office of Research. It was a consultant who said they had provided us input.

COMMISSIONER McGAFFIGAN: There is one last question and it is real short and I think the answer is going to be no, but I will just ask.

Is there any help we can get from any other foreign regulator who is going through this process or are we ahead of them? You know, because people are decommissioning reactors in Europe and I don't know whether they are as rule-focused as the American jurisprudence, thanks to all these lawyers we have got here, or they just do it on a case-by-case basis and ad hoc it and get it done but other -- are we aware of anybody who has gone through this in France, Germany, Britain, et cetera, that could give us any help?

MR. GREEVES: We have met with them on occasion but I don't think they are as far along as we are and it is really different country to country, so I don't have anything I could feed back to you specifically.

I think lots of them are watching us.

COMMISSIONER McGAFFIGAN: That is the answer you

gave John about four months ago when I asked about West Valley and what if anything the British had to teach us at Dunbury and your answer was no --

MR. GREEVES: -- sent you the same answer in writing.

CHAIRMAN MESERVE: Commissioner Merrifield.

COMMISSIONER MERRIFIELD: First of all, I would like to thank the Staff for responding relatively quickly to my imploration. They addressed the cask issues.

I want to start off I think it is my understanding that the reason we pursued limited certifications really results from an immediate need on the part of the operating fleet of reactors for certified casks and our inability for resource and Staff purposes to resolve a lot of the difficult technical matters in a timeframe that met the industry's cask needs as it relates to these decommissioning reactors.

In effect, it seems to me we were doing triage, that we had a variety of reasons we had to deal with cask issues and we were getting requests from industry and from NEI to resolve a variety of them.

We took the most significant one first, and put our resources there and then were going to continue to resolve other issues in a timely manner.

Is that a wrong impression on my part?

MR. KANE: No, that's correct. I think one good example of that would be perhaps the first application we had in for review, which had a very broad scope. In fact, it would have been, the original application would have been scoped to really handle any site in the United States.

It turns out that there were some difficulties with the seismic portion of the application, being able to justify that on a safety basis. In conjunction with some of the utility users of that application, it was elected after

discussions with us they elected to reduce the scope of the application so it could be certified in a timeframe that was consistent with the actual users so that they could address their full core offload issues.

That is an example of how you may start off with a very broad certification and end up with a somewhat narrow one.

I will tell you that part of that was driven by the schedules. We established schedules to almost in effect cut the time in half for the review of one of these applications, and it had very tight timeframes for responses to this sort of request for additional information and when we got near the end we had to make decisions on certain areas. We elected to certify what was in effect certifiable at that point and then move on to other designs.

The difficulty of spending long periods of time

with one vendor's application meant that we were in effect penalizing some other vendors that were in the pipeline so we did the best to make sure that we treated all the vendors fairly. We addressed what we understood to be all the full-core offload requirements fairly and I believe the record will show that we did.

COMMISSIONER MERRIFIELD: In your slides NEI's presentation emphasizes the need for the NRC to resolve generic issues associated with the cask certifications.

Is there a common and clear understanding between industry and the Staff and stakeholders as to what these issues are and our projected timeframe for resolving them?

MR. KANE: Well, I believe that there are two things. In fact, we met the other day on this subject -- last Thursday I believe -- and it was clear at that meeting that there needed to be a real clear understanding in terms of what was the top priority. I believe it is well-known what the Staff is working on for the generic issues, but I believe we could do a better job in terms of holding an additional meeting or two to make sure that the work is prioritized consistent with what the industry's needs are.

I believe -- I am not suggesting that I think it is right now, but I think we need to make very clear that that is the case.

Another thing that we concluded was that we need

to lay out in a public way all of the generic issues that we are working on so that that is -- and the projected schedule for resolution so that information will be available to all the vendors and all the utilities.

COMMISSIONER MERRIFIELD: NEI has also raised concerns about, and I think other Commissioners have touched upon it, the inappropriate conservativeness in our approach as it relates to human reliability, heavy loads, the spent fuel heatup rates, and what they perceive is a bias towards the upper bound.

Do you believe our follow activities are responsive to these requests?

MR. KANE: Well, we believe so. Of course NEI may address that area as well. I think in the area of burnup credit, which a year or so ago was a very conservative position because it just gave no credit at all. We subsequently have issued interim Staff guidance which does give credit and that position is now out and before the vendors. I know that -- I am told that at least -- that several are now planning to take advantage of it but that remains to be seen.

That will of course result in further amendments to their cask designs.

MR. RICHARDS: Commissioner, you mentioned seismic heavy loads.

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COMMISSIONER MERRIFIELD: Right.

MR. RICHARDS: And human reliability.

COMMISSIONER MERRIFIELD: Right.

MR. RICHARDS: And it sounds like R-3 -- is that being addressed to the cask issue --

COMMISSIONER MERRIFIELD: No.

MR. RICHARDS: -- or the broader issue?

COMMISSIONER MERRIFIELD: No, you can address that separately.

MR. RICHARDS: I think we are making progress in that we have been in communication with the industry. They provided a seismic checklist that we discussed at our July workshop and that has been reviewed.

The Human Reliability document is out. They provided us their input in the form of the Aaron Report, is that right, Diane?

MS. JACKSON: Well, the Human Reliability didn't respond to our Human Reliability. The Aaron Report came in before that.

COMMISSIONER MERRIFIELD: But after the workshop they provided us some information and we have I believe factored that in or are factoring that in.

MS. JACKSON: As much as we can, yes. Some of the things in the Aaron Report NEI said isn't -- are more observations by Aaron than commitments by industry, so we

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are getting a clarification from industry any time now on what their commitments will be based on the workshop and the Aaron Report.

COMMISSIONER MERRIFIELD: And likewise in the area of heavy loads, of course that was addressed by and large previously under NUREG-0612. The industry has said, hey, we are going to commit to do what 0612 says. Like Diane mentioned, I think that the industry came to our July workshop with a number of commitments. It is on a transcript, but to make sure everything is clear they were going to provide us their commitments in writing in a letter on the docket, and I think they were preparing that and we are waiting for that.

But we are getting information on all three issues and it is being factored in. I might also note that we are getting information from our other stakeholders and it has caused us to do additional work such as in the area of criticality so it is, you know, it is from more than just the industry.

COMMISSIONER MERRIFIELD: My last question in light of getting input from other sources, in my vote in 99-168 I expressed the view that the Technical Working Groups' report could benefit from the independent technical review by ACRS. I am particularly interested in the issues associated with the realism of the assumptions made by the

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Staff in their analyses

Can you explain for me a little bit where you are in terms of the ACRS review of the Technical Working Group report?

MR. RICHARDS: We, or I should say Diane, made a presentation to the ACRS on Friday. They were provided with

four or five inches worth of material in preparation for that meeting, so they were provided quite a bit. We understand that they have a letter in draft back to the Commission with their views on the Staff's effort. Did they ask for additional information? I don't recollect.

MS. JACKSON: No, they haven't. Are you interested in the ACRS's opinion of the presentation? No? Because --

COMMISSIONER MERRIFIELD: What I was looking more for was just for you to explain to me sort of the plan of working with ACRS, so we could get those results. I didn't want to go into the detail of what they are going to be reporting on.

MR. RICHARDS: I think we are at their beck and call. They had a number of questions and things that the Staff and Diane --

DR. TRAVERS: We are looking forward to getting their letter, Commissioner, and we understand, we have some preliminary indication as to what it is going to contain,

largely supportive, we believe, of the positions that in draft were presented yesterday but as was mentioned we are going to continue to keep them apprised and to get the benefit of their thinking.

COMMISSIONER MERRIFIELD: Good.

MS. JACKSON: At the end of the ACRS meeting we did have a short discussion with them to perhaps meet with the subcommittees and then meet again with the full committee at their discretion.

COMMISSIONER McGAFFIGAN: Could I just ask one question, a short one --

CHAIRMAN MESERVE: Sure.

COMMISSIONER McGAFFIGAN: It's really on the ACRS process.

Did you tell the ACRS more on Friday than you told us today as to how you are going to resolve these technical issues, you know, the human reliability, the heavy loads, and whatever the third -- seismic. I mean for this January thing, report, you already have draft conclusions and --

MS. JACKSON: No. We went more into the technical detail of the history of it and what we were doing. Right now we don't have any results. We didn't give results to the ACRS that we are not giving to you.

COMMISSIONER McGAFFIGAN: Okay, that's fine.

MS. JACKSON: We don't have any of those results

yet.

MR. RICHARDS: Their line of questioning is somewhat different though.

MS. JACKSON: Yes, they did dive deeper into many of the technical areas. This is the first time the ACRS had heard from the Technical Working Group so a lot of the preliminary work we did was discussed.

