ORIGINAL

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON PART 50
DECOMMISSIONING ISSUES
PUBLIC MEETING

Location: Rockville, Maryland

Date: Wednesday, March 17, 1999

Pages: 1 - 93

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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OFFICE OF THE SECRETARY

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BRIEFING ON PART 50 DECOMMISSIONING ISSUES

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PUBLIC MEETING

One White Flint North
Room 1F-16
11555 Rockville Pike
Rockville, Maryland
Wednesday, March 17, 1999

The Commission met, pursuant to notice, at 1:40 p.m., the Honorable SHIRLEY A. JACKSON, Chairman of the Commission, presiding.

COMMISSIONER'S PRESENT:

EDWARD MCGAFFIGAN, JR., Commissioner
NILS J. DIAZ, Commissioner
GRETA J. DICUS, Commissioner
JEFFREY S. MERRIFIELD, Commissioner

STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

KAREN D. CYR, GENERAL COUNSEL

ANNETTE L. VIETTI-COOK, SECRETARY

WILLIAM TRAVERS, EDO

CARL PAPERIELLO, NMSS

JOHN ZWOLINSKI, NRR

STUART RICHARDS, NRR

JOHN GREEVES, NMSS

GARY HOLAHAN, NRR

BRIAN SHERON, NRR

SAM COLLINS, NRR

SY WEISS, NRR

FRANK MIRAGLIA, NRR

LARRY CHANDLER, OGC

DICK ROSANO, NRR

P R O C E E D I N G S

[1:40 p.m.]

CHAIRMAN JACKSON: Good afternoon, ladies and gentlemen.

The purpose of today's Commissioner meeting is to discuss issues associated with decommissioning nuclear power plants under 10 CFR Part 50. The Commission will be briefed by members of the NRC staff, followed by representatives from the Nuclear Energy Institute, including a representative from a licensee undergoing decommissioning.

The overall objective of the agency in this area is to establish a safe, complete, and predictable Part 50 decommissioning program.

The decommissioning program has received increased attention recently and new questions have been raised. In this regard, the Commission welcomes the NRC staff and NEI to discuss areas that are working well and recommendations for improvement. Remember, I always like straw men.

There has been recent progress in the decommissioning program, including rule-making activities relating to license termination, decommissioning funding assurance, emergency preparedness, and financial protection.

In addition, the Commission recently concluded that back-fit provisions should be applied to decommissioning plans and has approved a staff plan to

undertake rule-making in this area.

In the interim, the Commission directed the staff to apply existing back-fit provisions informally to decommissioning plans. The Commission is interested in feedback from the staff and NEI as to whether these improvements to the decommissioning program have begun to have their desired effect.

In addition, in areas where they have not met expectations, we would like to hear your views on planned or proposed remedies. I understand that copies of the briefing materials are available at the entrances to the room. So unless my colleagues have any comments they wish to make, Dr. Travers.

DR. TRAVERS: Thank you, Chairman Jackson. And I should say top of the afternoon to you today.

CHAIRMAN JACKSON: That's right.

DR. TRAVERS: I can't say top of the morning. Today, the staff, as you've indicated, will discuss the status of power reactor decommissioning activities. All of the things you mentioned we expect to cover, including lessons learned to date and staff plans for moving forward with several rule-makings.

Our decommissioning program for reactors is administered by the Office of Nuclear Reactor Regulation and the Office of Nuclear Materials Safety and Safeguards. NRR

is responsible for the front-end of the reactor decommissioning process; that is, from the point of permanent shutdown until the spent fuel is removed from the spent fuel pool.

At this point, decommissioning reactors are transferred to NMSS for the back-end of the oversight process, including the determination of when the site has been cleaned up sufficiently to allow termination of the license.

NMSS also has the overall program management responsibility for both reactor and materials safe decommissioning to ensure that both programs have consistent requirements and are properly integrated.

You mentioned that we do have a full crew of staff representatives today. Let me introduce them to you for a moment. Carl Paperiello, of course, is Director of the Office of Nuclear Materials Safety and Safeguards and John Greeves is the Director of the Division of Waste Management at NMSS.

Brian Sheron is the Associate Director for Project Licensing and Technical Analysis in the Office of Nuclear Reactor Regulation. John Zwolinski is the Director of the Division of Licensing Project Management, NRR. Stu Richards is the Project Director for Project Directorate 4 in Decommissioning. And Dr. Sy Weiss is the Chief of the

Non-Power Reactor and Decommissioning Project Directorate in NRR.

Now, I'd like to turn it over to John Zwolinski to begin our briefing.

MR. ZWOLINSKI: Good afternoon.

CHAIRMAN JACKSON: Good afternoon.

MR. ZWOLINSKI: As you're aware, the Office of Nuclear Reactor Regulation is about to implement a major reorganization. Decommissioning activities, such as rule-making and licensing actions, have been assigned to the project staff. In short, there is essentially an entire new management team attempting to come up to speed rapidly to address decommissioning issues, moving forward.

Based on discussions with the former management team, my senior management, including Mr. Collins, it appears that our staff has been working very hard on a number of initiatives related to decommissioning of reactors.

However, I note comments from industry and views of my management which suggest it would be prudent to slow our efforts for a short period while the new management team ensures activities in the decommissioning area are fully integrated. This will result in the development of an overall game plan, including schedules for all NRR-sponsored activities. It would be the staff's intention to ensure

that stakeholders' views be considered in our future efforts.

Having chaired the back-fit review panel on concerns raised by Maine Yankee regarding the staff's review criteria -- in particular, a postulated zircalloy fire -- it seems prudent to ensure this criteria is indeed the correct criteria to continue to rely upon, or, using a risk-informed reasonableness test, recommend an alternative.

Clearly, this criteria is the major area of contention between the industry and the staff.

Further, I feel it's important to note the reduction in overall risk of plants in the decommissioning phase of operation. In going forward, I feel we must ensure the staff remains sensitive to our four key outcome goals; that is, maintain reactor safety, reduce unnecessary regulatory burden, address public confidence, and work effectively and efficiently.

I believe using these filters to focus and embrace these outcome goals will allow the staff to make decommissioning a more efficient and predictable activity.

Our briefing today provides some background on efforts underway and begins to provide some of our thinking in going forward. Of note, as Dr. Travers alluded, John Greeves from NMSS is the program manager for decommissioning and NRR is committed to work with NMSS in its oversight

role.

Tom King, of Research, also has an important role to play. NRR will also work closely with Research.

With that as a brief overview, I'd ask Stu to pick up the presentation.

CHAIRMAN JACKSON: Before he goes, I'd note that the Commission -- you recently transmitted SECY 99-035 to the Commission, the status of the decommissioning program and site decommissioning management plan sites to the Commission.

But the paper only provides a summary of NMSS decommissioning and related activities. Do you see any benefits in providing a coordinated report that there's an assessment of the status of both NMSS and NRR decommissioning activities to provide more of an agency overall perspective?

I mean, I think that would be helpful. It also helps in terms of understanding the extent to which everybody is reading from the same page in terms of an appropriate risk-informed approach.

In addition, there are parts of at least off-loading fuel and fuel storage on site or in ISFSIs, where there is a crossover between the Part 50 side of the house, so to speak, and Part 72.

I think that having such a coordinated report

would allow both you, as well as the Commission to begin to develop that coherent point of view. Does that seem to make sense?

DR. TRAVERS: Yes, Chairman. We could certainly look to do that and it would be an appropriate follow-on for some of the other pieces of information you've been receiving in terms of some of the rule-making plans that we've been sending up and so forth.

So I think that's something we'd certainly look to do.

COMMISSIONER McGAFFIGAN: Madam Chairman, we did get, last year, SECY 98-258, a very good paper on what was then planned in the way of the huge volume of NRR-related activity, coordinated with Research, because I see Cheryl Trottier's name on the paper.

I think with what Mr. Zwolinski was just saying, NRR has, I think, a bigger job at the moment of getting some coherent --

CHAIRMAN JACKSON: No one has made an issue about that. You notice I didn't say do it a month from now. I'm saying that the next time you send up a full-blown report, which presumably will be after you've had a chance to have your reorganization settle in, and I believe it is a useful thing to have a coordinated report.

MR. ZWOLINSKI: We do send a paper up every six

months on the decommissioning reactors.

CHAIRMAN JACKSON: You all work it out.

MR. RICHARDS: Good afternoon. I'm Stu Richards. If we could have the first slide, please.

This is a overview of what we intend to cover today. I think John has already talked about the fact of the reorganization of NRR. There's new people involved in the decommissioning area. I'd like to talk briefly about the staff's views on the safety and risk issues associated with decommissioning. We'll talk a little bit about the licensing and rule-making.

As you already noted, the SECY 98-258 covered that in some detail. We'd like to talk more specifically on our future actions, where we think we're headed.

Next slide, please.

The staff recognizes that when a reactor enters the decommissioning phase, the risk associated with operation at power is eliminated and that the primary radiological risk remaining is associated with the storage of spent fuel.

Additionally, the risk related to spent fuel then further decreases over time due to decay. Risk is also reduced as radioactive materials are removed from the site.

For the purposes of reduction of regulatory requirements at a decommissioned reactor, a key point in

time is when it can be agreed that accident scenarios involving the spent fuel cannot result in an off-site dose in excess of EPA protective action guidelines.

CHAIRMAN JACKSON: Let me ask you a quick question. Do you have some ability to go beyond a qualitative assessment of risk to quantify the changes in vulnerabilities during decommissioning? I mean, is this an area where risk assessment methodologies might have a role in a PRA or something like that?

MR. RICHARDS: John already mentioned that the cornerstone here is the zircalloy fire.

CHAIRMAN JACKSON: Right.

MR. RICHARDS: I'm certainly not an expert on the zircalloy fire, although I've been reading a lot about it in the last two weeks. But one of the issues that is clear is that the studies that have been done in the past have a great deal of uncertainty associated with them and then, furthermore, it depends quite a bit on the site-specifics.

There's a number of factors; the burn-up of the fuel, the enrichment, the ventilation of the building and whether it's high density.

CHAIRMAN JACKSON: I understand what you're saying precisely. I guess really what I'm asking is whether there is whether there is some overall coherent risk assessment-based approach or methodology that could be

usefully applied. The results of the new PRAs, the results are going to fall out differently on a site-specific basis, but you have a consistent approach to assessing the risk in a probabilistic way and it just strikes me that -- you know, I don't know what my friend Commissioner Diaz thinks, but there is an opportunity here to try to develop some overall coherence.

Because much of what we do in the decommissioning area is often influenced by public concern and public outcry rather than simply considering the risk posed to workers or to members of the public. And so the issue is in looking at the filters that Mr. Zwolinski mentioned, you have the one of maintaining safety at all times, but you have one having to do with effectiveness and efficiency and reducing unnecessary burden and public confidence.

But the only way you're going to balance that, keeping your primary focus on maintaining safety, is to have some coherent approach that allows you to really talk about risk and relative risk in a calm way, and that's all I'm really trying to get at.

MR. RICHARDS: I think we'll address that later on, but our intention is to integrate various activities in this area and factor risk into that.

MR. SHERON: Chairman Jackson, we have an integrated program that's already started. What we are

doing is engaging not only our thermal hydraulic people in terms of doing calculations, understanding better the nature of the zircalloy fire, we also have our fire protection engineers looking at the whole issue of what is a zircalloy fire, what does it mean, how does it compare to other kinds of fires, what are the combustion products, how do they behave.

We also have the risk staff, the PRA staff engaged in looking at the overall risk associated with how one arrives at a situation where you actually can get to conditions for, say, a zircalloy fire, whether or not that probability is acceptably low and to what extent you need to consider probability when looking at what the requirements are.

The whole plan is to have this all come together in about two months time and hopefully we will have this integrated approach which takes into account balance of maintaining safety, reducing unnecessary burden, looking at risk-informed approaches for this, and come up with a recommended approach for dealing with the whole issue of a zircalloy fire.