COMMISSIONER McGAFFIGAN: I honestly think that the Commission today is holding off in going into the technical areas because we are waiting to see what has happened. We are quite capable of raking you over the coals too, if the ACRS hasn't --

[Laughter.]

COMMISSIONER McGAFFIGAN: -- hasn't done it well enough.

MS. JACKSON: I think they did a pretty good job.

CHAIRMAN MESERVE: We have another panel but Mr. Diaz has asked if he could have one final question.

COMMISSIONER DIAZ: It is going back to the issue of the genesis of the sound technical basis. I think it is obvious that everybody knows that we have spent fuel pools from California to Connecticut and many of them have been there. When Commissioner McGaffigan said that we need to have a very good technical process, it obviously is no doubt.

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My question is an issue of management of technical issues. This is an issue the Commission has been facing for a long time -- shouldn't we have sufficient technical basis so when the issues arise they can quickly address it, and that was really the point of the question before. It is not something that is new to us.

Configuration management is different. The technical basis to make decisions and analysis has and should be there.

MS. JACKSON: I think when we were doing case-by-case we had sufficient technical bases for each plant. They were not risk informed bases, so going back now to look at risk informed and generic application of our bases has given us the reason to step back and look more closely at it to make sure that we are not missing a large chunk of the plants and that is what has taken us the extra time is we are not going purely by when does a zirconium fire never happen anymore. We are looking at what is the risk in that timeframe and when are we comfortable in a regulatory arena to reduce those regulations and that has given us cause to think more about the issue and the technical bases.

CHAIRMAN MESERVE: I would like to thank the Staff very much. It is clear that we are going to have some further discussions on this subject. I look forward to it.

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We have another panel that should come to the table now.

CHAIRMAN MESERVE: We have been joined by Ray Shadis of the New England Coalition on Nuclear Pollution, also Friends of the Coast, a part of the coast that I am particularly fond of, namely Maine; Paul Blanch is an energy consultant; David Stewart-Smith, who is the administrator for the Energy Resources Division of the Office of Energy in the State of Oregon; Lynette Hendricks, who is Director of Plant Support for NEI; and Mike Meisner, who is Chairman of NEI's Decommissioning Working Group and is President of Maine Yankee.

We have limited time this afternoon, and so I would like to give each of you an opportunity to make a statement. I would ask that you try to keep them in the order of five to ten minutes, absolute maximum, so that there will be an opportunity for questions.

Ray Shadis, you are first.

MR. SHADIS: Thanks for the opportunity to speak with you this afternoon. I need to first address an issue raised by Commissioner Merrifield, and it has to do with getting materials in on time. The materials that I provided were not provided until this morning and I apologize for that. We have my mother-in-law, who has been a mother to me, on her deathbed, and we have had hearings to deal with

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this week, and it just plain got ahead of us, so I mention that by way of introducing the "human factor" into all this.

I have had conversations with nuclear utility

executives from Illinois, from Michigan and Connecticut and Maine, and all of them have expressed surprise that the public's attention seems heightened or more focused over decommissioning than when they were running and operating nuclear power stations and they wonder why that is, and I think I might have some insights for you on that.

When Maine Yankee Atomic Power Company undertook its site characterization and hired GTS Duratech and GTS Duratech did a background paper as a preliminary to their report, in it they laid out something that I hadn't considered before. They said in the 23-year plus existence of Maine Yankee Atomic Power Station that it had undergone 14 full power years of operation, capacity factor in the 68 percent range or something like that.

In that same week we were told that the most optimistic date for the first spent fuel pickup from the Department of Energy was the year 2023 and what I saw it as was a tradeoff of, optimistically, 25 years of surveillance and concern over stored spent fuel to 14 full power years of reactor operation.

I think that in speaking to people throughout the New England region I find that they are wondering what was

the value of the experience in hosting a nuclear power station now that they are faced with spent fuel storage with no terminus in sight. No one that I have spoken to in the industry or in public advocacy groups or even in the state governments believes that the Department of Energy is going to come and start moving fuel in the year 2023, and even if they do, their round-robin schedule stretches that fuel pickup out another ten years or so by the time they get rid of all of it.

I believe they start with the oldest fuel first, go to the next plant, pick up some fuel, so they stretch the whole process out, and so even in the most conservative view, we are looking at trading off a commitment for another couple of generations of our people to maintain surveillance on nuclear materials which no one denies are harmful or could cause harm to the public or the environment if they escape from their packages.

So, yes, people's attention is focused on what is going on. In addition to that, we have -- and I guess I am in the mood for it this week -- we have a kind of final state awareness. We are wondering what we are going to be left with. The big questions, now that they are tearing apart radioactive components, now that the spent fuel pool is being isolated, the big questions are is there going to be harm come to the public or the environment out of

decommissioning?

Finally, what is the legacy in terms of radioactive pollution from the plant itself?

And people don't necessarily express it in those terms, but in broad generalities that is where their concern is, and so, yes, their attention is focused.

In preparing for this, and believe it or not I actually did prepare for this talk, I reviewed Mr. Huffman's outline of goals, and one of those goals was to secure public confidence in decommissioning regulation. If I go back and try to explain to our constituency across New England what you are doing with decommissioning regulation, I would have to characterize it in plain Anglo-Saxon everyday street terms. I wouldn't be able to put it in the technical terms and niceties that I have heard discussed

here earlier. I would have to say that the Commission is not prepared for decommissioning, that their rules don't apply, that now that we have started to decommission four New England reactors, the Commission is considering writing some rules about it.

We have, on one hand, a Staff that is diligently trying to pursue some of the basic information. We have a nuclear industry that is very antsy about getting this operation moving. We have an NRC management that is pushing the Staff to accommodate the industry and at this point we

don't know some of the basics.

Now there are burdens. Of course there are. I noticed that Oyster Creek was mentioned earlier, that they had actually tried to step in ahead of the game and provide some of the information and analysis that would be necessary to get their exemptions before they actually started decommissioning. That would be Jim Hildebrand down at Oyster Creek, and I think that he learned his decommissioning lessons at the Saxon plant and having spoken to him in the past I know that he, like the rest of us, is looking for some certainty in this, and I think the nuclear industry is looking for certainty to move forward.

I know that the public is. The public would like to know with certainty what the window is for vulnerability for a zirc fire or for any other phenomenon. We would like very much not to have a resin filter fire at Maine Yankee. We are sure that the offsite consequences would not trigger Part 100, the emergency response, or any of the rest of that, but we don't know that for sure, and we certainly would like not to have any workers exposed and we would like not to have the environment itself exposed.

If nuclear power stations are going to be using caustic and corrosive washes to clean out their primary piping, we would like to make sure that the valves in the plant are not misaligned so that that caustic scrub or

corrosive scrub doesn't go overboard into public waters or doesn't get flushed back into the spent fuel pool, and we are looking to the Commission to pursue those interests.

I was appalled in listening to the conversation earlier, and this may be my own prejudiced way of listening, but what I heard was a lot of concern with getting the process moving with the calendar, with whether or not the Staff was indulging in esoteric investigations that really had nothing to do with the practical matter of getting a rule out so that we could get on with decommissioning, and I can tell you that if I take that message back to the public, their confidence in NRC regulation is going to decrease. It is not going to increase.

One last point I would like to make, and I think this is very, very important to us. Out in the public in general members of the public, and when I talk about public I am not talking about those that are totally unaware of anything that is going on. I am talking about people who live in the plant vicinity of the decommissioning plant or people who are engaged in nuclear safety issues or environmental issues -- that would be the public, an aware public, that I am talking about.

They are not impressed by the tweaking of regulations. I mean if you can have all of this going on and you can involve stakeholders and the public is going to

be generally oblivious to it, and they are not going to be speaking in terms of admiration for NRC over it. The thing that impresses the public are the people that you send out to the public meetings, the people that provide the face of the Nuclear Regulatory Commission -- a group meeting to NRC staff interface. And I would like to report to you that the public is favorably impressed and that they are building confidence, your staff members, in decommissioning regulation; but, they're not.

I think some part of the resources of NRC need to go into training staff people to respond to public questions with total candor and with openness and without a fear that when they get back to NRC headquarters, they're going to be chastised for whatever they let out in public. Because what we find, is we find two things, really: on one hand, we find a defensiveness and an evasiveness in responding to public questions from NRC staffers who are out there; and the other thing they find is that we find NRC staffers, who are totally not familiar with the subject matter they're being asked about, putting out answers. We find them essentially misinforming the public based on their own lack of knowledge. I don't think there is any malcontent there, but they're on the spot; they're not used to confronting a hostile or inquisitive public and they present that face to them.

Let me just end by telling you that we've got a 14-page commentary here and an outline, so sorry you didn't get it earlier last week, but we do raise some technical issues. We're not technical people. We're people people. But, I wish that the Commissioners, as you have the opportunity to look through those, if there are questions about the accuracy of our statements or the validity of our viewpoints or the issues we're trying to raise, please don't put them away. Please get in touch with us and we'll be glad to respond; we'll be glad to provide backup documentation, whatever it takes to communicate with you. And if you have any questions, I'm wide open.

COMMISSIONER MESERVE: Thank you, very much, Mr. Shadis. What I suggest we do is that we go through each of the statements to give everyone an opportunity to speak and then we'll return for comments. Let me indicate that I do appreciate your observation about the need for training the staff to deal in the public context.

We're going to have a Commission meeting tomorrow, in which we're meeting with stakeholders, a particular concern on materials issues. And the staff, in preparing for that, has sort of looked through what they've learned about their interactions in that area and that is one of the lessons that they've learned, is that there is a need to make sure that the staff is prepared for knowing how to deal

with the public and to be candid with the public and being trained for that purpose. Those resonate with an observation that the staff has, itself, learned from its experiences in a related area.

Mr. Blanch?

MR. BLANCH: Thank you, Chairman, Commissioners. For those of you who don't me, my name is Paul Blanch, titled as an energy consultant, and I would just like to make it clear that any comments that I offer today are those comments do not reflect the opinions of -- necessarily reflect the opinions of other people, either licensees or members of the public.

Over the past two weeks, I've had the opportunity to visit four decommissioning plants in New England: Main Yankee, Yankee Rowe, Connecticut Yankee, and, obviously, Millstone. What I've observed over the past two weeks is that all licensees are doing a very good job, but each one is doing it differently. Many are going beyond the regulations, but they are all using good practices.

Over the past two years, I've worked with the NRC staff at all levels on various decommissioning and other issues. I'd like to start with slide two. Again, I have 11 slides and 10 minutes, but I can do it. I've made the presentation before the ACRS last Friday. I'm very supportive of the NRC's key messages, especially that

related to enhancing public confidence. But, we, also, got to keep in mind maintaining safety, improving effectiveness and efficiency, and reducing unnecessary regulatory burden.

Earlier this year, I had an opportunity to review SECY-99-168 and provided my formal comments in writing. I believe it was in August or September. That is available to the Commission. SECY-99-168 basically provides a five-year schedule for rulemaking. However, there are additional issues that need to be addressed. Additional guidance will assist the decommissioning plants in estimating their total decommissioning cost and schedules.

There are significant issues that are not presently addressed in the proposed SEC-99-168. For instance, the site remediation criteria: while from a purely standpoint, I find it acceptable either the EPA's criteria or the NRC's criteria. I believe, my personal opinion, that either one of them provides reasonable assurance and reasonable assurance to the public that there will be no undue risk. Some of the issues that are not properly, in my opinion, addressed SECY-99-168 are what design basis accidents do we need to consider; also, how do we apply 10 CFR Part 50, which is designed primarily for operating power plants and doesn't even, within the contest of Part 50, with the exception of the general design criteria, doesn't even discuss the long-term storage of

high-level waste. The rules for the long-term storage of high-level waste are clearly outlined in 10 CFR Part 72, which has been given a lot of thought through the rulemaking process many years ago.

We need for the plants that are presently decommissioning consistent application of existing regulations. Observing some of the plants -- and, again, Commission McGaffigan mentioned before fitness for duty, and there are different opinions on the applicability of fitness for duty. 10 CFR Part 26 is being applied to some plants and industrial safety fitness for duty programs applied at other plants. And I think this needs to be considered, whether we need to go to a full Part 26 fitness for duty program or not for an industrial site. Quality assurance requirements differ from site to site, emergency planning, fire protection, codes and standards. Right now, the industry -- the decommissioning industry is being regulated by exemption to Part 50. There is a document out there, titled NUREG 64.51, that does provide some reasonable guidance on what regulation should apply during the decommissioning process.

We have competing and conflicting regulatory mandates that need to be resolved. We have, as I mentioned

before, the EPA versus NRC remediation requirements, needs to be resolved and needs to be resolved quickly. The issue

of onsite disposal of clean waste needs clarification, commonly referred to as rubblization. And, again, carrying that a little bit further, the NRC and the EPA need to resolve or specify the total activity and/or average allowed concentration of radioactive material that can be left on site. I think most of the Commissioners are aware that neither the EPA nor the NRC specify anything other than the dose of 25 millirem or 15 millirem per year three feet above the ground. Again, you can bury high-level waste, like they have out at Hanford with the disposal of the Trojan reactor vessel, and if you bury it deep enough, you can still meet the 25 or 15 millirem. My understanding of the regulations, that is not properly addressed. Not that anyone has any plans for burying a reactor vessel on site, but there are no rules that I've seen that preclude it.

Rules for long-term storage of high-level waste, which were, I mentioned before, discussed in 10 CFR Part 22, there's both the general and the site specific license for Part 72. About half of the plants have a site specific license, such as Trojan, Fort St. Vrain; and the other half are still applying the general license, such as Haddam Neck, Main Yankee, Yankee Rowe, Point Beach in Arkansas. I think it's not appropriate for a plant to continue the storage of high-level waste under a Part 50 license, as Mr. Shadis said, until the year 2023, where the reactor vessel could be

gone, the reactor containment could be gone, and all that's left is dry cask storage under a Part 50 with a general license.

Part 50, again, does not properly address high-level waste. And some licensees are applying certain sections of Part 72 and Part 50, almost a pick and choose type of regulation and regulation by exemption. Again, as I mentioned before, in my opinion, 10 CFR Part 72, the site specific license, is what decommissioning plants should eventually be striving to reach. The general license, the Part 72, subpart K, my understanding, was only intended for operating power plants, those sites that had a complete 10 CFR Part 50 license and, yet, wanted to store high-level waste using dry casks. That may be acceptable, if they have operating plants and just want to store high-level waste using dry cask on site under a Part 50 license with a Part 72 general license.

All design basis accidents need to be addressed. They need to be risk informed. They must consider zirconium fire, as they are properly addressing. They need to address other issues, such as the potential criticality. And, again, after the recent event in Japan, this is becoming a more visible issue. I've asked the NRC staff -- and, obviously, I don't think that we properly looked at the potential for criticality, either from a risk-based

approach. We don't even know what the consequences of a potential criticality would be in the spent fuel pool, at least not that I've seen. We need to address other potential accidents or openly state that we're not going to address them. Sabotage, obviously, is an accident that is rarely discussed, although it interestingly enough is discussed in detail in Part 72.

My overall recommendations for the Commission is that we need to provide interim guidance for decommissioning

and, again, what's out there now is the NUREG 64.51. The Commission needs to direct the staff to proceed with rulemaking on an accelerate schedule. The Commission needs and the staff need to apply the site specific requirements of 10 CFR 72 to decommissioning plants. We need to evaluate all potential accidents, establish clear site remediation criteria. We need to assure consistency and predictability and work closely with all stakeholders to enhance public confidence.

That concludes my brief presentation and I would be more than willing to respond to questions after the rest of the panel has a chance. Thank you.

COMMISSIONER MESERVE: Thank you, very much. The next statement is by David Stewart-Smith from Oregon.

MR. STEWART-SMITH: Thank you, Chairman, Commissioners. Thank you for the opportunity to be here

today. My name is Dave Stewart-Smith. I serve as the Executive Secretary to Oregon's Energy Facility Siting Counsel, a seven-member citizen commission charged with siting and regulating large energy facilities. Since 1989, I've, also, served as Oregon governor's liaison to the NRC. I have 25 years experience with the State of Oregon, the first 11 of which were with Oregon's Agreement State Program. So, my familiarity with the NRC goes back a ways.

Oregon's authority for the siting and regulation of large thermo power plants was established in 1971, expanded in 1975. My staff provides staff support for that citizen commission. We maintain a resident inspector at the Trojan facility. The State Resident Program was established in 1980 and was driven by our conclusion after the TMI accident, that in order to effectively respond to an accident, the governor of the State of Oregon must not only have staff expertise at his or her disposal, but staff that knows the plant and has unrestricted access to all critical areas. We signed the MOU with the NRC in 1980 and I believe we have a history of consistently trying to work closely with the NRC staff.

I believe the staff is on the right track with the decommissioning rules. Our own experience, beginning in 1993 when Trojan closed, was that there was a great deal of effort put into licensing review and deciding one rule at a

time what regulatory requirements ought to be. That took a fair amount of time, not only of the NRC, but the licensee and my staff, to stay on top of it.

I believe that a separate part in Title 10 is an appropriate way to structure those rules. I understand it will take a fair amount of time. I have a lot of rulemaking experience, myself, and I never look forward to large rulemaking efforts; but, I think in this case, there's good justification.