CHAIRMAN JACKSON: I guess what I'm really basically saying is that the risk-informed approach and, to the greatest extent you can, using risk assessment methodologies, is a method of maintaining safety, becoming

more efficient and effective, reducing unnecessary regulatory burden, and maintaining public confidence. So that's why I'm pressing you on the issue.

DR. TRAVERS: And you're right, that's just the direction we're heading and we're going to talk about that a little bit further.

CHAIRMAN JACKSON: Okay.

COMMISSIONER DIAZ: If I may.

CHAIRMAN JACKSON: Yes.

COMMISSIONER DIAZ: In the same vein, your last bullet, significant risk reduction when dose consequences within EPA protective action guidelines, I'm trying to put that in this overall context. Could you tell me what -- how this fits? Because I don't know. I really think -- you know, it comes at me like an issue that it's has to be dealt with separately, but are we integrating it?

How do we deal with this bullet, significant risk reduction, when we consider EPA's action guidelines?

MR. RICHARDS: Well, I think it really applies to how we treat the licensees with regard to regulatory relief. As the plant shuts down and the fuel decays, of course, the risk decays likewise. But the licensing actions that we go through tend to occur in somewhat of a step-wise function. I think as we get into discussion a little further, you'll see that, again, the cornerstone has been, for some of the

earlier big ticket items, the zirc fire, if you postulate a zirc fire in the fuel, you can get off-site releases that require you to have an ET plan.

COMMISSIONER DIAZ: But, again, building on the Chairman's, there must be intercepts in here on a risk-informed approach to what these guidelines are and that's what I don't see.

Are we connecting them or there's just a separate step-by-step EPA creates relief when the radioactivity decay is beyond a certain point? Is that something that we just look at it as a fact or is it part of a larger scheme of things? That's what I'm trying to ask.

MR. RICHARDS: Well, I think, in the future, as Brian Sheron discussed, we're going to try and look at the larger picture and factor into it the risk and see if what we've been basing our decisions on up to this point, it is the right way to do business. It may or may not.

All right. The next slide, please.

In recognition of the risk reductions, the staff has worked with decommissioning licensees to reduce unnecessary regulatory burden in the areas of staffing reductions, quality assurance, maintenance programs, emergency planning, safeguards and financial protection.

Some of these requirements are reduced by exemptions, such as emergency planning and staffing, while

others are addressed in Part 50 and allow prompt reductions. Examples include the maintenance rule, ATWS, the pressurized thermal shock, the EQ rule, and fire protection.

Next slide, please.

COMMISSIONER MERRIFIELD: Madam Chairman.

CHAIRMAN JACKSON: Please.

COMMISSIONER MERRIFIELD: As I was reading this slide, here we're dealing with basically technical -- some of the significant things relate to technical specifications, as well as limitations or exemptions associated with emergency planning.

Are you confident that you've got the guidance in place such that reviewers can, when they're confronted with different technical situations, that different technical reviewers are consistently evaluating the matters before them?

This is especially important, it seems to me, when you have issues of emergency responsiveness and preparedness, which, by its nature, goes beyond design basis events. In essence, is the scope of the review that we have clearly articulated and bounded in a staff guidance or standard review plan? So that there is some degree of consistency there.

MR. RICHARDS: My experience is limited to my background reading, but I don't think we're quite there yet,

although I think the decommissioning staff recognizes that that's a place we have to go. There are draft standard review plans in the works. There are, of course, the rule-makings, and all of these things, I think leading up to this time, are headed towards having a stronger framework.

Where we've been in the past, unfortunately, on some of these issues, they've been dealt with on a case-by-case basis as exemptions and it's not efficient and it runs the risk of having them treated differently over the years.

So, yes, we need to do better in that area. I think the staff recognizes that and that's where we're going to head.

COMMISSIONER MERRIFIELD: For me, I'm particularly concerned that we end up having arbitrary decisions that cause a great degree of variation from one licensee to the next, and I don't think that puts us in a good light.

MR. RICHARDS: We want to be predictable and if we're successful in laying down a good framework, it's going to make our job easier, too.

COMMISSIONER MERRIFIELD: Thank you.

CHAIRMAN JACKSON: This is more of a process issue. Is there anything that prohibits licensees from submitting decommissioning licensing actions while they're still operating, to avoid unnecessary delays?

MR. RICHARDSON: In fact, I'm aware that the staff has, in an outreach program, gone out to facilities who have advertised that they intend to shut down, to try and discuss those steps ahead of time, while they're still operating.

The next slide, please.

This slide portrays the status of various plants in the decommissioning phase. You should note that most facilities have already passed the point where spent fuel heat-up type events are not an issue with regard to off-site doses reaching the EPA protective action guidelines.

Additionally, with regard to Millstone, because it's a multi-unit site, there is really not much benefit to be gained there by a reduction of the EP plan because they already have an EP plan in place for the other two units.

Questions on this slide?

CHAIRMAN JACKSON: Better go ahead while you have a chance.

MR. RICHARDSON: This is one of my favorite slides.

CHAIRMAN JACKSON: Well, in that case. Going back to Commissioner Diaz's question on the EPA protective action guidelines. Where along this line?

MR. RICHARDSON: Limited spent fuel heat-up. When you get to that point, that's the point at which we determine that you can't get that off-site release and it

leads the way for some significant relief.

COMMISSIONER DIAZ: And now that this is your favorite.

MR. RICHARDSON: I'm going to learn from this.

COMMISSIONER DIAZ: It's a good figure, but I don't see the time set up in here, just some milestones. What are the times?

MR. RICHARDSON: The times, I think, are largely related to the utility and when they want to make the submittal.

COMMISSIONER DIAZ: Okay. But there must be a time in which you're limited spent fuel heat-up situation crosses the EPA, and that, of course, is the subject of the question on the zirc fire and so forth. That's correct?

MR. RICHARDSON: That's the 64 dollar -- 64,000 dollar question, I guess.

COMMISSIONER DIAZ: But anyhow, these are put in here by utilities, but from the standpoint of regulatory decision-making, there will be some times when you get this thing set up properly, we will see a time scale, not only the milestones.

MR. RICHARDSON: I'd have to stop short of saying we're going to be able to come back to the table and say 12 months or whatever the time is, because, again, sometimes you get into site-specific circumstances with the density of

the storage of fuel, the burn-up, those kind of factors.

COMMISSIONER McGAFFIGAN: Madam Chairman?

COMMISSIONER DIAZ: Two or three months differences?

CHAIRMAN JACKSON: I think it really does depend on several factors, but that, again, is part of my pressing you on how and whether you have some ability to kind of really model -- you know, have some approach to modeling where these crossovers may occur, modeling the risk basically.

MR. RICHARDSON: Yes.

CHAIRMAN JACKSON: It may come out differently on a site-specific basis, but you need to be able to do that in order to put things like the zircalloy fire within the right kind of context.

Commissioner McGaffigan.

COMMISSIONER McGAFFIGAN: Just to follow-up on that point. I think that's the point that Mr. Zwolinksi and Mr. Sheron have been making, that in some sense, this prior approach that we had was very deterministic and it was not risk-informed in the sense of calculating what's the probability of a seismic -- that the zirc clad fire issue comes up because you have to have a postulated drain-down of the spent fuel pool and then spontaneous combustion, as I understand it, in the cladding.

So you have to deal with the probability of spent fuel pool drain-down and that's the element I think that's going to risk-inform this process, is looking not just at the consequences, but is it ten-to-the-minus-six, ten-to-the-minus-eight, what is the probability of that --

CHAIRMAN JACKSON: Of the initiating event.

COMMISSIONER McGAFFIGAN: Of the initiating event. Because there's always, I suppose, some -- as long as you've got spent fuel sitting in a pool, it could be 20 years, it could be one of these places like SONGS-1 that's been shut down forever but if somebody went in there and got the pooled drained and then set off high explosives or something, I suppose they could get a pretty good event going. I don't know.

But they've still got a lot of activity left in that fuel. So the question is probabilities, I think.

MR. RICHARDSON: Next slide, please.

CHAIRMAN JACKSON: You asked for it.

MR. ZWOLINSKI: But the slide also depicts a run of NRR activities, as well as NMSS activities, and we're engaged for quite a long time and we're going to try to get after that a little bit better as far as our near-term activities.

MR. RICHARDSON: All right. Areas in which decommissioning licensees typically seek relatively early

relief from requirements include emergency preparedness, security, and insurance. Exemption requests in these areas have been generally site-specific and have been dealt with on a case-by-case basis.

In 1993, the staff initiated a first step to stop dealing with these issues on a case-by-case exemption basis. This step was SECY 93-127, which related to financial protection rule-making. Of particular note, SECY 93-127 established the zirc fire as a reasonably credible event from the staff's viewpoint.

The premise --

CHAIRMAN JACKSON: Is it still reasonably credible?

MR. RICHARDSON: Well, that's, I think, what we're going to take under review again. Up to this point, the staff has been doing reviews on that basis.

CHAIRMAN JACKSON: You know, the reason it's an important one is that, as I recall, they wouldn't appear -- I believe you indicated at the time that it was a seismic event or some design failure mode of a spent fuel pool that could lead to something like this.

One could reasonably ask if that's a credible event. Is it not credible for operating reactor, since they have fuel stored? And so it's important to answer the question in the overall probabilistic sense, because it has

implications, I would claim, not just for decommissioning plants, but for operating plants, anytime you have the fuel stored.

I think that was a point, in a sense, that Commissioner McGaffigan was alluding to, that anytime we have it --

COMMISSIONER MERRIFIELD: Madam Chairman?

CHAIRMAN JACKSON: Yes, please. Good, participatory meeting.

MR. MIRAGLIA: With respect to the credibility event for operating plants, that issue did come up in the mid '80s, I believe, and it was looked at in a generic way and also a plant-specific way, and the event of that fire was bounded by the other accidents that were looked at in terms of the environmental --

CHAIRMAN JACKSON: So that's why you didn't lift it out.

MR. MIRAGLIA: In terms of safety. And so it didn't --

CHAIRMAN JACKSON: You didn't lift it out.

MR. MIRAGLIA: Didn't come as a significant contributor and the emergency plans and everything else was in place.

So that was looked at in that context in about the mid '80s.

CHAIRMAN JACKSON: And I appreciate the point you're making in terms of where the probabilities of some event with potential great consequence for the public and something -- one thing swamping another, but there's still a fact that we get pressed from time to time on the whole spent fuel pool issue.

MR. MIRAGLIA: I understand.

CHAIRMAN JACKSON: And so the one thing still is bounding for that part. So it's just -- it's almost like a parenthetical remark, but it's --

MR. MIRAGLIA: And if I could add, in the context of the paper that Stu just mentioned, in terms of financial protection, it was looked at and in the context of developing what model should be used to get relief from indemnity requirements, the reasonably credible is tied to the Price Andersen type language and the actions described indicated that it would take a seismic event and that this was probably still very low probability.

But in that context, that was a reasonable place to start and I think what we've shown in terms of where we've been in trying to implement that, it deserves a re-look and that's what the staff is engaging in right now.

CHAIRMAN JACKSON: Thank you.

COMMISSIONER McGAFFIGAN: This is a question that maybe is really for the second panel. But when we did that

paper in '93, was this issue highlighted and did you get any immediate feedback from the industry at that time saying there might be a problem here or was decommissioning so distant an issue at that point that there wasn't a lot of attention paid to the paper?

MR. WEISS: We didn't receive any industry comments on that. There was an SRM that came back down from the Commission to do that effort, to determine what the temperature and the time should be.

DR. TRAVERS: But the issue of a zirc fire, as Frank just mentioned, is reasonably credible in the context of Price Andersen requirements, was highlighted in the paper, and it was really the basis upon which the Commission SRM was written. The option that was proposed and ultimately accepted included that as the driving function for reducing ultimately -- I think it's the secondary indemnity requirements in some cases.

COMMISSIONER McGAFFIGAN: Right, the Price Andersen.

DR. TRAVERS: Price Andersen.