In Trojan's case, it was a particularly unsettled time. The folks on site thought they had six more years of operation of that plant, when it was announced to be closed. PG&E; immediately laid off all contract support and began to lay off permanent staff, in such an unsettled time. I think the argument for very clear requirements for decommissioning are particularly well taken. The staff proposal would go a long ways to remove some of the uncertainty.

Would you go to my last slide, please, observations? Just a few observations, based on reading the staff presentation. The emergency plan for -- the

permanently defueled emergency plan at Trojan is not based on a spent fuel pool accident. It was based on a postulated fire in low-level waste storage facility. The company proposed that that was the only -- or the most significant possible event that could get radioactive material off site.

My staff agreed with that. I believe that putting a considerable amount of staff analytical time into spent fuel accident scenarios is appropriate, but it may not be the only source of post-shutdown off-site risk. In addition to that, with so much uncertainty nationwide over low-level waste disposal capacity, I think taking a look at a plant possibly being forced to store a significant amount of low-level waste on site, if they get into decommissioning and lose disposal capacity in mid stream, is a realistic scenario.

The State of Oregon reviewed and approved Trojan's decommissioning plan. I believe that having a state regulatory presence provided the Oregon public with a local opportunity and a local presence to review and comment over an extended period of time. Your licensees know your review process; they have to know it. But for the public, your review process, my formal review process, can be a daunting one to participate in. And I believe that having state staff and having a state program intimately involved in the review of that decommissioning plan provided a public opportunity that was useful.

The NRC, I'd like to say, have been very helpful in answering our request for consultative information and on several occasions, to appear before my citizen commission. That's always appreciated. I realize we're a long ways off

NRC's beaten path, but the staff have always been willing to come out and talk to us and I believe that's made a big difference.

Having seven citizens review -- citizen volunteers, by the way, review and approve the decommissioning plan gave Oregon citizens, I believe, a more effective access. And I think it's one of the reasons why decommissioning at the Trojan facility has gone quite smoothly, including, as has been mentioned a couple of times this afternoon, the one piece removal and burial of the Trojan reactor vessel.

And my last point, let me segue into that reactor vessel issue. Let me argue that the rules that you establish retain a degree of flexibility. I think there's a lot yet to be learned about decommissioning large power stations. PG&E; proposed one piece reactor vessel removal, after initially proposing segmentation of the reactor vessel and shipping to our regional radioactive waste disposal site in numerous shipments. The NRC staff's initial response, frankly, was to discourage their request.

I was convinced, at the time, that the idea had merit and deserved, at a minimum, a thorough going over, particularly given Trojan's relatively unique access by river barge to our disposal site in the Pacific northwest. I took on an unusual and, for me, somewhat uncomfortable

role then of becoming an advocate for mine and your licensee's proposal. I made an appointment to talk with NRC management here. And after I did so, the proposal did get a fair hearing and, obviously, it was approved. Let me observe, however, that I was left with the impression that the initial staff response was driven by the desire to stay

away from a new idea that might result in criticism. I think that's a natural response. It's a human response. But, I think it may be a response that, if in the past, new ideas have resulted in criticism for just bringing up a new idea, then staff can get kind of gun shy.

NRC management correctly took on the responsibility for authorizing a thorough review in this case. The staff's initial negative response tells me that perhaps that hasn't always been the case. My own experience was a very positive one, but I think I was running into a little bit of history. Without state and NRC management efforts to work this issue loose, I fear we might have lost an opportunity to save at least 50 man rem of exposure and a lot of unnecessary transport risk over several hundred miles of highway instead of one five mile an hour barge shipment up the Columbia River that has regularly seen a great deal of barge traffic. So, it's a mode of transportation we understand in the Pacific northwest well.

And I, along with the rest of the panel, would be

happy to answer questions, when you get to that point.

COMMISSIONER MESERVE: Thank you, very much. Our next speaker is Lynnette Hendricks, NEI.

MS. HENDRICKS: Good afternoon, Commissioners and Mr. Chairman. Thank you for the opportunity to share industry's perspectives of decommissioning. I'm going to try to talk about critical issues in three main areas impacting decommissioning.

The goal for the industry in decommissioning -- if I could have -- go to the second slide, please. Our goal in decommissioning is that it be safe, timely, and efficient. We think this is essential for both public confidence and to provide great peers and shareholders the value on the considerable funds that they've set aside to deal with the public confidence issue. We believe that rules -- if rules and processes are not in place to provide a clear pathway to decommissioning, that is, also, very transparent, provides appropriate opportunities for public input, the impression that could be given in lieu of a clear transparent process is that, in fact, this is, in fact, much more difficult to do than it really is and perhaps more unsafe.

In terms of rate peer and shareholder values, you well know considerable funds have been set aside to take the plant -- to safely decommissioning the plant and we believe we owe these largely rate peers an opportunity that these

funds be well spent on activities that directly benefit the public. In that vain, in decommissioning, if you have a clear path forward, you are less likely to encounter unnecessary delays that will augment the schedule by months or years and could, in the end, make it very difficult to complete the decommissioning within the funds set aside for decommissioning.

Next slide, please. The three main areas that affect decommissioning: one, spent fuel casks; the second is efficient license termination; and the third is risk informed regulations. I'm going to address the first two; but I think it might be more responsive, in putting the staff's presentation closer to ours, if we go first to the issue of risk-informing regulations. And I'd like to hold some time, if I could, with your tolerance, and come back and discuss spent fuel casks and license termination. I turn it over, at this point, to Mike Meisner.

MR. MEISNER: Thank you, Lynnette. Mr. Chairman, members of the Commission, I appreciate the time that you have given me to talk here today. I'd like to go to the overhead that is entitled "Risk Informed Regulations Overview."

You've heard a fair bit from the staff earlier today about the background and history. I have to agree that in a very short period of time, the staff put together

quite a good risk assessment model. Unfortunately, the model inputs and the assumptions were pretty consistently biased to the worse case. As a result, the industry provided a great deal of information to the staff.

You've heard about today the July workshop, where we came prepared with commitments we were willing to make to backup changed assumptions in the PRA analysis. Since the workshop, we've had numerous meetings and follow-up phone calls with the staff on various issues. And as you heard, we provided a pretty detailed industry report, reviewing the staff's draft work. And that report, we provided to all the Commissioners on your staff, as well as the NRC staff.

I'm going to be talking today about the same kind of information that the staff put out in their draft report, because up to this point now, we don't have any additional information. I'm encouraged to hear that the staff is working and feel that their converging; but, I think it's important, too, to go through some examples and get a feel for the disparity that exist between the staff's work and the report that we provided on the same subject.

Next overhead, please. Significant conservatisms exist in the area of human reliability. You've heard that mentioned a few times. I think it's worthwhile to get some feel for that. The staff has chosen to depart from IPE's traditional PRAs and shutdown PRAs and their assumptions on

human error.

If we can go to the next page. What I've done is taken a page out of the Aaron Report and I hope you have that in front of you. Is there another --okay, what this report shows are examples of human error probabilities taken from the NRC draft report. Now, you can see that the error probabilities are on the order of 10-2 to 10-3; in other words, one in a hundred to one in a thousand. The striking thing about decommissioning events, though, is that these error probabilities are across a period of time of 120 hours or five days; or looked at another way, 15 different shifts of operators coming in and going off shift and continuing to make the same errors at a very high probability.

If we compare those kinds of error rates with the next overhead, please, the kinds of assumptions that are used in add power PRAs, IPEs, as well as shutdown PRAs, you can see that for events that need to be responded to on the order of 15 to 30 minutes, not 120 hours, failure probabilities on the order of one in a hundred or one in a thousand is what's been traditionally used. When you get to longer acting events and IPEs, like the 20 hour example up there for initiating a residual heat removal capability, the human error probabilities drop down significantly into the 10-6 range. And you'll look far and wide to find error probabilities associated with events that go much beyond 24

hours, because it has been the practice in all PRAs done to this point, that I'm aware of anyway, that once you exceed a certain time period, say 24 hours in most cases or maybe 48

at the worst, that you assume there is sufficient time available to take action to recover from the event. In other words, most other PRAs truncate events at about 24 to 48 hours. That wasn't done in the case of the staff study.