CHAIRMAN JACKSON: Commissioner Merrifield.

COMMISSIONER MERRIFIELD: Going back to 1993, that was also at the point where the Commission directed the staff to develop an analysis for the appropriate cooling off period for a zirconium fire. Subsequently, Brookhaven did a

report, which I think was in 1997, which came up with some separate analysis for PWR and BWR cooling off periods.

We are now in 1999, where are we as a Commission in our analysis of the Brookhaven model and when are we to expect a final determination on where we are going to be going with that issue that we've been searching out since 1993?

MR. SHERON: I'll try and answer that. As I said before, we have this integrated study going on. One part of that study is to do thermal hydraulic analyses of the spent fuel pool using what we believe is a more advanced thermal hydraulic model than what Brookhaven used.

My understanding of the Brookhaven model is they sort of instantaneously assumed all of the water was lost in the pool and then the fuel would heat up and there was no consideration, for example, of how one would lose the water.

For example, if you only lose the water by a seismic event, I think as the Chairman said, that's a very, very low probability event, for example, then perhaps the way you do it is through losing cooling and then it's a slow boil-off, then you have to look at the heat transfer mechanisms because now you would have steam cooling, as well as radiation effects, and you would have a much longer time to find replenishment water.

So, again, one has to look at the whole integrated

effect, both the thermal hydraulics, from a more advanced standpoint, as well as the actual sequences and relative probabilities, and that's what we're doing now and hopefully in about two months we will have sort of recommendation.

But I think to answer your question specifically, we're doing a more sophisticated analysis than we believe what Brookhaven had done in 1996.

COMMISSIONER MERRIFIELD: I think that's positive and the reason this raises a question for me is, obviously, as a Commission, we should never short-change our commitment to safety and ultimately we want to make sure that we come up with the right numbers and the right analysis at the same time.

There are -- I'm a New Hampshire Yankee, not a Maine Yankee, but there are facilities out there where this makes real dollars. These are non-operating plants. Ultimately, the cost of that is going to be passed off to consumers.

And I think we shouldn't lose sight of that as we're going about the process of making sure we make the right determination.

COMMISSIONER DIAZ: You just said something that is very interesting to me, which is how you remove heat from this fuel element and, of course, there is always a tendency of just looking at convection. But in reality, there are

many ways in which you would lose heat and, of course, you've got to remember that for some years, the only thing I had to cool fuel elements I was working with was radiation.

Radiation is a great equalizer. You can have fuel element very, very, very cool in here and one very, very, very hot in here. They might already irradiated into each other. What they do is actually they share the heat and the masses get combined and you -- is our analysis taking into consideration the fact that in this pool, even if you have fuel elements that have only been out three months, another has been out five years, that there is a tendency to average temperatures when you are in a certain confined environment and you have a little bit of conduction, a lot of convection, and a little bit of radiation as the temperature goes up.

MR. SHERON: I don't know. Is Gary --

MR. WEISS: I think it is. Some of the licensees have gone to a checkerboard array in loading spent fuel pool, so they'll have the hot assemblies surrounded by the cool assemblies.

MR. HOLAHAN: This is Gary Holahan, of the staff. My recollection of the method used by Brookhaven, I don't recall it including radiative heat transfer. I think it was probably assumed to be minimal in a tightly packed assembly, in a closed box. So I think that's just an example of one

of the things, one of the assumptions that we want to go back and re-look at.

COMMISSIONER DIAZ: Because if it gets hot enough to get a fire, it gets hot enough to radiate.

MR. HOLAHAN: Yes. And I think one --

COMMISSIONER DIAZ: A little bit.

MR. HOLAHAN: One of the things we're interested in, of course, these are closed boxes and so radiation to the --

COMMISSIONER DIAZ: They radiate into each other, but the temperature gets more uniform and distributed, yes. It doesn't radiate out a lot. It radiates inside.

MR. SHERON: If you're not busy for the next two months, we could do that.

MR. RICHARDSON: The point of this slide is that the staff's use of the zirc fire originated somewhat with the paper and that has had impact on exemption requests in EP and insurance and, to some extent, security.

Those three areas, as has been mentioned, involve some significant costs to the utility and that's one of the reasons we want to look at that so hard.

Next slide, please.

CHAIRMAN JACKSON: Let me -- never mind.

MR. RICHARDSON: Based on the staff's experience to date and based on industry comments, the site-specific

analysis needed to demonstrate that a zirc fire cannot occur are time-consuming to perform and time-consuming for the staff to review.

Additionally, dealing with issues on an individual exception basis precludes the degree of regulatory predictability that we desire, hence the need to look into this area.

Next slide, please.

COMMISSIONER DICUS: Madam Chairman.

CHAIRMAN JACKSON: Please.

CHAIRMAN DICUS: Before he removes that slide. It's my understanding that the staff performed what was called a simplified heat-up analysis of the Maine Yankee spent fuel pool in order to expedite their exemption approval process. I guess that leads me to ask perhaps three questions.

First of all, is my understanding correct? Then if it is, if this could be done for Maine Yankee, is it possible for the staff to develop some sort of generic methodology for verifying the results of licensees' analyses or provide an NRC-approved methodology to licensees to perform such analyses?

And if my understanding is correct, why couldn't Maine Yankee use a simplified method for these analyses?

MR. WEISS: What the staff did was do an adiabatic

heat-up calculation of the fuel assembly and that assumed no heat left the fuel assembly and we calculated -- the staff calculated that it would be ten hours before this particular assembly would reach the temperature at which we'd have to worry about the zirc fire.

We also looked at this ten-hour period as providing enough time to evacuate people, if that was necessary, and that was the reason -- the justification for approving Maine Yankee's exemption.

CHAIRMAN JACKSON: Let me ask -- do you want to continue on this?

MR. SHERON: On the second part of your question about could we provide any kind of, say, a model, what I'm hopeful is that when we finish this integrated study that I described, that could lead to a number of possibilities. One might be, for example, if a licensee, for example, could demonstrate the ruggednesss, the seismic ruggedness of their spent fuel pool, as well as, say, an ability to provide some sort of makeup water at some certain time, for example, if you had lost cooling, for example, because we may be able to demonstrate, from a risk standpoint.

Otherwise, there may be ways to come up with a simplified method to do some sort of a heat-up analysis, but hopefully this is what this whole integrated study will flesh out for us.

COMMISSIONER DICUS: And that goes back, I think, to Commissioner McGaffigan's point that he raised first about probability of initiating event occurring in the first place.

MR. SHERON: Yes.

MR. ZWOLINSKI: Commissioner Dicus, in going forward, we may be able to get to the point where we would even suggest a rule-making in which there would be dates certain and the staff would get out of the day-to-day reviews of exemptions and amendments.

So I'm not sure where our next couple or three months are headed. We are putting a lot of energy into this activity that will forge a pathway to the future and it may indeed be in the area of rule-making over a case-by-case exemption, for example.

So that's the more integrated view and it would be presumptuous to get out in front of that.

COMMISSIONER McGAFFIGAN: Madam Chairman, I'm sort of excited about the integrated approach that the staff is proposing, because I think there is a real opportunity. You know, there is a mass of activity that needs to be done. That was documented in last year's SECY paper. But that the opportunity here in the decommissioning area is that we're really laying down a framework for the first time.

So all the things we talk about when we have

risk-informed Part 50 meetings about all the handcuffs that are on us aren't really there as much, I don't think, and a risk-informed decommissioning rule that might encompass many of these rules that were contemplated could be a real opportunity.

It's a result that I fondly hope for, although I know it's not guaranteed in the next to or three month study.

CHAIRMAN JACKSON: Talking about a risk-informed rule and believing you have to be comprehensive, you made the point earlier on that the risk associated with fuel storage justifies changes in emergency planning, on-site/off-site insurance, safeguards.

How do the assumptions regarding emergency planning relate to a seismic event? This is for my edification. In other words, given a seismic event and the collateral damage to the community, loss of power, communications, emergency sirens, damages to highways and byways, is the emergency plan and how you fold risk into it designed to accommodate all of this collateral effect in the event of a seismic initiator?

MR. ZWOLINSKI: Going back to the basics, the emergency plan is essentially developed for beyond design basis accidents. So once we get beyond design basis, you're talking events such as perhaps a zircalloy fire or the

collapse of the spent fuel pool or other events, and then our exercises that we run are essentially predicated on events that would have off-site releases.

CHAIRMAN JACKSON: I understand that, but you specifically relate to the risks associated with fuel storage justifying changes in emergency planning. If you get to beyond design basis and you, in fact, do have the potential for off-site release and if the initiator of that design basis -- beyond design basis event were a seismic event, which, if it's strong enough to cause some destruction of the spent fuel pool and catastrophic drain-down of it, presumably there is collateral damage.

MR. ZWOLINSKI: Throughout the entire area.

CHAIRMAN JACKSON: Correct. And so the question is do you then -- is that folded into how emergency planning is addressed.

MR. RICHARDSON: The question is, is there emergency planning organization left to respond with that kind of a seismic event.

CHAIRMAN JACKSON: Well, no. It's an important point. It relates to how you do the planning.

MS. CYR: The Commission -- if I could ask Larry to address it, because the Commission specifically addressed this in the licensing with respect to Diablo Canyon.

MR. CHANDLER: It was addressed in the mid '80s in

the Diablo Canyon proceeding and the Commission, as I recall, ruled that separate consideration of earthquakes in the context of emergency planning was not required under the Commission's regulations.

CHAIRMAN JACKSON: So, in fact, then there is no specific consideration of collateral damage.

DR. TRAVERS: There is not, but fundamentally, by its very nature, the kind of planning that does take place in connection with being prepared to respond to a radiological event in a nuclear power plant, communications and ability to transmit information and provide state and local planners with the tools, I think, are ones that we recognize as steps that would put them in a better position, regardless of the extent of the collateral damage that could take place.

We don't specifically, as Larry pointed out, incorporate or require in the plans a consideration of that, but I think there's a recognition that the kinds of planning that would be done or is done in connection with preparing for these events would put you in better stead.

CHAIRMAN JACKSON: We should go on.

MR. RICHARDSON: Next slide, please.

As described in SECY 98-258, there are a number of rule-makings and other regulatory actions underway in the decommissioning area. With the reorganization now occurring

in NRR and with a different set of managers taking responsibility for decommissioning, we feel this is an appropriate point to step back, take a fresh look at the work accomplished to date, gather input from our stakeholders, and then ensure that we are headed for an end point that integrates the solutions to the issues before us.

To the degree possible, we intend to use risk-informed approach. We intend to establish a working group to accomplish this task and to provide a framework for future activities. And as we've discussed, we specifically intend to consider the role of the zirc fire in the production requirements.

CHAIRMAN JACKSON: You mentioned that your output is plan and schedule. What is your outcome?

MR. RICHARDSON: Hopefully, our outcome is a predictable licensing business that ensures safety, while reducing the burden on the utilities.

CHAIRMAN JACKSON: I'm just trying to make you fold it back together. Mr. Zwolinski.

MR. ZWOLINSKI: It's a necessary.

CHAIRMAN JACKSON: We've talked about the four filters, and do the four filters come back relative to this outcome to be your four metrics?

MR. RICHARDSON: Well, I think that's what's driving us to our end product is those four filters.

COMMISSIONER MERRIFIELD: Madam Chairman, talking about going forward, I want to reverse just a little bit and talk about circling back around to it.

I was reviewing -- in the process of getting ready for this, I was reviewing the Maine Yankee back-fit appeal panel results and it was a sentence in the summary that jumped out at me, said the most compelling observation was a lack of staff sensitivity to elapsed time in schedules confronting the Commission and nuclear power plants.

Now, I know that Dave Matthews, in a memorandum to Sam Collins, attempted to respond to that particular sentence and focusing primarily on the fact that the staff had been meeting NRR's one-year, two-year and three-year timeliness goals, and, in accordance with those figures, it had seemed to have done a fairly good job.

But they may have met the goals, but the question to me is are the goals the right goals.