So, if we can go back quickly to the example page on conservatisms added. The problem with the human reliability assumptions is that these now overshadow, they dominate the entire analysis and tend to give a very distorted view of what's important to safety for those kinds of events. Heavy loads is another example. You heard earlier, industry has done a lot of work in heavy loads. Years ago, we resolved that issue with the NRC through NUREG 06.12. The funny thing in the present study is, though, that that staff didn't give the industry any credit. This is an area where there's absolutely no difference, no difference at all, in the commitments that licensees carry in their license basis going from an operating facility to a decommissioning facility. In fact, this is an area that has long since been resolved, that the industry feels should never have been opened up as part of decommissioning, because it's been reviewed for decommissioning plants, as well as operating facilities. But, the result is that the

staff's re-review, I'll show you in a minute, added two hours of magnitude of risk to the heavy loads area. And there are a number of other examples all contained in the Aaron Report, where the staff pretty consistently went to the upper bound or worse case assumptions, such as in this diesel pump reliability.

Let me move ahead to the next overhead, entitled "Fuel Uncovery Endpoint." This is another area of conservatism that might not be too obvious right on its face; but the final end state for the staff study is not a Zirc fire, as you might expect, but it's a fuel uncovery. That, itself, is not related to public risk. There is no public risk associated with lowering water to the top of the active fuel. And when you consider that there's additional water and steam to boil away and do a realistic heat up calculation, you, in fact, add about three days of recovery time by adjusting your endpoint to a dry fuel, as opposed to just the point of fuel uncovery. And particularly in a situation where the staff is not giving much credit for recovery action and has high penalties for human error, this additional recovery time should really be considered and important.

So, what's the effect of all of these multiple conservatisms? And by the way, I've only touched on a few of them. They are throughout the study. Well, the industry

requantified in our report and it's not a trivial effect. If you go to the next overhead, please, the bar chart. If you can see it up there, basically, the staff said for non-seismic contributors, the risk -- the fuel uncovery risk was 10-5, which actually exceeds the core damage frequency of many operating facilities. When you take into account the areas of conservatism and back those up and requantify, you reduce that risk by nearly two orders of magnitude, down to the 10-7 range.

And on the next two pages, and these are all, again, out of the Aaron Report and available for your review later, you can see that in one of these tables, we broke this down into the contributing areas for frequency of fuel uncovery, things like the loss of off-site power, where the

draft NRC report came in at 10-6 and the revised estimate is really in the 10-10 range. Loss of pool cooling drops an order of magnitude, down to the 10-8; loss of cooling inventory of nearly two orders of magnitude. And the next page, please. Heavy loads, itself, was two orders of magnitude, down to the 10-8. So, you can see there's a big, big disparity between what we think a realistic approach to this PRA would entail.

Next overhead, please. Now, while this has implications for decommissioning plants, we think it, also, has some serious implications for operating facilities.

First of all, it's -- the kinds of approaches taken in the study are inconsistent with the Commission policy statement on PRA. And I'll just read you a sentence out of that. The policy statement says that "PRA evaluations in support of regulatory decisions should be as realistic as practicable and appropriate supporting data should be publicly available for review." We think, in this case, that realism is lacking by quite a bit in the staff's draft study.

As I already indicated, it's inconsistent with approaches taken in IPEs and shutdown PRAs. We did ask one of our analyst to estimate what the affect on core damage frequency would be, if the staff were to never truncate the sequences in IPEs, like they had done in the decommissioning PRA. And the answer is that it would increase core damage frequencies on the order of two to ten times. Now, that's a tremendous change in the public perception of what risk is for operating facilities and we think there's a -- there's a real need to be consistent here, so that we don't undermine public confidence and that we give a realistic view of how these decommissionings proceed.

Next overhead on recommendations, and I'll end with this overhead. We think it's important that the Commission consider some additional direction to the staff, to revise their study, to use best estimates, and to remove conservatisms, to be consistent in the treatment of human

error by truncating sequences beyond two days, as is done in other PRAs study, and we think it's very important to requantify this model, so that we actually have a basis for rulemaking going forward.

And I'm going to make one other comment and then turn it back to Lynnette. I was a little concerned to hear something that we hadn't heard of earlier and that was a comment by Stu Richards, that -- in response to a comment from Commission McGaffigan, that, in fact, the staff already knows that they can't meet the back fit criteria for rulemaking and they intend to package this as a voluntary rule and by inference, include a lot of requirements in there that wouldn't meet a risk test, yet a licensee would have to adopt, in order to get the whole package. I would ask the Commission to maybe think about that a bit and whether or not that's an appropriate approach given, I think, the direction I heard last March to apply the backfit rule in this case.

Thank you for your attention. Lynnette?

MS. HENDRICKS: I especially appreciate your tolerance, given the hour, letting me cover the remaining two issues. Actually, I particularly wanted to cover spent fuel management, because I think I have many, many areas of agreement with the staff, in spite of maybe the provocative nature of a couple of the entries on my slides.

Decommissioning plants must put all their fuel into dry storage, if they're going to decommissioning the pool when they decommissioning the rest of the plant. And it becomes, certainly, in the three to five years that decommissioning takes place, very much a critical path item for the decommissioning. In referring to the process that Bill Kane referred to, that they undertook back in 1998, I agree that that was an exemplary job; that the staff did, in fact, undertake revision to the certification process. That was very effective and it did, in fact, reduce the time for certification down from three to four years to 20 months. And they did that, as he had indicated, by establishing rules of engagement, a very transparent open process. It entailed disciplining both the applicant and the staff and, in fact, I think they were very successful in doing that. However, we refer to these initial certifications is, by rule of thumb, the 20-80 percent rule; in other words, the certifications to date will cover maybe 80 percent of the fuel that decommissioning plants need to unload. That's what I refer to when I say "scope of certifications are limited."

Can I have the next slide, please? What this translates into for decommissioning plants, where I say that they can't decommission their pools, they cannot do so without a serious amount of resources committed to work

specifically with a vendor, to get in a situation using Band-Aid approaches, which I'll talk to a little bit in a second, to get a cask that they can, in fact, not efficiently, effectively, but they can, in fact, unload the fuel and go on with their decommissioning.

Operating plants, also, are affected by this 80-20 percent rule. We have at least one operating plant today that has already unloaded the easy stuff, the 80 percent, and they are in the position now of needing approval for unloading the 20 percent of the stuff. And, also, in addition, even though there may not be many where this has become a crisis, it's not a good situation. It doesn't make for good spent fuel pool management. It doesn't make for good management of your dry cask program, to save all the hard to load stuff to the end. It makes a lot more sense to have casks certified up front that can take it all and then you can mix and match. The alternative is you'll end up with a lot of hard to load stuff and you'll end up with a lot of casks that have very few bundles in them.

The Band-Aids that I was referring to, one example is current certifications are listed -- are limited to 45,000 megawatt days per metric uranium ton burn up. The staff has a solution for going above today, which is to pan all of those hire burnup fuels. Obviously, it would be a lot better to have methodology and criteria in place, so

that vendors could come in and meet the NRC's criteria and methodology and have a more complete certification going in.

It's very costly. DOE has run the numbers. DOE, by the way, has been working on preparing the technical basis for burn up credit for, I think, we're approach 10 years now. And by their estimates, the inability for casks being certified today to have burn up in their design -- burn up credit in their design is costing essentially 30 percent capacity, which equates to $10 billion. I did hear staff say that they have taken some steps forward on burn up credit. This is true. They have an ISG out that,

basically, says now, we will consider it. They revised their ISG and said, here's our philosophy, if you will, and some of the very -- 50,000 mile road map to acquire burn-up credit. What we still don't have is the detailed road map with established criteria.

And can I have the next slide, please? This scenario where I found -- oh, I'm sorry. Before I go to that, I wanted to provide some visuals -- go back to the other side; I'm sorry -- I wanted to provide a visual perspective -- go to the next one, please. I wanted to provide a visual depiction of the situation. I mean, I think it is very honestly the challenge that the Spent Fuel Project Office has.

Could I have the next slide, please? Please. I

know I screwed up; it's not your fault. I'm looking for the graph that you had on before, the -- there you go; thanks a lot. What this depicts is years on the Y axis and number of plants on the X axis that are going to lose full core off-load. It's just a depiction of the workload that's coming, if you will.

Next slide, please. This is a depiction of the number of sites that are currently using dry cask storage, and there's a delineation in color code for the ones that have on-site approval versus a general approval.

Can I go to the next one, please. This just shows that, in fact, many more are planned. And, again, just to show graphically that, in fact, this office is dealing with a lot of -- a large case workload and a lot of challenging issues.

Can I have my next slide, please? One of the tools that I think can be very useful in assisting in this area is risk insights. The reason -- because, I still believe that concerted industry effort is needed -- concerted industry-NRC effort is needed to, in fact, put together some informed criteria and methodology for going forward on these generic issues. A PRA or risk insight would be extremely useful. The design basis on these casks are extremely conservative. For example, they assume maximum heat, which would imply maximum burn up and, at the

same time, a fresh fuel assumption; and physically impossible, very conservative. The design of these casks, in and of themselves, are extremely robust. And in spite of the challenges that you generally look at, in terms of external events, tornadoes, etc., even the criteria for the design basis is much less restricted than for operating plants or even what we're looking at for spent fuel pools. In fact, it's only a five rem dose at the site boundary.

And can I go to the next slide? The second big issue in spent fuel management is the inefficient cask listing amendment process. This sort of came to be, in my view, historical perspective, because the Nuclear Waste Policy Act envisioned that DOE would, in fact, submit a given technology, one designed, if you will, that would be a universal cask and everybody could unload their fuel into that cask. What's happened, in fact, is that the marketplace has taken over and you have many vendors, many designs to be certified.

The rulemaking to list, although NRC has done a considerable number of things, and I'll get to those in the next slide, to discipline the process and keep it within the 20-minute time frame, it still, because it is critical path

for operating -- for decommissioning plants and threatens to be in the future for operating plants. The 20 month just is

not going to work with this dynamic area, where you have a very active marketplace, a lot of competitors, a lot of designs. And to go to the other point, amendment by rulemaking is, I think, a resource nightmare and we would much prefer to see a new system or a step change that could provide NRC the opportunity to devote these many rulemaking resources into honing policy and resolving some of these generic issues.

I did want to comment on some of the actions that NRC has taken. Bill mentioned several. They've, also, completed a rulemaking to permit fabrication without the 30-day hold and to go into fabrication at risk.

The next slide, please. In summary, for the cask amendment issue, we are -- would like to, I guess, reserve an opportunity in the future to share our views with the Commission and other stakeholders on how we may make a step change to improvements to this process. One of the -- some of the things we're thinking of is perhaps the initial listing could include criteria and for making amendments in the initial listing. Smarter certificates is one of the things we've discussed with the staff. But, again, the generic issues plays a role here, as well. In order to have smarter certifications, where the vendors could incorporate the design margin that they need to take the higher burn up fuel and some other -- even site specific differences, like

the seismic, they need a clear road map going forward, so that they can, in fact, process these under 72.48 and demonstrate that there are no unreviewed safety questions in adding different types of fuel or higher burn up fuel to their casks.

Did you want me to stop there and not talk about the --

COMMISSIONER MESERVE: We're well over time. Is that okay?

MS. HENDRICKS: Yeah.

COMMISSIONER MESERVE: Why don't we go for a round of questions among the Commissioners. I have a question and this first question is directed at Mr. Meisner. It may reflect my misunderstanding of the circumstances here. I am, as I think you know, the new boy on the block here. You've described various ways, in which you think the staff has been overly conservative in its analysis of the fuel pools. And I'm a little puzzled, because we haven't yet gotten the staff's analysis. They said they were going to give it -- this is going to be in draft form in January. And so, are you talking about an earlier document? Are you of the view that the current work that is underway is going to prove to be -- continue to have these overly conservative perspectives in it?

MR. MEISNER: I'm talking about an earlier

document they issued, I think, in June, and was the subject of the two-day workshop in July.

COMMISSIONER MESERVE: You made your views known --

MR. MEISNER: We have no other information to base our views on.

COMMISSIONER MESERVE: So, they will be, then, that the staff has considered these views in what we're

going to be seeing in a few months?
MR. MEISNER: We've had numerous interactions with the staff and that's what we hope is going to happen, yes.
COMMISSIONER MESERVE: I have a question that Commissioner Dicus had presented. It was about a matter, which I'm not familiar. She -- this has to do with truncating that analysis, at a certain time point. And the question she asked is whether you had seen the letter from the Union of Concerned Scientists about an event at a TVA plant, where operators did not notice the heat up of a spent fuel pool over a period of several days, which -- their point, I gather, is that there is, obviously, an actual observance of something that should not have been truncated in the period that you had indicated.
MR. MEISNER: I haven't seen a letter from UCS, but I am familiar with the event. I had some research done on it. It was an event back in December of '98. It lasted

for 37 hours. And during that time, the pool heated up from 109 degrees to 121 degrees and it was unnoticed during that time period, because of -- basically, of an equipment failure that led to a non-representative temperature indication.
I think this is a very good event to focus on, because what it does is prove the point that simplistic human error probability assumptions are inadequate. What happened there was over a period of time, over multiple shifts, they identified and caught the issue. The staff's approach would have said that there is one error of probability associated with that event.
What really needs to be done, we think, is to analyze these types of events, modeling shift changes, modeling the self reviewing nature of the event. You know, if the pool starts heating up and steaming, you're going to have a rain forest in there and it's going to be impossible to miss. It just can't proceed without somebody seeing it. And to model the long reaction times involved. And the design simplicity, I'll point out for that plant -- the TVA plant, it was an operating facility. The operators were focused on producing power. At our plants, you have two operators that do nothing but watch the spent fuel pool and that's all they do, in a simple control room that only has a few parameters.

So, I think it proves the point.
COMMISSIONER MESERVE: Mr. Blanch, I have a question for you. I was a little puzzled by your -- or maybe misunderstood part of the point of your presentation. You suggested, as I understood you correctly, that in dealing with these decommissioning issues, one should rely on NUREG 64.51 and on Part 72, leaving the implication, I think, that this whole effort that we've been discussing, mainly trying to develop sort of a different strategy on decommissioning, is something that is unnecessary or misguided, or did I misunderstand the point that you were trying to make?
MR. BLANCH: Chairman, I think you misunderstood the point I was trying to make. I think the efforts that are ongoing are very worthwhile, but they're only a small piece of the puzzle. And what I'm saying is that the puzzle is much, much larger than just the Zirc fire. There are many, many other issues out there that the staff needs to address, some of which are addressed in SECY-99-168.
COMMISSIONER MESERVE: Commissioner McGaffigan?

COMMISSIONER McGAFFIGAN: I can have 200 questions, like Commissioner Diaz, but I -- and I'm sorry we're going to end up short changing you, to some degree, but the -- let me follow on the Part 72 point with Mr. Blanch first. I've got Part 72 on the general license, the

subpart K in front of me and you're right, it's meant to apply to ISFCs, to dry cask storage facilities that happen to be at a Part 50 facility. Is -- but, isn't anything that's in Part 72, you know, still don't apply to a Part 50 licensee or more, when they're sitting there -- you seem to imply -- you say there's a hole, basically; if I'm going to shut down the plant under Part 50 license, using a general license under Part 72 for my ISFC and some stuff in the spent fuel pool, you're saying the spent fuel pool is -- there's a hole in our regulations there, that is not adequately covered, at the moment? Or what are you saying?

MR. BLANCH: In my opinion, it is not adequately covered, the operation of a spent fuel pool. Once the plant has defueled, what regulations apply? The staff says, well, 10 CFR 50 applies. But, if you go to 10 CFR Part 50, there's nothing in Part 50 that governs the storage of high-level waste, except maybe one section -- small section under Appendix A, General Design Criteria.

So, for instance, when I went to visit these plants, questions arise, what is the design criteria for the cooling system of the spent fuel pool? Every plant I looked at, it's seismic, it's done with some certain level of quality assurance, but there is nowhere within the regulations that specify whether I have to have qualified equipment, environmental qualification, seismic backups. We

have differences of opinion between regulators. There's no clear criteria within the regulations for the operation of that spent fuel pool under Part 50.

COMMISSIONER McGAFFIGAN: Which is a good argument, as I think you said, for doing this comprehensive rulemaking. But, at the moment, the way we reach those decisions is by looking at the shutdown tech specs and saying, okay, this is all you need, or how do -- do you -- how do we make the decision plant by plant, for Trojan or Main Yankee or --

MR. BLANCH: I believe it's done plant by plant. But, I think the staff would be better qualified to answer that. I think, you know, there's a lot of diversity there, in the way it's being addressed.

COMMISSIONER McGAFFIGAN: One of the issues that -- Mr. Shadis, I did read your testimony this morning, although we did receive it on short notice, and one of the issues raised is the -- and Ms. Hendricks had some charts on it, as well -- or a chart on it, is the license termination rule. And I'll just tell you one Commissioner's frustration, you know, you talk about -- both of you, really, about public not understanding this difference between us and EPA, and the difference is more in the groundwater pathway than it is in the all pathway, the limit. I brought with me my usual prop, which is the

generic environmental impact statement we did, when we did the 1997 license termination rule. And we looked in detail at the justification for the groundwater pathway and we couldn't find it. You know, in fact, we found -- and, also, for the lower limits.

EPA, our sister agency, has -- doesn't have a rule. They had a rule in 1996, which the public never saw. I happened to see it, because it was in the interagency clearance process. And it was withdrawn. Their own reg analysis did not support their own rule. And that's the frustration we have. It indicated, you know, something on the order of 75 millirems might be where the cost benefit cross point was. And so, we have gone through the Administrative Procedure Act process. We fully considered public comments. We did a voluminous environmental impact statement and we came to a conclusion that was unanimous among the five Commissioners sitting here at the time in May of 1997.