So as you are a new management team, I'm wondering if you have considered at all going back and reassessing whether those timeliness goals are appropriate given the unique economic and scheduling pressures confronting decommissioning nuclear power plants.

MR. RICHARDSON: I think we've heard the message from the industry on that. We've had some meetings with the NEI working group. They've made it very clear that

immediately upon entering decommissioning, you're looking at costs being spent and, in some cases, they don't think they should have to spend.

I think the staff recognizes that, like we mentioned before, and in at least one case, we've gone out to an operating reactor planning to decommission and talked about getting the submittals headed in that direction.

The focus of our efforts is to establish a framework that will make it easier to work through and I think today we're much more sensitive to the costs involved and need to get on with it, but the staff has been trying to balance that with the need to serve our public with the safety issue.

COMMISSIONER DIAZ: The last two bullets seem to suggest that your comment was a plan that might be different than 98-258. And if that is so, is the Commission going to receive a revised plan before you get to your final details or this is just an amendment that can be folded in into 98-258?

It seems to me like we are going beyond 98-258 in many respects and I think what we might need to see is how far beyond 98-258 we have gone.

MR. RICHARDSON: I don't think we can answer that yet. I think that that paper was a good paper. It demonstrates a lot of the good work that's been going on.

This is just an opportunity for us to make sure that those actions are being integrated and they're headed towards the final product or at least where we want to go at this time.

Whether we need fine-tuning or major surgery, I don't think we're prepared to tell you right now.

COMMISSIONER DIAZ: But you will be aware of it and let us know as soon as you can.

MR. RICHARDSON: Yes, sir.

MR. SHERON: If I could just add to Mr. Merrifield's question. One thing we do have right now which we put in place just within the past two months is revised office letter 803, which describes the staff processes for processing license amendments, and one of the things we stressed in this new process, this revised process, is very early interaction with the licensees when they come in for any kind of a license amendment.

And one of the first things in this interaction process is to establish schedules. So the licensee will tell us right up front what their needs are, what their schedule is. We will assign a priority to it based on, again, through our four filters, and then hopefully, in interacting very early on with the licensee, we will make commitments on when we can produce the documents that they need. They will, in turn, make commitments on when they will respond, for example, to any questions that we have and

so forth.

But it will be a much more structured process, much more predictable, and everybody will know when things are going to happen.

COMMISSIONER MERRIFIELD: If I may just ask a follow-up. I know that all the folks in NRR and I know Sam Collins has been doing a terrific job of trying to reassess priorities and restructuring and working with Arthur Andersen. Have you given any thought to the notion of perhaps having some review that's targeted toward decommissioning?

I mean, there's a lot of -- we have folks at NRR who are doing a lot of projects, doing a lot of work. Is there any usefulness in having a subgroup within NRR that are targeted just on the decommissioning issues, so we can get some greater focus to that from the staff?

CHAIRMAN JACKSON: They are. That's part of their reorganization.

MR. SHERON: The decommissioning will be under Stu. He will basically be the accountable person, if you want to call it that.

Now, granted, he will be, as a project director, he will be responsible for overseeing the entire review process. From the standpoint of the technical staff that has to do certain parts of the review, there won't -- we

don't plan right now to have, for example, dedicated staff in the systems division or in the engineering division, but as --

COMMISSIONER MERRIFIELD: That's my question. So you don't have staff.

MR. SHERON: Not dedicated.

COMMISSIONER MERRIFIELD: Not dedicated staff. That was where my question was going.

MR. SHERON: But, again, as Bill just mentioned, we are moving towards a centralized work planning control and that, hopefully, will help us in identifying available resources that can be put on any decommissioning work and so forth.

CHAIRMAN JACKSON: In fact, let me, if I may. Sam, may I call on you to talk a little bit about that centralized work planning and control, so that you can provide some context for this discussion?

MR. COLLINS: Good afternoon, Chairman, Commissioners. Sam Collins, Director of NRR. I'd like to make two points. One is in regard to the specific question. We actually had talked about, in our planning processes, as well as a part of the organization, the benefits of having embedded or matrix staff.

The issue is not unique to decommissioning. It also applies to license renewal, it applies to improved

standard tech specs, and other programs that cut across the areas.

There are pros and cons that we have discussed internally and with Arthur Andersen and we may very well start a pilot, but we're not ready to commit in this area.

The pros and cons pivot on whether you can isolate staffs by assigning them within technical disciplines to a program area and, therefore, they don't interact with their peers, who are doing a light function in other program areas.

Then, of course, there are some benefits to that, as obviously prompted to your question, to having a specific dedicated source. So we have to weigh those, but we have talked about it and considered those areas.

The second point, prompted by the Chairman, having to do with the centralized planning process. Brian touched on this. Dr. Sheron mentioned that we believe that this will kind of bring together the attributes which will accomplish one of the goals that you have in mind, which is to be able to track work and to track products, whether it be by due dates or labor rates.

Specifically, this group will be able to integrate work products with assigned goals and although we're reaching toward the fall program, before this becomes a reality in the permanent context, we would have a template

for a work product. In this case, it would be a licensing action for decommissioning.

That template would be based on a process or procedure which is formalized, which has expectations, and has staff who are assigned to that type of a product.

A decommissioning licensing action by Maine Yankee would come into the centralized work area and it would be assigned to the staff at the staff level, coordinating with the branch, using this template and using these expectations, and then we would track that by labor rate and track that by due date.

So it manifests itself in a number of the attributes that a dedicated staff would be, but it provides for some oversight and flexibility as well as measuring and accountability that would be not unique to decommissioning.

COMMISSIONER McGAFFIGAN: Madam Chairman.

CHAIRMAN JACKSON: Please.

COMMISSIONER McGAFFIGAN: I'm pleased with what Mr. Sheron has said with regard to the priority that's going to be given to licensing, decommissioning licensing actions or exemptions.

I've read, as I did it as part of the CSS task force, the office letter in its current draft that you're talking with the industry about, the NEI and public meetings.

And it strikes me, there is still some ambiguity. Decommissioning is not particularly highlighted in there and it looked to me like a lot of decommissioning items might still be assigned priority three within the current system rather than getting priority two. They wouldn't deserve priority one.

So you might want to clarify, under that office letter, how you're going to handle decommissioning. I think what I interpret you as saying is that some of these may well be priority twos, based on the cost beneficial, or certainly at the top of priority three.

But I think you may want to clarify specifically in that guidance or in that office letter what the decommissioning is, because this is consistent with the SRM the Commission had last June 30th on SECY 98-075.

The other point I'd make in response to Commissioner Merrifield that Mr. Collins didn't make -- one problem with the centralized staff is that you have to have enough workload, and we have the staff at the moment on tech spec conversions that has more than doubled its productivity.

You know, I think we're all very proud of it, over the last year, done wondrous things, but then they're going to hit a lull late this year because people have decided to delay their applications, and they're going to get another

tidal wave of applications sometime in 2000, 2001, and it's hard to smooth out the workload, and then you pull people -- so, that's another con, I think, in terms of -- in license renewal, we know we have a growing workload, at least we hope we do.

In some other areas, the workload goes up and down and the matrix organization may fit better.

COMMISSIONER MERRIFIELD: There are pros and cons with each. I'm pleased to hear that's there's serious thought going into whether this should happen or not. I don't know what the best way is.

One of the other issues that's out there, however, is where you don't have a dedicated staff, you sort of run towards the priorities.

CHAIRMAN JACKSON: But that's the whole point of the whole planning that Sam and his folks have undertaken, coupled with these playoffs against which things warrant, and this may turn out to be one that warrants it, some more permanent structure, but I don't think it's something that the five of us sitting at this table are going to be able to do.

COMMISSIONER MERRIFIELD: Oh, no.

CHAIRMAN JACKSON: It's really more that they get the message both from us as well as from those licensees that are going to undergo decommissioning, you know, that it

has to get the attention that it gets, but I'm confident, particularly with their working with Arthur Andersen, that the methodologies that are being put into place with the kind of management attention that they're getting, you know, will allow them to wax and wane as they need to and/or put some more permanent structure into place if it's called for.

COMMISSIONER MERRIFIELD: I was attempting to respond to Commissioner McGaffigan. far be it for me to assert that the Commission should be micro-managing at that level. I agree that that would be inappropriate.

As long as they are looking at that and depending upon the preferred solution that they choose, as long as it's appropriately disciplined, I agree.

CHAIRMAN JACKSON: That's why I placed the question of what are your outcomes, because if they're focused on their outcomes, then, you know, as they say, you know, the rest will follow.

MR. RICHARDS: Next slide, please.

This slide highlights some of the rulemakings currently underway. I think we've touched on most of them up to this discussion. I'd like to note we have delayed the EP proposed rule and the financial protection final rule due dates to July of this year.

Security rulemaking SECY paper is presently before the Commission. Shift staffing and financial assurance

rulemakings are under development.

COMMISSIONER McGAFFIGAN: Madame Chairman, could I ask a question about the safeguards and security paper that's currently before the Commission?

When I read the paper, it was one of the things that helped precipitate this meeting, because it didn't address the zirc-clad fire issue at all. It basically asked us to make a decision with regard to whether that rulemaking should include a vehicle barrier system requirement or not. That's the issue before us.

Do you want us to vote on that paper, or do you want us to wait until we get this late-May integrated rulemaking approach and then vote on the vehicle barrier system issue then, or what is the staff's preference? What is the status of this paper, given everything else you've said to us today?

MR. RICHARDS: Commissioner, I think that we'd prefer that you go ahead and vote on it. We felt that, in the recommendation, there was enough latitude for the staff heads that we can work with that.

COMMISSIONER McGAFFIGAN: But you recognize the vote is strictly on whether you have a vehicle barrier system in the rulemaking; it's not on the timing of when the security requirements might be made or might be decreased, which is tied to this overall issue of how you're going to

deal with the risk-informed timing for these -- what we do currently by exemption for the reduced requirements.

MR. RICHARDS: Can we get back to you on that? My understanding in the security area is that the zirc fire is a consideration, but it's not the only issue.

COMMISSIONER McGAFFIGAN: Right.

MR. RICHARDS: Not being a security person and not wanting to get in trouble, that's as far as I'd like to comment on that.

CHAIRMAN JACKSON: That's fair.

You mentioned site-specific cost estimates with financial assurance. What factors are more amenable to site-specific treatment than others? I see someone has already anticipated the question. Oh, you're the security man.

MR. ROSANO: Yes.

CHAIRMAN JACKSON: Okay. Let's rewind the tape.

MR. ROSANO: Rewind the tape.

Actually, with respect to the vehicle barriers, the question has to do with the particular kind of site, and it's true that, in certain circumstances, we would feel that vehicle barriers may be necessary regardless of zirc fire but that there are other configurations of the plant where zirc fire becomes an issue, and the way the paper was written, it was written in order to give us sufficient room

to consider both configurations, and I would go along with Stu's suggestion that we would prefer to have a vote on that, and yet, it would still be integrated in with the other areas in the integrated paper that goes up later.

CHAIRMAN JACKSON: Okay. Thank you.

Now, back to site-specific cost estimates for financial -- decommissioning financial assurance. What factors are more amenable to site-specific estimates than others? Do you have kind of a short list?

MR. RICHARDS: Are we talking the insurance requirements or accumulating funds for decommissioning?

CHAIRMAN JACKSON: Well, I'm talking about accumulating funds for decommissioning. Maybe that's not what you mean here.

MR. RICHARDS: Well, there's both. Personally, I can't speak to that last bullet. I haven't got enough background materials. So, if there's someone that can help me on that.

MR. WEISS: Is this on the insurance requirements?

CHAIRMAN JACKSON: On financial --

MR. WEISS: Accumulating funds?

CHAIRMAN JACKSON: Right.

MR. WEISS: The latest issue on accumulating funds was to look at the staff document -- I think it's 1307. This document is revised periodically to adjust the factor

which is how much decommissioning should cost on a yearly basis.

The industry had felt that we were not taking into account the latest means that the utilities are using to get rid of waste, which is waste compaction, volume reduction, vendors that will take all this from a utility and process it for them, and Research revised that NUREG, and I believe that the savings -- or the difference in decommissioning cost might be of the order of 100 to 200 million dollars.

CHAIRMAN JACKSON: All right.

MR. RICHARDS: Next slide, please.

COMMISSIONER McGAFFIGAN: Madame Chairman, I've got the security paper in front of me, and I just want to clarify with the security person.

My reading of this paper is that the option that the staff is asking us -- the whole issue is the vehicle barrier system.

Three options are discussed, one of which is the status quo, retain the current security.

The second is rulemaking without vehicle bond protection, without a requirement for a vehicle barrier system, and the third is one that would allow flexibility as to whether they retain the current one or whether they go to some other one, but a vehicle barrier system, as I read the plain English here, is required under option three, the

recommended option.

CHAIRMAN JACKSON: Now, I'm going to admonish you. I mean if we're going to get into -- if we're going to tie it back to the decommissioning, then it's fair game for --

COMMISSIONER McGAFFIGAN: It is decommissioning.

CHAIRMAN JACKSON: Okay.

COMMISSIONER McGAFFIGAN: It's the decommissioning paper.

CHAIRMAN JACKSON: All right.

COMMISSIONER McGAFFIGAN: I want to understand -- you're asking us to decide that a vehicle barrier system -- a rule should go forward on physical security for decommissioning plants that requires a vehicle barrier system. I thought I heard you say it might or might not.

MR. ROSANO: Yes, sir, we are asking for that, and let me just see if I can clarify the answer, and actually, I should identify myself, which I didn't. I'm Dick Rosano from Reactor Safeguards.

The request of the staff is based on the belief that there are issues that -- excuse me -- there are risks associated with getting vehicle -- the design basis vehicle close to areas of the plants, close to the spent fuel pool, and it depends on the configuration of the spent fuel pool.

It depends on whether it's above ground, below ground, depends on whether there is literally vehicle access

to the pool itself, driving a vehicle into the pool, and that these things have to be considered and that a vehicle barrier would be required, but then it would be site-specific

It would be based on an analysis at the site as the configuration, whether further exemptions could be allowed for the vehicle barrier based on the configuration of the plant, but that the vehicle barrier would continue to be one of the expectations and requirements in security.

COMMISSIONER McGAFFIGAN: That's all I needed.

CHAIRMAN JACKSON: Okay. Fine. Thank you.

MR. RICHARDS: Next slide, please.

This slide lists a number of issues in the decommissioning area beyond what we've already talked. We don't intend to go into detail on these issues unless the Commission desires.

It would be a good time to note, however, that we have a decommissioning board chaired by John Greeves of NMSS. The board serves to ensure that decommissioning activities are being addressed by the various offices, are being coordinated.

CHAIRMAN JACKSON: Let me ask you one -- since you did put decommissioning financial assurance, and there was this earlier issue about site-specific estimates, you know, we did have one rulemaking on decommissioning funding

assurance that related to a number of things, but included in it was a reporting requirement, and so, I have a couple of questions about that.

I mean has the staff worked out what the process and criteria are to evaluate these reports when they are submitted? I think the first submittals are supposed to come in, in fact, this month.

MR. RICHARDS: I believe you're right as far as we're expecting it this month.

MR. WEISS: We've issued the standard review plan.

CHAIRMAN JACKSON: You have.

MR. WEISS: That has been published.

CHAIRMAN JACKSON: Okay. Does that include trigger levels for -- the staff will use to determine that additional financial assurance or other actions are necessary?

MR. WEISS: I don't know. We'd have to get back to you on that.

CHAIRMAN JACKSON: And have you worked out what regulatory or corrective actions the staff would require if a determination is made that the level of decommissioning funding at a particular licensee was inadequate?

MR. WEISS: We don't have the person here that can respond that.

CHAIRMAN JACKSON: Okay. If you could get back on

that, I'd appreciate it. Thank you.

MR. RICHARDS: Last slide.

In summary, the staff has gained a lot of knowledge and experience from past activities.

Our intent now is to build on that experience and, with input from our stakeholders, to define a vision of where we want to go with decommissioning requirements and guidance and to establish a licensing process that maintains safety, yet is efficient, relatively predictable, and which recognizes the reduced risk associated with a plant decommissioning.

That completes the planned presentation, and we'll be pleased to answer any other questions.

CHAIRMAN JACKSON: Commissioner Dicus?

COMMISSIONER DICUS: Yes.

When Commissioner Merrifield and I visited Millstone, in addition to, of course, touring the plant and visiting with the licensee, we also met with some state and local officials and together with several public interest groups, both those tending to be more friendly and those tending to be not so friendly.

One of the issues that came up -- actually, I think a couple of groups might have mentioned it, which -- it had to do with the public indicating that they would like to have hearing opportunities or at least some sort of

interaction with the licensees and the staff, NRC staff, regarding the decommissioning alternatives that a licensee might choose in the early part of the process, even prior to the submittal of a licensee's PSDAR.

Have you been giving that any thought? Have you been hearing that? I don't know who has been in some of these public meetings, but thinking about the pros and cons of more public involvement in the early part of the decision?

MR. RICHARDS: That has come up in my limited experience. I went out to a public meeting that was out at San Onofre a few weeks ago. That question was broached, and my understanding with the staff is that it's not an uncommon question.

I think the answer is that the Commission has defined acceptable alternatives for the industry, and it's the industry's choice. So, to enter into some kind of a process that would allow public participation, I think you'd have to reconsider some decisions that have already been made.

But the public does have some opportunity to participate, though. You know, the rule now requires, I guess, a meeting with the public within the two years of the plant shutting down, more or less.

Of course, they have the opportunity to petition

for a hearing under some of the amendments that are made. I understand there is a hearing before the license termination, when that submittal comes in, and if there are other safety concerns, of course, there's always the 2.206 petition process.

So, if there is a safety concern, the opportunity is there for public participation but so far not for the utility's decision on which of those paths to elect.

COMMISSIONER MERRIFIELD: Obviously, safety was a concern for these individuals, but it was an issue of having some ability to influence or at least comment on the direction that the utility was going to go before a decision was made how that facility would be dealt with, whether it would SAFSTOR or whether it was immediate decommissioning.

I'm not saying we bought in on that, but that was certainly the opinion that they reflected to us, they'd like to have some additional input up front before that decision is made.

MR. RICHARDS: It's a policy decision, and you know, I don't begrudge you that, because just that one meeting at San Onofre, you've got a group who wants to see, you know, the plant removed and you've got others who say why can't you just leave it there?

CHAIRMAN JACKSON: I think the point you're making is that, by virtue of some previous but, in some sense,

fairly recent Commission decisions on what the decommissioning approach is -- and we have a rule that the Commission promulgated.

MR. WEISS: When the rule was promulgated, we did not get any comments requesting hearings.

CHAIRMAN JACKSON: Right. And so, it has certain things built into it. That's not to say that it can't be revisited, but the staff is following what that rule requires, which was promulgated within the last five years.

COMMISSIONER MERRIFIELD: What may be appropriate is the same question for the next panel, which may very well be what Commissioner Dicus had in mind.

CHAIRMAN JACKSON: Right.

COMMISSIONER MERRIFIELD: That might be appropriate, to give them fair warning.

MR. ZWOLINSKI: In going forward, I would really expect us to engage stakeholders, in addition to NEI, members of the public.

If we're going to be credible in our actions going forward, we do need to ensure the public's been involved. Whether it's at local meetings or here at headquarters, I envision more involvement from the public.

CHAIRMAN JACKSON: I don't believe that the rule precludes public involvement.

MS. CYR: The issue is the Commission has

established what are acceptable methods of decommissioning. We've said, if you choose one of these, that's okay, and then we set a process in place by which that is implemented, which provides for them to submit this plan and have a public meeting in that context.

That's not to say that -- as you say, there can't -- couldn't be more public interaction, more available information earlier on, either from us or the licensee.

CHAIRMAN JACKSON: That's right. And it was meant to lay out a stable, predictable, hopefully credible process that would allow us to get at these issues having to do with both effectively doing our job but having expedited a process as the complexity of the issues allows, and by laying out what are the acceptable alternatives, you know, the Commission was trying to bound the issue, but it didn't -- but built into is the opportunity for meetings with members of the public as a licensee goes down a particular path. But there are specified acceptable alternatives in the rule.

Are there other questions you have?

Commissioner Diaz.

COMMISSIONER DIAZ: I think just a comment. I think that, you know, looking at this issue, I think the Chairman just used the word "predictability." I think what we're looking, you know, from you is some regulatory

predictability that is based on realistic technical assessment of the issues and is bounded by risk assessment. I think that's what the outcome should be.

CHAIRMAN JACKSON: Commissioner McGaffigan?

COMMISSIONER McGAFFIGAN: No further questions.

CHAIRMAN JACKSON: I commend you on your thinking, and I admonish you on outcomes, because that's where we are, waiting for the outcomes.

Thank you very much.

MR. SHERON: Thank you, Chairman.

CHAIRMAN JACKSON: I'll call forward the NEI decommissioning work group presenters, Mr. Meisner, Mr. Beedle, and Ms. Hendricks.

Good afternoon.

MR. BEEDLE: Thank you, Madame Chairman. Good afternoon, Commissioners.

I would like to, first of all, acknowledge those here at the table with me.

Lynette Hendricks is the director of the NEI plant support group, Mike Meisner is president of the Maine Yankee decommissioning effort, and we also have three members of the industry in the audience, Ed Sherer from Southern California Edison, Ken Powers from Consumers, and Jerry Van Ordenaan from Connecticut Yankee, all involved in some phase of decommissioning and members of the working group.

We are certainly glad to see the reorganization, and we look forward to outcome, and I think that the staff is working hard to try and come to grips with these decommissioning issues, but also I'd like to echo the industry's support for the goals that the staff has developed for reactor safety, for efficient, effective regulation, for elimination of unnecessary burden, and for public confidence, and all four of those are very operative in the decommissioning effort, in fact maybe more so than the operating plants, as Mike Meisner is going to attest to.

So, with that, I'd like to turn to Mike and let him talk about some of the practical, very deck-plate kind of issues at the decommissioning process.

Mike?

MR. MEISNER: Thank you, Ralph.

On behalf of the NEI's decommissioning working group, I want to tell you how much we appreciate the opportunity to come here today. As far as I know, it might be the first time the industry has been able to brief the full Commission on decommissioning in general.

I've got some prepared remarks, and then I'd surely like to take your questions, and I hope you'll ask me some of the same questions as you asked the staff.

CHAIRMAN JACKSON: And we may ask you during your prepared remarks.

MR. MEISNER: Good.

First overhead, please.

About the only appropriate place to start, really, is with safety, reviewing safety, and risk significance of the decommissioning facility.

I want you to kind of get a picture in your mind of a plant like Maine Yankee. When you walk around a plant that's ready for decommissioning, you're struck by one thing, and that's simplicity.

At Maine Yankee, the spent fuel is managed in a self-contained nuclear island, it's isolated electrically and mechanically from the remainder of the facility, and the remainder of the facility is in what we call a cold and dark commission; systems are drained, they're de-energized, and it's literally cold and dark.

You have to go in with a flashlight into our old control room, with a heavy coat.

There are few moving parts and lots of times for operators to react to any condition.

So, I want to first take a deterministic analytic view of Maine Yankee safety, and this is reflective of decommissioning plants in general.

So, as of January 1st of this year, the time to boil for the spent fuel pool is 85 hours, or three-and-a-half days, and it would take an addition 432

hours, or 18 days, to boil down to the top of active fuel, and either of those give plenty of time for operators to use a number of different proceduralized means to restore water to the pool.

So, given these long periods of time, it's not surprising that the limiting decommissioning design basis accident for Maine Yankee has nothing to do with the spent fuel.