And EPA can trump us. Under the Energy Reorganization -- under the EPA Executive Order of 1970, they can do a rule, if they can justify it. But, we've never seen the technical analysis that supports applying 15 millirems and more importantly outdated groundwater MCLs that can be as low as .01 millirem to these sites. You know, the '90 analysis we had in here, in getting down to

the EPA MCL, was $23 billion for death averted. So, nobody ever came in and said this analysis was wrong. I mean, it was out there. It was out there for public comment during the rulemaking, and we didn't get those comments.

So, that's the frustration we have on the License Termination Rule. That's why we have gone to Congress, without any effect; asked them to break the tie. But, there really was an awful lot of thought done before my time -- I came along in the last nine months of this rulemaking -- an awful lot of thought done as to what the right license termination rule would be. And I -- you know, I would be happy, and, I mean, I expect other Commissioners to be happy, to talk to the public in great depth, as to why we made the decision that we made and why we think this is -- these criteria are appropriate. But, that's more a statement, just to make sure you knew that I had read your -- at least that part.

The other thing I might mention is the adjudicatory hearing. You know, you mentioned wanting an adjudicatory hearing at the outset of the process, not just the one we have, at the moment, at the end of the process. And that's -- I talked with Mr. Blanch in private about this a couple of times, that's a tremendously resource intensive thing and we're not sure it's needed. In fact, even the current rule doesn't have it and I'd be hard pressed in a

risk-informed environment with limited resources to say that you need both an adjudicatory hearing at the outset of the process and an adjudicatory hearing at the end of the process. We probably need improved public communication, but the -- I don't know what the benefits of a full-blown adjudicatory hearing at the outset of the process would be, other than to slow down decommissioning, which I suspect people want to see proceed, once the plant has decided to shutdown.

Those are two statements that either of you can respond to, or both.

MR. BLANCH: I'll just quickly respond. If one goes the proper route, a licensee, and goes for a site specific Part 72 license, the adjudicatory hearing, I believe, is allowed at that time, because it would be a major change to the license. And it's my belief that's why there's a reluctance on the licensees to convert to a Part

72, because it does open it up to adjudicatory hearings.

COMMISSIONER McGAFFIGAN: But, Paul, if I could -- on that point, the adjudicatory hearing on the Part 72 license would be simply about the ISFC. It would not be about -- what I think, Mr. Shadis, you were concerned about, you know, are they going to rubblization, are they going to do this, how are they going to -- how are they going to dismantle the plant. As I understand it, what you're

looking for is -- you really want a hearing not on the ISFC, which is pretty routine stuff; you want a hearing on their plan for going from the plant as it exist the day they shut it down, to green fields.

MR. BLANCH: I'm not the one that's advocating any hearings; I'm just making a statement --

COMMISSIONER McGAFFIGAN: Okay.

MR. BLANCH: -- that if one did go to Part 72, it would require -- or could require a hearing.

COMMISSIONER McGAFFIGAN: But, it wouldn't be on the subject matter that Mr. Shadis seems to be worried about, unless --

MR. SHADIS: I -- a different comment to the staff and Commission and management, my issues, if you will, or observations have been characterized as worrying. I'm not worried about anything. And the reason is because I believe, in many respects, the tide is going our way. So, I'm feeling fairly sassy about that.

But, what I am proposing here is that some creative thought be given to how you can have certainty at the beginning of this process. I think I used in my essay there, I used the term "a launching platform," from which you start decommissioning. You start with everybody has a set of ground rules or everybody knows how it's going to proceed. And, apparently, we don't have that.

Additionally, I was surprised to learn, in dealing with the Federal Energy Regulatory Commission, that they have the option to hold -- actually hold hearing in concert with other agencies, including states agencies. And it's not a bad idea. I think that this process needs to be wrestled with and it needs to be wrestled with, because this is so very important and it is final, as far as the effected communities are concerned. So, I'm offering that and not -- you know, it wouldn't take that much further.

In terms of the EPA-NRC issue, I'm very interested to hear your characterization of it and disagree.

[Laughter.]

MR. BLANCH: But -- well, you know, it is one of those kinds of -- you made the offer to meet with the people who are concerned about this, from the environmental community, I presume, and as you know, there is an issue now over the release of solid materials and that environmental community is very unhappy with their experience in developing that rule. So, I'm sure they would love to sit down and meet with you.

COMMISSIONER McGAFFIGAN: But the environmental community, in that case, refused to come to -- most people. There are some that came to the last meeting, as I understand, in Washington, but they refused to participate in the meetings. They refused to participate in a meeting

in early August that Chip Cameron wanted to hold about their participation in the upcoming meetings.

MR. BLANCH: Yes, sir.

COMMISSIONER McGAFFIGAN: So -- and you, I think, participated in Chip's meeting, or somebody did.

MR. BLANCH: It was kind of a go-between position. But, basically, what they're stating is that they were very unhappy with the way that that process went.

One last thing, please, if you just bear with me just a minute. I'm real pleased that the NEI got to run out there concerns about the cask thing. That's fine by me. But, I wished that we had known about that. I was invited to a meeting about decommissioning issues and had I known, I might have been able to contribute something on that cask concern.

COMMISSIONER MESERVE: I apologize for that. Mr. Merrified?

COMMISSIONER MERRIFIELD: Well, first, Mr. Shadis, I want to thank you for the information. Just as a clarification -- sorry about the unfortunate circumstances, which led to you not being able to prepare your materials earlier -- my comments weren't directed just at you; there were others who, also, were unable to do that and didn't apparently under the same circumstances. So, I apologize. It's unfortunate. I really did honestly not have the

sufficient time to review your materials and I will do that --

MR. SHADIS: Thank you.

COMMISSIONER MERRIFIELD: -- at your request. Had I been able to do so, as Commissioner McGaffigan obviously had a chance to, I would have been able to ask you more informed questions; and, for that, I apologize.

I guess I did want to ask you, it's not really a question, but it's perhaps for your help: I think it's very important that we, as an agency, improve our ability to interact with the public, in terms of being able to listen better and be able to be -- and our ability to be able to articulate better, hopefully I can do, as well, in our ability to answer questions better. And to the extent that there are specific examples in the past or as we go forward, where you feel our staff have not done that in a full professional manner, certainly I hope you will continue to keep this Commission, if on a Commissioner by Commissioner basis, for that matter, informed of that, so that we can provide the appropriate input to our staff. I think that's important to us and I ask for you indulgence on that.

I have to -- I do have to tweak you, as a last comment. You are representing the New England Coalition on Nuclear Pollution. As a New Hampshire native and as one of, I think, probably three new -- sitting around this table

right now, including three on this side of the table, I have to express my dismay that you have decided to include New York as a state within New England.

[Laughter.]

COMMISSIONER MERRIFIELD: This is a matter, as you know, is of significant concern, and I do need to tweak you on that one. So --

MR. SHADIS: I'm sorry, that was a tough call.

[Laughter.]

MR. SHADIS: But, that is upper New York State. We're talking the Lakes region or something.

COMMISSIONER MERRIFIELD: Well, we do like some of them from New England; but, nonetheless, they still are not one of our New England states.

Mr. Blanch, I just want to start out with saying, I do agree with you, regulation by exemption is no way to do business, and I think that's certainly something we need to think about as an agency. You mentioned several times that the NRC needs to address other potential accidents. I'm not sure -- what I'm not sure of is whether, in your opinion, the staff recognizes this need and is pursuing it appropriately, or whether they disagree with you that this need exists. I'm wondering if you might be able to elaborate a little bit.

MR. BLANCH: A few weeks ago, I brought this issue

up with the staff and I think we're in synch right now that, yes, there may be other issues, and I do say "may be other issues" that need to be addressed. It seems like we've zeroed in on only one accident and that's been the drain down to the spent fuel pool, when there are, in fact, other accidents.

We don't want to get ourselves into where we were in the 1970s, when we analyzed the doubled ended guillotine break LOCA, thinking once we've encompassed that accident and can handle that accident, we can handle any accident. I just don't want the viewpoint to be, okay, we only looked at the worst accident, we can handle; therefore, we're okay. There are other accidents. And I took for example, criticality. I don't know what the impact of that is. It needs to be looked at. It may be a never mind. But, every potential accident needs to be looked at, to see whether it will impact the public. Mr. Shadis mentioned to me on the way in today, resin fires, has that been looked at. There are other potential accidents. That was my point.

COMMISSIONER MERRIFIELD: Well, I'm sure that the staff will have appropriate responses to those, as we move forward.