It's a low-level waste resin spill that results in off-site dose consequences of 100 millirem TEDE. That's nearly four orders of magnitude lower than the operating DBA consequences and well below the 1-rem EPA protective action guideline that would lead to off-site emergency action.

A probabilistic look, now, provides additional confidence and a minimal safety significance of decommissioning. You need to remember that, in these simple machines, there is really little opportunity for human error to introduce significant failure modes.

We rely for the most part on passive components and long times to failure.

In fact, the only event that even comes close to the radar screen is a -- beyond the design basis event is the notorious zirc-alloy fire that we've been talking about, and as you know, it requires as its initiating event a catastrophic seismic event that drains the spent fuel pool,

and by the way, that catastrophic seismic event, in most cases, is about three to four times what the plants are designed for, their current design basis seismic event.

CHAIRMAN JACKSON: What's the magnitude or intensity of the seismic event at this frequency that you have here are we talking about?

MR. MEISNER: If I remember correctly, the Maine Yankee design basis is .15 or 2 g ground motion. The event that's required to disrupt our pool and drain it is in the .6 to .7 g range.

CHAIRMAN JACKSON: And what about -- what damage to the reactor would you expect?

MR. MEISNER: Well, the reactor, of course, is de-fueled, and if it were to occur at an operating facility, of course, the plant wouldn't be designed for it, and we would see leaking systems all over the place.

Would it be something that goes to core damage? I couldn't tell you.

CHAIRMAN JACKSON: Okay.

MR. MEISNER: In analyzing this event, the zirc fire event, it's really been wrapped up in a lot of significant conservatisms that we don't have time to go into now, but even with the conservatisms, when you get down to the probabilistic evaluation, it can't rise above a probability of two times 10 to the minus six.

Now, that probability was calculated by NRC contractors some 10 years ago. When you take into account more recent Lawrence Livermore seismic hazard curves, you obtain an additional at least fivefold reduction in event probability.

In fact, we have some folks looking at this now. We think it's more like a 10-fold probabilistic reduction using current Lawrence Livermore seismic hazard curves. If you then use the EPRI seismic hazard curves, you can add probably an additional 10-fold reduction.

So, for facilities like Maine Yankee -- and this two times 10 to the minus six is generic. If you take into an account a facility like Maine Yankee, where we're already in a quite low seismic environment, it's virtually obvious by inspection that we can't -- we put a zirc-alloy fire in that pretty much into the same category or bin as an airplane crash into the spent fuel pool.

It's very, very low, 10 to the seventh, 10 to the minus eighth, and one thing you're struck by when you go out to the plants really is that the real risk in decommissioning is occupational. It's radiation protection for the workers on-site and hazardous waste exposure for those workers, as well.

Next overhead, please.

With that as a backdrop, with some sense of what

we face from a safety point of view, I want to talk about some of the constraints licensees face in decommissioning their facility, and the first is cost.

The major issue with us and with cost is that it's fixed. It's usually capped by rate-makers, and it's effectively capped by 10 CFR 50.82.

Fixed prices, as you know, lead to problems when licensees must spend large amounts of their budget unnecessarily early in decommissioning.

COMMISSIONER McGAFFIGAN: The issue of "effectively capped by 10 CFR 50.82" I don't think is right, because you know, the Commission, as recently as a ruling a week ago, pointed out in -- I think it was in a Seabrook case, a footnote to an order we issued that we recognized that our decommissioning costs don't include everything, ISFSIs, green fields, etcetera.

So, we've made it very clear throughout the whole history of 50.82 and our interpretations of it that there's a difference between what we can do on the radiological side and what a state regulator or FERC or someone might decide is prudent on a broader basis to include in decommissioning funds.

MR. MEISNER: I need to explain that more. Given the short time, I'm speaking a bit in shorthand, but what I was referring to is there's a test in 50.82 that says, if

you're going to significantly increase your decommissioning costs that you've already estimated, that you can't do it, and that's the effective cap I was talking about.

You can't do it, but -- we could come to the NRC and get approval to do it, but we are not allowed under the regulations to increase our costs once that's estimated any significant extent.

So, if there were a major delay, for instance, in decommissioning, for whatever reason, we would need to come to the NRC to get approval to proceed, else we could not do that, and I think we can find that in 50.82 later.

MS. CYR: The requirement as I recall it is that licensees can spend the money as long as it doesn't go significantly above, because the idea was we wanted to make sure we retained sufficient amount of funds to get it to a stable state at the end, and so, that was why there was this test in here that you could spend at a certain rate based on predicted costs before you had to come back to us and sort of revisit with us why they needed to spend more.

COMMISSIONER McGAFFIGAN: I see.

MR. MEISNER: So, how do we get in this situation where we're kind of capped and we can get stretched at the same time?

I think it's largely as a result, clearly, early in decommissioning, a result of delay in granting timely

regulatory relief.

As a rule of thumb, the difference between operating plant and decommissioning plant costs for emergency planning and security are on the order of a million dollars per year for each.

Insurance runs about $2 1/2 million a year. Significant other costs are associated with operator licensing and training requirements, technical specifications, and the like.

We can quantify the level of unnecessary expense using NRC's NUREG-1353

The NUREG -- next overhead, please. Oh, I'm sorry, keep it where it is.

The NUREG provides a quantitative analysis of the potential radiological impact of releases to the environs from a burning fuel bundle or burning fuel pool, for instance the number of days fuel has been stored.

The impact of radioactivity releases decreases from 2,600,000 person-rem to four person-rem over a one-year period. That's 2.6 times 10 to the minus six down for four person-rem.

So, at the end of that one-year period, using the traditionally $2,000 per person-rem averted measure, I'm justified in spending only $8,000 to completely eliminate the zirc fire risk.

But you note all that is -- that evaluates the exposure, the off-site dose exposure, but we haven't considered risk.

CHAIRMAN JACKSON: Let me make sure I understand what you're saying.

The 2.6 million in terms of person-rem --

MR. MEISNER: Yes.

CHAIRMAN JACKSON: -- is calculated, in the case of a zirconium fire, at 30 days. Is that correct?

MR. MEISNER: Two point six is immediately after you've off-loaded the fuel, or actually, I think, within 12 days.

CHAIRMAN JACKSON: Well, whatever, but it really has the fire scenario built into it.

MR. MEISNER: That's right.

CHAIRMAN JACKSON: Whereas the four is no fire, you know, and after a year. Is that correct?

MR. MEISNER: The four really reflects the difference in radio-nuclide mix. Most off-site dose is due to iodine and iodine with a half-life of, if I remember right, seven to eight days, a year after shutdown is virtually gone.

It also reflects the somewhat reduced failure mode of the fuel.

CHAIRMAN JACKSON: Okay.

Well, my understanding is that this figure is not a generic figure, that it actually relates to specific fuel, you know, cylindrical PWR fuel, you know, low-density but not necessarily high-density fuel that's racked that way, and so, one has to be careful, I think, in making these kinds of comparisons -- fire, no fire, fire a short time after shutdown versus no fire as long as a year after shutdown, specific kind of fuel and specific kind of racking density -- and so, I think one has to be careful. I mean one has to compare, you know, apples to apples in order to draw some broad-based conclusions.

MR. MEISNER: I agree, and the broad-based conclusion is still coming up. I'm not trying to give you a detailed review.

CHAIRMAN JACKSON: No, but this is the kind of chart that ends up -- and I'm not trying to be argumentative, because I think there are some issues we have to deal with in terms of decommissioning, how it gets dealt with by us, you know, costs, etcetera, but to make the case, I think one has to be careful that one is doing apples to apples, same scenarios, that you understand what kinds of reactor fuel you're talking about, that you understand how it's racked, otherwise it's not fair to wave this around. I mean there are many things that we and/or the staff could be criticized on, but if we're going to make the criticism,

then we ought to make it on a consistent basis.

MR. MEISNER: Okay. I agree.

The point I wanted to get to is that -- I've only talked about consequences and not probabilities here, and of course, risk is the product of probability and consequences.

So, when we introduce the probability of a zirc fire at two times 10 to the minus 6 per reactor year, then immediately after shutdown -- and this is apples and apples, where we're talking about the full 2,600,000 person-rem and a zirc fire -- immediately after shutdown, when we apply probability to this situation and determine what am I justified in spending to completely eliminate that risk, it comes out, as you see, to $10,400.

That's clearly not a lot of money and surely does not justify keeping in place different programs for up to two years at multi-million dollars per year, and of course, this two times 10 to the minus six, I haven't even reduced to take into effect the current Lawrence Livermore seismic hazard curves either, and it would be on the order of five to 10 times lower than that were we to do that.

The only point is that we haven't, up to this point, risk-informed zirc fire. When you add risk into the calculations, you get, I think, a fairly different look at what's going on.

CHAIRMAN JACKSON: That's what we're stressing

with the staff, but I guess I want to repeat that you risk-inform from a common base if you're going to make comparisons.

MR. MEISNER: Agreed.

CHAIRMAN JACKSON: And that's all I'm really saying.

MR. MEISNER: Agreed.

COMMISSIONER McGAFFIGAN: Madame Chairman?

CHAIRMAN JACKSON: Please.

COMMISSIONER McGAFFIGAN: The zirc-clad fire issue, the staff points out in their presentation that there was a '93 SECY paper and a staff requirements memorandum at that time in the context of insurance or financial assurance or whatever, and I raised -- at the time, I told you -- I was going to ask the question of you, when you came up, why did the industry, given you believe this sort of analysis today, why didn't you raise the issue then as an industry that we might be off-track?

MR. MEISNER: Let me take the first shot at it. I think the obvious answer is that, as an industry, there was little decommissioning going on at that time. It takes a lot of attention to run these plants, and it's hard to divert that attention 20 years into the future and answer a question that may not come up.

COMMISSIONER McGAFFIGAN: Okay.

MS. HENDRICKS: To add on to that, we did comment on the proposed rule that came out on financial protection for permanently shutdown plants, and we commented that if -- they failed to talk about probability of the zirc fire in that rule. It was just it happens and here is the consequence. That was one of our comments.

COMMISSIONER McGAFFIGAN: This is the rule as it finally came out in '96 --

MS. HENDRICKS: Uh-huh.

COMMISSIONER McGAFFIGAN: -- as a proposed rule and that is now being reconsidered before it goes to final, but there was a multi-year period there where the staff was -- I guess the '93 plan said okay, here's the rulemaking plan, this is what we plan to do, then the rule -- proposed rule came out, you did comment then, but there is an opportunity, I think, to sort of catch us quicker, before a lot of resources get invested, and I just make the point -- I know you all have plenty to say grace over in terms of running these large reactors, but I also think this is not the first time.

I mean I think the first time this thing came up was in the case of the weld inspections and whether -- a very fresh rulemaking in 1996, which almost instantaneously the BWR folks said, you know, we can't do, and furthermore, it isn't risk-informed.

I remember asking them why did you let the rulemaking go through if, you know, you're instantly going to come in and say it's impossible? So, I hope that people just pay more attention and engage us earlier, because I think it would be more useful.

MR. MEISNER: Understood.

I'll finish that section by pointing out that, if you at all believe these numbers -- and we tried to use the NRC's numbers, this $10,400 -- you compare that against what Maine Yankee actually spent, and that was, for this about two-year period of time, roughly $8 million against the 10,000.

CHAIRMAN JACKSON: Let me ask you, what role do you think PRA should play in decommissioning regulations, or how would you propose to incorporate risk-informed insights into decommissioning regs?

MR. MEISNER: I'm going to talk about it a little later, but I completely agree with John Zwolinski. I think we need to take the information that the industry and the NRC has already developed -- there's really no new information that's necessary -- take a look at what it tells us and use that to go forward and come up with a risk-informed Part 50 for decommissioning.

CHAIRMAN JACKSON: How should public concerns be folded in?

MR. MEISNER: I was talking with John just before this session started, and we have a very positive community relationship up in Maine, and we do it through a community advisory panel. One of the persons on our panel is a prominent anti-nuclear activist.

I would propose that the Commission -- the NRC not do this in a vacuum for the next two to three months, involve the licensees, the working group here, and I would involve some of these anti-nuclear folks as well as interested community people and working through the process so we all understand it.

COMMISSIONER McGAFFIGAN: Madame Chairman, there's one issue that's a little perplexing to me, and we had ComEd in here recently and I just in passing asked how they were doing on decommissioning, and they had not yet submitted many of these relief requests for the Zion plant that's been shutdown for some time and cold longer, and there's some sort of different calculus at Zion, apparently, than at Maine Yankee, and if there are $8 million of costs to avert, I imagine I'd be trying to do that.

I guess what I'm trying to do is question is the $8 million real for everyone, or is it somehow less in some specific circumstances?

MR. MEISNER: It's less in some cases. For instance, if you at a multi-unit site, where you've got a

couple of reactors operating and one shuts down, you probably need to throw out the emergency planning portion and maybe even the security portion of that.

COMMISSIONER McGAFFIGAN: Because you have to retain that anyway.

MR. MEISNER: You have to retain that anyway.

COMMISSIONER McGAFFIGAN: But Zion is closing down both units.

MR. MEISNER: Yes. I can't comment on Zion, but I can point out that Maine Yankee, for instance, is a single-asset utility. That's all we're focused on managing.

COMMISSIONER McGAFFIGAN: Right.

MR. MEISNER: Whereas at Commonwealth, it's one of 10.

CHAIRMAN JACKSON: Twelve units, 10 operating.

COMMISSIONER MERRIFIELD: There may be some geographical reasons for that, too. Yankees aren't prone to liking to spending any money more than we have to.

MR. MEISNER: I think I better go on.

COMMISSIONER MERRIFIELD: The cheap Yankee is not a new term. I'll put it that way.

MR. MEISNER: Let me briefly shift gears, talk about total solution, decommissioning licensees can't fulfill their responsibilities without total solutions. It may be obvious, but we can't leave a single bundle in the

spent fuel pool, just because it's high burn-up or has some other unique characteristic.

We need timely support from NMSS to provide all our fuel a home in a dry cask, and we've begun working with NMSS towards that end.

Similarly, we can't eliminate our Part 50 license only to find that EPA site clearance standards apply. We recognize that a Congressional solution is necessary and that industry has the lead, and we'd be very much interested in your views on various legislative options as we develop them.

Thirdly, we've only got one chance at this. Decommissioning licensees don't go through fuel cycles like operating plants.

We only have one opportunity to correctly decommission our facility, and every dollar we waste up front is unavailable for use later either in ALARA or return to our rate-payer later, because after all, it's not the licensees that really pay for this decommissioning; it's the rate-payers ultimately.

Next overhead, please.

I'd like to pose a question, and that's what's the problem here, and with all this as a backdrop, I believe the answer is twofold.

First, in large measure, the regulations did not

anticipate or provide for decommissioning. While 10 CFR 50.82 was a good step forward, it left a number of holes that still need to be filled. That's why we have exemptions and disputes over exemptions.

Secondly, in dealing with these holes, the regulatory staff, up to this point, has not applied the appropriate safety significance to their decisions.

In that respect, let me quote from a recent staff report, the Maine Yankee Backfit Review Panel, addressing the zirc fire issue, and the panel noted that "The panel believes that the staff sought to develop an absolute safety finding rather than a risk-informed reasonable assurance finding," unquote, in other words that staff was attempting to make their decisions without considering event probabilities and doing so by regulating to a zero risk standard.

That's why Maine Yankee was forced to spend that $8 million to achieve the zirc fire risk reduction.

CHAIRMAN JACKSON: So, what would you say with respect to those two points in light of what the staff presented to us?

MR. MEISNER: I would say what my next overhead is, and that's to suggest what the solution is.

CHAIRMAN JACKSON: Well, given that you've suggested this is the solution, do you think the path the

staff has laid out moves along that line?

MR. MEISNER: I do. In fact, I think, today, NRR and the decommissioning working group are quite in lock-step. We're in agreement on what the solution is.

You heard what John Zwolinski talked about, about slowing down some of these ongoing actions and trying to integrate all this together, and I think that's what we need.

We need to use our combined deterministic and probabilistic knowledge to risk-inform Part 50 for decommissioning. In our mind, this would involve an integrated, holistic resolution across Part 50 using a consistent safety basis.

It would address emergency planning, security, insurance, operator licensing and training, and even seemingly trivial issues such as station blackout.

I say this because we know there's really no new safety issues in decommissioning. We have enough technical information developed over the years by the NRC and the industry to answer any decommissioning question, and it's only a matter of sufficient resolve to get on with it, and I think today we have that resolve on the part of the industry and on the part of the NRC.

The pending organization changes at NRR and the willingness of management to pursue a holistic solution, I

think, will benefit the staff and the industry.

And what can we achieve? I talked a bit about this at the regulatory information conference.

I think we can have regulations and staff decisions that accurately reflect decommissioning safety risk, and licensees can receive automatic regulatory relief during the transition to decommissioning through comprehensive rulemaking.

And how long will this take? I think not long at all.

You have before you, for instance, a staff proposal on decommissioning security rulemaking, SECY 99-008. In there, the staff is budgeting 2.4 FTE over a two-year period to complete just the security rulemaking.

I'm confident -- and I'll echo what the staff said earlier -- that if NRR would commit the right staff at a level of just about one FTE over a two-month period, that together we can provide an integrated solution across Part 50.

CHAIRMAN JACKSON: So, you think risk-informing Part 50 can be one FTE over two months.

MR. MEISNER: I do.

CHAIRMAN JACKSON: In the decommissioning area.

MR. MEISNER: I do. And I think it's because decommissioning is simple, and I might suggest, too, that

maybe that would provide a road-map or a template for doing the harder part, and that's the operating plants in the future.

CHAIRMAN JACKSON: Are you speaking for all nuclear power reactor licensees in wanting to risk-inform Part 50?

MR. MEISNER: I'm speaking for the decommissioning working group, and based on who I work for, I can speak for some of the other operating plants but not all of them.

I'm sure, though, that the operating facilities, if this were put forward to them, wouldn't have any objection.

Ralph, why do you think?

MR. BEEDLE: I think the risk-informing is an option that we need to certainly look at, and I think you're looking at the body of decommissioning experience right here in this working group.

So, to try and translate to the operating reactors where they aren't currently looking at decommissioning, you have the same problem we have with the 1993 rule-making that posed a problem in decommissioning that was never really uncovered or considered because we weren't really looking at the decommissioning.

CHAIRMAN JACKSON: And that's why I raised the issue about what does quickly mean and one FTE over two

months.

The process has to be one that engages all of the stakeholders, including other reactor licensees, so that, in the end, wherever we move, you know, we're sure that we have a good sense of where the consensus is and that we've involved the public, as well.

MR. BEEDLE: Well, I would add that I think that's one of the reasons that we probably see a different situation today than we did in '83. I think there is more engagement between the industry and the NRC in dealing with these issues; indeed, more engagement with the stakeholders in general. I think it will get us better results in the long run.

CHAIRMAN JACKSON: Thank you. Commissioner Merrifield.

COMMISSIONER MERRIFIELD: Madam Chairman, I don't know whether there's -- I don't know what the truthfulness is or accuracy of one FTE for Part 50. I didn't know whether the Staff wanted to take a crack at responding to that or not.

CHAIRMAN JACKSON: I don't know that I -- well, you can answer it, but I'm trying not to put you on the spot on that.

COMMISSIONER MERRIFIELD: Well, perhaps it will be inappropriate --

CHAIRMAN JACKSON: Right.

COMMISSIONER MERRIFIELD: -- but I didn't know --I saw a lot of whispering in the back. I didn't know whether they --

[Laughter.]

MR. COLLINS: On the contrary, that would be an efficient and effective approach.

[Laughter.]

MR. COLLINS: So that would certainly be met. But we are committed essentially at this point to do what it takes. We have to evaluate the effort. Certainly working with the industry, whether it's with the post-rulemaking body industry or working through the efforts in conjunction with the guidelines from OGC, my general feeling would be it would be a bit more than that, but I'm not prepared to say now.

COMMISSIONER MERRIFIELD: Okay.

COMMISSIONER DIAZ: Twice?

CHAIRMAN JACKSON: No, no, no, we are not -- that's it.

MR. MEISNER: Of course, I do want to include OGC in that.

[Laughter.]

MS. CYR: Hey, we've got a good track record this year. I got a license transfer out in three months on the

final rule.

MR. MEISNER: My comment was predicated on the notion that we know everything we need to know today. It's just a matter of pulling it together.

COMMISSIONER MERRIFIELD: The reason I interjected is I didn't want to leave the audience the impression that we necessarily agreed with the one FTE, and that was really the primary purpose.

CHAIRMAN JACKSON: Right.

COMMISSIONER McGAFFIGAN: And I don't, either, but I think Mr. Meisner is making a good point, that if a single rulemaking is budgeted at 2.3 FTEs, there may well be a real synergy in the holistic approach the Staff talked about earlier. 2.3 times 5 or 6, whatever number of rulemakings we finally have under way is a lot, and we hopefully can do better than 15, you know, so we'll see.

CHAIRMAN JACKSON: Okay.

MR. MEISNER: My last overhead, please.

Finally, a few words on the backfit rule. I hope you know that all industry desires are regulations and Staff decisions that do accurately reflect safety significance, and there's really no benefit to spending a million dollar per person-rem averted; in fact, it sends a very counterproductive message to the public, and that message is that zero risk is valuable and achievable. But we all know

that is not the case. They are not achievable. So what do we put in their place? Well, simply put, we need a test that balances safety benefit with cost impact on ensuring that immediate safety issues are addressed, and that's all the backfit rule does.

I think the industry, Staff, and Commission should embrace the rule as the preferred means to ensure regulatory balance for operating and decommissioning plants.

CHAIRMAN JACKSON: I think we have done that.

MR. MEISNER: And I believe that's the case with the Commission, but I believe that the Staff has gotten into the habit of avoiding its application, and this leads to a very cynical outlook on the backfit by industry people. if you take a look at SECY 99-008, decommissioning security, and read through what the Staff discusses on backfit, I think you will start to get a feel for what I mean. It's a very good example of avoiding the application of the backfit rule.

CHAIRMAN JACKSON: What are your views on the results, without putting you on the spot, of the backfit appeal panel with respect to, you know, your issues at Maine Yankee?

MR. MEISNER: Very frankly, if you read the report carefully, the panel backed up Maine Yankee on every single issue. Clearly indicated that the Staff did not risk-inform

this decision, they should have; that they were going for zero risk rather than reasonable assurance.

CHAIRMAN JACKSON: You know that the Commission has in fact embraced the concept of using the backfit rule for decommissioning plants, and in fact has given the Staff guidance to use it as much as possible and as is legal, informally, today, in specific cases.

MR. MEISNER: I do.

CHAIRMAN JACKSON: Okay.

MR. MEISNER: My only point is to -- maybe to the Staff, to make it the preferred mode.

CHAIRMAN JACKSON: Well, I think we have given them that guidance, and I would not like to see this particular discussion on what are preferred approaches we should take become an adversarial thing of, you know, versus the Staff.

MR. MEISNER: I agree.

CHAIRMAN JACKSON: Or Commission versus the Staff. That's not going to help us.

MR. MEISNER: Okay. I guess I am trying to come to a common sense view that if someone had evaluated the imposition of the zirc fire event a year and a half ago, and brought probabilistic notions into it -- in other words, did a backfit evaluation -- I firmly believe that your Staff and my staff would have saved thousands of manhours over the

last year and a half, and much of it management time, and set the stage for a rigorous decommissioning safety basis today.

I sometimes think it's something -- we don't recognize what a valuable tool these safety cost-benefit evaluations are and tend to shy away from them.