Mr. Meisner, I want to -- you know, being a lawyer, I guess by nature you have to play devil's advocate. Just for the sake of -- I'm putting issues in the record, we

don't have Mr. Lochbaum here with UCS and Commissioner McGaffigan -- well, he's not sitting at the table right now. But, perhaps, you gave the issue of Brown's Ferry and you recognize that as an example where it was successful; you know, it was found and it shows that things work in an operating reactor. I think some, including Mr. Lochbaum, perhaps, may argue that the fact that it took 37 hours at an operating facility, with, at any one time, dozens, if not hundreds of people walking around, isn't necessarily a success story; and that if we're looking at spent fuel pool temperatures for facilities, which are being decommissioned, which have far fewer people who are going to be walking around, that may not be quite the success that perhaps you're portraying and something we certainly need to keep in mind, as we move forward.

MR. MEISNER: Okay, well, first of all, I didn't portray it as a success. What I intended to say was that it proves the point that simplistic human error probability assumptions are inadequate. What happened in that event was there were multiple opportunities to identify the situation and eventually one of them did identify it. Taking the point of view that there's one failure probability associated with that isn't appropriate. That was my point. So, the staff needs to be able to put together a human reliability analysis that takes into account things like

shift changes, as an example, a new set of eyes.

The other thing I point out is that 37 hours is not long, given the small amount of heatup that took place in that event. It was about a 12 degree delta, if I read that -- read the reports right and we did get reports direct from Brown's Ferry. That didn't challenge any administrative limits or tech specs limits. They were far away from anything associated with having to take action, either by procedure or by technical requirement.

Now, had this event progressed, though, to the point where you could actually see steaming or whatever, my other point was these events become self-revealing. And that, as well, needs to be taken into account in the human error review of these kinds of events. I'm not calling this a success by any means; but, I'm saying it's an event that proves a point, that you need to model these things and model them correctly.

COMMISSIONER MERRIFIELD: Well, I think clearly, the Brown's Ferry example provides a whole variety of lessons to be learned and ones that we should certainly keep cognizant of.

In my previous set of questions to the staff, I talked a little bit about the balance, the triage that we've had to go through relative to cask issues. Given the fact that we do have limited resources -- our staff is down 600

from 1993, we have the lowest budget available to us on an inflation adjusted basis for many, many, years -- do you agree with the staff's approach to giving higher priority to meeting the cask certification issues for operating reactors, or do you give a higher priority to resolving the technical issues associated with a limited number of certification issues?

MR. MEISNER: I guess I -- I'll give you my personal opinion. I think either approach is wrong and doesn't get at the root cause of what the problem is here, and that's this cumbersome process. It seems to me that we can put in new fuel designs in operating facilities and deal with those changes either under 50.59 or license amendment process. We surely should be able to deal with the -- use those same kind of well understood processes in dealing with cask. I, personally, don't see that there's a need for this rulemaking process, that using a 50.59 and 50.90 process provides all the input for the public. It follows well known licensing change processes that we all grew up in with operating facilities. I think the approach is fundamentally wrong. If we invested some resources today, those scarce resources into changing the process, and making it scrutable and easy to deal with, then I think most of the other resources problems would go away.

COMMISSIONER MERRIFIELD: Fair comment. My last

question, very briefly, Ms. Hendricks, you talked very quickly through your bandaids issue and the $10 billion figure and, frankly, you went a little too fast for my blood. What did you mean by all of that?

MS. HENDRICKS: The bandaids I was referring to was not resolving the generic issues up front; in other words, not establishing -- by not establishing criteria and methodology for going to high burnup, you are, in essence, saying, well, we can't deal with high burnup. The bandaid is can it; put it in a -- can the bundle and assume that it's going to fail, instead of having criteria and

methodology, by which you can demonstrate, given the characteristics of your fuel cladding, the material, the thickness, etc., that it won't, in fact, fail.

The $10 billion comes from a different issue, although it would certainly add to that sum, and that's the burnup credit issue. Without burnup credit, you are essentially assuming a fresh fuel assumption design of these casks. Obviously, that's a very inefficient assumption, because, in fact, there's significant burnup. That's why, you know, you put the fuel in the reactor, to get the heat potential by burning it up. And there's an incredible penalty there, in terms of cost.

COMMISSIONER MERRIFIELD: Who did that cost analysis?

MS. HENDRICKS: DOE.

COMMISSIONER MERRIFIELD: DOE. And they made a cost analysis that our current rational would result in an extra expense of $10 billion for the cost of the cask, over and above what it should be, if we took full credit for fuel burnup?

MS. HENDRICKS: Exactly.

COMMISSIONER MERRIFIELD: That's the point?

MS. HENDRICKS: Exactly.

MR. MEISNER: Can I add just real quickly to that? That with burnup credit -- now, we can load about 24 assemblies into a cask. With burnup credit, we can put 36 in there; so, a 50 percent increase, or look at it another way, a significant decrease in the number of casks that need to be purchased to encapsulate that fuel. It's, also, worthwhile to point out that that's, also, a significant decrease in the number of casks that have to be transported and that in the current environment, the probability of criticality in those casks is now overshadowed by the probability of transportation accidents -- not nuclear accidents, just the road accidents. So that the -- it appears that the staff is in the uncomfortable position of fostering a more risky approach by not giving burnup and by having more trucks out on the road.

MR. BLANCH: Sounds like you agree with my

criticality issue, then, Mike.

MR. MEISNER: I do.

COMMISSIONER MERRIFIELD: Thank you.

COMMISSIONER McGAFFIGAN: Can I just do one --

COMMISSIONER MESERVE: Very quick one; one short question.

COMMISSIONER McGAFFIGAN: One short question. Now, which one will it be. Why didn't you comment on the August staff study? Is the Aaron Report your comment? I mean, that's sort of two ships crossing in the night. This is on the human reliability issue. I said I was going to ask it and I forgot.

MR. MEISNER: Well, the Aaron is pretty much -- the Aaron Report is pretty much our comment. We saw the staff study as kind of instructions to their contractors and, frankly, I -- it wasn't apparent to me that it was out for public comment.

COMMISSIONER McGAFFIGAN: I have read it and it's pretty clear, you get to the second page, that it is. And so if there are comments, it probably isn't too late, given that we're still working on this process.

MS. HENDRICKS: The difficulty with human

reliability analysis is it's very subjective -- somewhat subjective and qualitative. So the approach that they laid out to look at it is fine, but it very much comes down to

the inputs and there was really nothing to comment on. I mean, it was --

COMMISSIONER McGAFFIGAN: The other thing, Mr. Chairman, I'd say is we may want a separate briefing someday on spent fuel pool issues, because, we're mixing -- they are related -- they're very much related to decommissioning, but they're, also, related to a lot of other things, and we just touched on them today.

COMMISSIONER MESERVE: I'd like to thank everyone, both staff and the panel that's here. This has been very helpful and informative. Commissioner Diaz did ask me to apologize to everyone. He had another commitment that required him to leave at 3:30 and he apologize for his departure.

With that, we are adjourned.

[Whereupon, at 4:15 p.m, the briefing was concluded.]

O: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield

December 2, 1999

Original signed by

FROM: William D. Travers
Executive Director for Operations

SUBJECT: CLARIFICATION OF COMMENTS MADE AT THE NOVEMBER 8, 1999, COMMISSION MEETING REGARDING REACTOR DECOMMISSIONING RULEMAKING

This memorandum provides additional information regarding Commissioner McGaffigan's question on backfit implications of new decommissioning regulations. In response to his question, the staff speculated that a possible outcome of the new integrated decommissioning rulemaking effort may afford a licensee a choice to implement revised regulations with some additional regulatory requirements not currently imposed by 10 CFR Part 50 or to follow the existing rules and seek plant-specific relief through license amendments or exemptions. We wish to clarify that the staff's position on backfit for new decommissioning regulations has not yet been determined. As the staff proceeds with the decommissioning regulatory improvement effort, we believe it would be premature to state that any additional requirements will be imposed on licensees during the decommissioning process. After the technical basis for regulatory decisionmaking for decommissioning is completed, the staff will develop proposed rules and will endeavor to reduce unnecessary regulatory burden as long as adequate protection to the public is maintained. When the entire scope of risks associated with decommissioning spent fuel pool accidents is well understood, we will be in a better position to evaluate what regulatory relief may be appropriate.

Thus, at this time our regulatory options remain open. We will continue to engage stakeholders in our deliberations and keep them informed of any regulatory implications resulting from our technical studies. We will make our recommendations to you on the regulatory options in our integrated decommissioning rulemaking plan to be submitted in May 2000.

cc: SECY
OGC
OCA

OPA
CFO
CIO

CONTACT: Bill Huffman, NRR/DLPM/PDIV-D
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