COMMISSIONER McGAFFIGAN: Could I ask a question with regard to the backfit analysis in the SECY paper you just referenced? I happen to have it with me here. The thrust of it is is there's an exception that applies, and that seems to be what you are taking objection to. Does that -- the heart of this paper, as I said to the Staff earlier, is whether we require a vehicle barrier system in the post-shutdown state, although albeit presumably a different one from what was there for the plant itself, or whether we don't. Option 1 is require everything we have today; option 2 is go forward without a vehicle barrier system; option 3, the preferred option of the Staff, is including one.

Are you suggesting that if we subjected that to not an exception approach but to backfit analysis, we would end up with option 2 rather than option 3, or -- I'm just trying to understand what you are saying in terms of its implications for the options before us.

MR. MEISNER: I'm saying a couple things.

First of all, the initial reason the Staff gave for backfit and applicability, if I remember right, and I don't have it in front of me, was that licensees can continue to operate under the current regulations. Is that right? Or am I --

COMMISSIONER McGAFFIGAN: Well, I don't want to hold them --

MR. MEISNER: But that's the first step.

COMMISSIONER McGAFFIGAN: Right.

MR. MEISNER: And I would point out that there are -- the fallacy in that argument is that there are holes in the regulations. 50.82 didn't cover everything. That's what the Staff told us on emergency planning for Maine Yankee. You cannot decommission and still have on offsite emergency planning program. You cannot decommission and still have a full-blown security program. Eventually that's got to go away, and for the Staff to say that licensees can just continue to follow the regulations, I think is not appropriate.

MS. HENDRICKS: I think for clarification, the way it was stated that was so disconcerting is that the first exemption was it's a relaxation, therefore, backfit doesn't apply, and if that is applied carte blanche, then anything in decommissioning inherently will be some relaxation, and so backfit would never apply.

Now if you applied backfit between the options, you may have a basis for doing --

CHAIRMAN JACKSON: I think what you really want to say is you want to have some kind of safety benefit, I mean cost-benefit or --

MS. HENDRICKS: Right.

CHAIRMAN JACKSON: -- analysis done. I think when you -- everybody locks themselves into backfit language, backfit does have a very specific, or has heretofore had a very specific meaning relative to, you know, increased requirements, as opposed to reduced requirements. And I think what you are really trying to make the argument for is that there needs to be a risk-informed cost-benefit approach.

MR. MEISNER: Also going from operating to decommissioning, we don't evaluate what the level of burden is for an operating plant to a decommissioning plant, but evaluate the requirement against the current condition of the plant and see if the requirement is excessive with respect to that condition.

But let me just finish with one more sentence.

COMMISSIONER McGAFFIGAN: If I can just add, I think that points out the wisdom in that, yes, we apply backfit, but I think what -- we also recognize that there is a need for --

CHAIRMAN JACKSON: Absolutely.

COMMISSIONER McGAFFIGAN: -- rule language that would have better applied to the decommission state, because the current language lends itself to sort of this legalistic analysis that I think these folks are pointing out, and so we can apply it to backfit and then it doesn't apply.

MS. HENDRICKS: Never applies.

COMMISSIONER McGAFFIGAN: Right.

MR. MEISNER: So we wholeheartedly agree with the Staff that now is the time to take an integrated approach to risk, and to risk-informing Part 50 for decommissioning, and we hope that it will be done by developing in short a rulemaking package with a safety and backfit analysis as its basis.

Thank you.

CHAIRMAN JACKSON: Thank you.

I am going to go in inverse order. Commissioner Merrifield.

COMMISSIONER MERRIFIELD: Although I recognize this is not as significant a problem at all for decommissioned plants, given the public interest I feel somewhat obligated to ask what is the current status of the decommissioning plants as it relates to Y2K readiness?

MR. MEISNER: Well, Ralph, I am sure, can answer in detail, but one of the things you will see when you come

out to visit is that, like I said, everything is passively a virtual computer system you have got to even perform a function in the plant. I can tell you from Maine Yankee's point of view, we have got -- the only thing we are concerned about is our general ledger, and that will be fixed by the summertime.

COMMISSIONER MERRIFIELD: Well, I recognized that that would be the answer. I just wanted to make sure it was on the public record.

Ralph, do you have anything about any of this?

MR. BEEDLE: We are confident there are no issues associated with safe shutdown at Maine Yankee.

[Laughter.]

CHAIRMAN JACKSON: Commissioner McGaffigan.

COMMISSIONER McGAFFIGAN: No further questions.

CHAIRMAN JACKSON: Commissioner Diaz?

COMMISSIONER DIAS: No further questions.

CHAIRMAN JACKSON: Commissioner Dicus?

COMMISSIONER DICUS: Well, I have to ask my question that I asked about public involvement in the decommissioning decision, if you have any thoughts on that. Any of you.

MR. MEISNER: I do. I think a regulatory body can only go so far in dealing with public health and safety. I think there is a responsibility of the industry that picks

up at that point that gets out and involves its stakeholders, involves the community, to ensure that they have a stake or have input into decisions that really are not part of the regulatory oversight purview. I think that's very important.

In fact, I am surprised I am talking so vehemently about this, because I am not sure I would have said that two years ago, but it is clearly the case in decommissioning Maine Yankee. We have had a lot of benefit from involving the public, and we -- for instance, you have SAFSTOR versus decon, that initial decision. We had our community panel and a lot of attendees. We had about three or four meetings over a period of four months where we talked that decision in detail, and wanted to know what their feeling was on that. It's a real valuable thing to do. I don't think it's your responsibility, though, so much as ours.

COMMISSIONER DICUS: Okay. Let me just follow up on that. I have no compelling reason to change our policy. I am comfortable with where we are, and I think it's the licensee's decision. I just simply was a little taken aback by what I heard, and then apparently it's a problem at SONGS as well, or an issue at SONGS. So I think as a decommissioning working group, just to raise your awareness, if the public is getting in some areas concerned about this, you should be aware of it.

MR. MEISNER: Thank you.

COMMISSIONER MERRIFIELD: And you may want to share your experiences with other members of the industry so that perhaps this can be avoided at other plants that have to go through this in the future.

MR. BEEDLE: We will do that.

CHAIRMAN JACKSON: I think Commissioner Diaz had an additional question.

COMMISSIONER DIAZ: I just wanted to say that we seem to be compiling a list of elimination of zero factors, zero risk, and I think the Staff talked about elimination of zero heat transfer, and that's a very good one.

MR. MEISNER: I agree, very much so.

CHAIRMAN JACKSON: Well, I would like to thank the NRC Staff and NEI for an informative briefing on Part 50 decommissioning issues, and I commend the NEI decommissioning working group for its proactive efforts to assist in highlighting areas for improvement. And as I mentioned in my opening comments, there have been some successes in the NRC's decommissioning program, and there are obviously areas requiring additional attention, and today's discussion helps to provide valuable insight into areas where we should concentrate our future work effort. And I am going to speak to the Staff because we are a learning organization, and I believe that you have come a

long way down the line.

As I say, you know, I commend you for, you know, where you are going. We await the outcomes, but I think we are all part and party to the migration of a 40 year old regulatory framework and all of the thinking that goes along with that. And so I just want to encourage you along the path that you have already started.

Thank you very much.

[Whereupon, at 3:43 p.m., the briefing was concluded.]

CERTIFICATE

This is to certify that the attached description of a meeting of the U.S. Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON PART 50
DECOMMISSIONING ISSUES
PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Wednesday, March 17, 1999

was held as herein appears, is a true and accurate record of the meeting, and that this is the original transcript thereof taken stenographically by me, thereafter reduced to typewriting by me or under the direction of the court reporting company

Transcriber: Natalie Renner

Reporter: Mark Mahoney

REACTOR DECOMMISSIONING PROGRAM STATUS

March 17, 1999

John Zwolinski, NRR
Stuart Richards, NRR
John Greeves, NMSS

PRESENTATION OVERVIEW

- New management team
- Safety and risk issue changes
- Recent licensing and rulemaking
- Future actions

REGULATORY ISSUES FOR DECOMMISSIONING

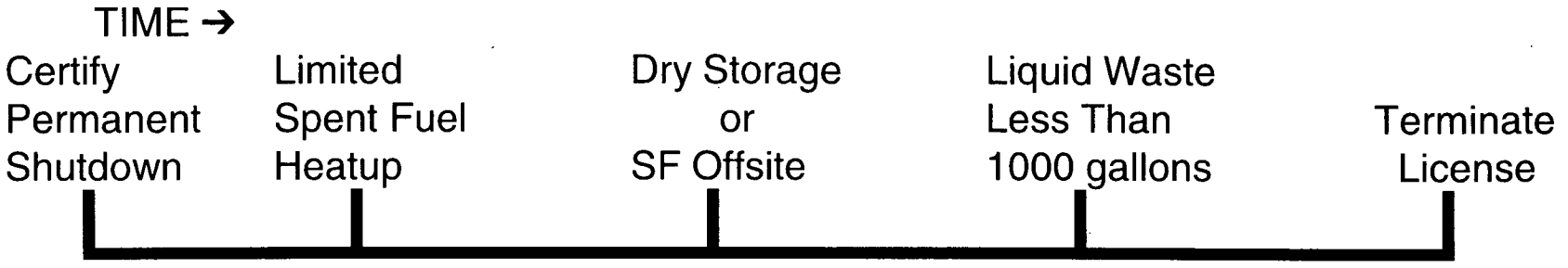
- Operation risk reduced
- Risk decreases with decay and removal of material
- Significant risk reduction when dose consequences within EPA Protective Action Guides (PAG)

REGULATORY ISSUES FOR DECOMMISSIONING (cont.)

- Change in operating risk justifies TS changes in
  - Staffing reductions
  - Scope of quality assurance
  - Maintenance programs

- Risk associated with fuel storage justifies changes in
  - Emergency planning
  - Onsite and offsite insurance
  - Safeguards

DOSE CONSEQUENCE REDUCTIONS DURING DECOMMISSIONING



Millstone 1	Maine Yankee	Fermi	Saxton	Fort St. Vrain
Zion 1&2	Haddam Neck	Peach Bottom 1		Shoreham
	Rancho Seco	VBWR		
	Big Rock Point			
	TMI 2			
	Trojan[1]			
	Yankee Rowe[2]			
	Songs 1			
	Indian Point 1			
	Dresden 1			
	LaCrosse			
	Humboldt Bay 3			

Notes:
1. Primary dismantled, dry storage & reactor vessel disposal in 2000
2. Primary dismantled, reactor vessel disposed

"PAST" REGULATORY PRACTICE

- Basis for approving exemptions has varied for
  - Emergency preparedness
  - Safeguards
  - Insurance
- Thus, no identical exemptions
- SRM on SECY-93-127, offsite financial protection
- SECY-93-127, zircaloy fire "reasonably credible"
- Preclusion of zircaloy fire evolved into acceptance criteria for licensing actions and rulemaking

CURRENT VIEW

- **Zircaloy fire analyses are complicated and time-consuming**

- **Regulatory predictability questioned**

GOING FORWARD

- New integrated approach will address concerns
- Integrated reevaluation of rulemakings to be initiated
- Risk-informed approach considered
- Time dependent risk factors considered
- NRC Working Group (two months)
- Output is plan and schedule

RULEMAKING STATUS

- Financial Protection (Insurance)
- Emergency Planning
- Physical Security/Safeguards
- Shift Staffing
- Financial Assurance (Site-Specific Cost Estimates)

OTHER DECOMMISSIONING ISSUES

- Implementation of the license termination rule
- Spent fuel storage and transportation
- Low-level waste disposal
- Greater-than-Class C waste storage
- Free release of contaminated materials
- Entombment (time period for completion)
- Decommissioning financial assurance

Summary

- Valuable insights gained from rulemakings
- Reassess issues
- Ensure integrated approach
- Ensure stakeholder input
- Reduce unnecessary regulatory burden

DISCLAIMER

This is an unofficial transcript of a meeting of the United States Nuclear Regulatory Commission held on March 17, 1999, in the Commission's office at One White Flint North, Rockville, Maryland. The meeting was open to public attendance and observation. This transcript has not been reviewed, corrected or edited, and it may contain inaccuracies.

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