UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING:

PERFORMANCE-BASED REGULATION WORKSHOP

NRC Auditorium

Two White Flint North

11545 Rockville Pike

Rockville, Maryland 20852

Wednesday, March 1, 2000

The above-entitled meeting commenced, pursuant to notice, at 9:07 a.m.

P R O C E E D I N G S

[9:07 a.m.]

MR. CAMERON: I think we're going to get started now, and if you could take your seats and we're going to get started with a welcome from Ernie Rossi of the NRC, who manages, who is the manager of the organization where this project is taking place.

Ernie, I'll turn it over to you.

MR. ROSSI: Good morning. I'm Ernie Rossi and as Chip said, I'm the Director of the Division of Systems Analysis and Regulatory Effectiveness in the Office of Nuclear Regulatory Research. Our office is coordinating this effort for the entire NRC.

On behalf of the NRC, I want to welcome you to the workshop on performance-based approaches to regulation. This initiative on the part of the NRC is one aspect of several things that are going on on regulatory improvement initiatives that we are pursuing and for this, as well as all of the other things that we're pursuing, public and stakeholder input is very important.

On January 24 of this year, we published proposed high level guidelines for identification and assessment of

performance-based activities. The staff's preliminary guidelines were developed by an interoffice working group comprised of members of several NRC offices. Those offices were the Office of Research, Office of Nuclear Reactor Regulation, and the Office of NMSS.

These guidelines are, at this point in time, a draft product and it's our intent to accommodate, the best we can, your views, ideas and concerns as we finalize the guidelines.

Before we recommend a final set of guidelines to the Commission, which we intend to do in August of this year, we expect to meet one more time with the public in a format that will probably be very similar to the format here today, and we also intend to meet with the Advisory Committee on Reactor Safeguards and the Advisory Committee on Nuclear Waste.

This workshop is structured to proceed in an interactive manner and we are very fortunate to have Chip Cameron here with us this morning as the facilitator. Chip has extensive experience in conducting interactive meetings involving many different NRC stakeholders and he has become very, very good at being a facilitator.

So with that, I would now like to introduce Chip and turn things over to him.

MR. CAMERON: Thanks a lot, Ernie. I have the scars, I guess, as many of us do, from the experiences and that's, I guess, how you improve along these lines. But I'd like to add my welcome to Ernie's.

For those of you who don't know me, I'm Chip Cameron, I'm Special Counsel for Public Liaison here at the Nuclear Regulatory Commission, and it's my pleasure to serve as your facilitator today.

I just want to cover three subjects briefly before we get started. One is the objectives and purpose of today's meeting, the second is format and ground rules for the meeting, and the third is an agenda overview. After that, we're going to move into introductions of all of you around the table.

In terms of purpose and objectives, the NRC staff wants to discuss the draft guidelines on performance-based activities with you, both those of you around the table and those of you in the audience, and they want to listen to your comments and suggestions on the guidelines and, as Ernie pointed out, use this information in preparation of the draft final guidelines for Commission review and approval.

In terms of format and ground rules, we are using a roundtable format today, where we have invited representatives

of interest who may be affected by the guidelines to join us for a discussion, and we not only have representatives from the reactor community, but we also have representatives from the materials licensing and waste disposal community with us today.

The roundtable format, we hope, will not just allow us to hear individual comments and concerns, viewpoints, but will allow all of us to discuss those viewpoints with each other. The NRC staff is at the table today from all of the major areas that are affected by these guidelines and they are here to provide information, clarification on the draft guidelines to you and also to make sure that they understand your comments and suggestions on these guidelines.

There are name tents in front of everybody and a lot of you have been through this drill before. If you want to say something, when we are in the discussion mode or otherwise, if you could just turn your name tent up like that and it will be a signal to me that you have something to say on this and when we get to you, if you could just state your name for the transcript.

Jon, our stenographer, will pretty quickly, if not right off the bat, know who those of you around the table are. So at some point, I think we can dispense with stating our name

for the record. He'll know who you are.

We are going to go out to the audience after each major discussion topic for your comments, too, and I will either bring you this talking stick or you can come up to the microphone, and just, please, state your name and affiliation for the record.

I would request that only one person speak at a time, not only to allow us to get a clean transcript, but also to make sure that we all listen to whoever has the floor at the moment. And because we want to develop some what I call discussion threads, at least as much as possible, I may not take the cards in the order that they're raised, so that we can follow a particular topic to its end.

Not all of the comments that we make are going to fit squarely into the agenda item that we're on. So what I will do is we may defer discussion of those. I will keep track of those up here and we'll circle back at some time during the day and get to those and I will also try to keep track of any major recommendations, action items that come up during today's discussion.

In terms of agenda, we are going to go to all of you for introductions and for those of you around the table,

besides telling us who you are and what your affiliation is, if you could give us, if you want to, a few sentences on what your interests and concerns are on this topic of performance-based regulatory approaches.

We're next going to give you some context and background on the performance-based regulatory issue, and Prasad Kadambi, from our Office of Research, is going to do a presentation for you and then we'll have clarifying questions from those of you around the table and then those of you in the audience, to make sure that you understand as much as possible what the NRC's intent is here before we move on to the discussion areas.

We originally had on the agenda that was in the Federal Register notice a session on experience of other agencies or organizations with performance-based approaches. Unfortunately, we had some last-minute cancellations, so we don't have anybody from Department of Energy, individual state governments, or the academic community who have worked on performance-based regulation.

One of the things that might be helpful for the NRC staff is if you know of other agencies, other organizations that do have experience with performance-based approaches that

might illuminate our efforts, because we always tend to just be a little bit insular, I think, if there's anything that might help us, if you could suggest that, then I think that would be beneficial for the staff.

The first discussion period will then be the 10:30 discussion period, where we're going to look at the nature of performance-based regulatory approaches. What does performance-based mean? Is it possible to develop a common understanding of this term? What are the goals and objectives of performance-based regulation? Another way to say it is what problem are we trying to fix with performance-based regulation and issues such as what's the relationship between performance-based and risk-informed.

I think that most, if not all of you might have had an opportunity to read the white paper on these issues and I think there may be some value in discussing those relationships.

We will then break for lunch and come back from lunch and then look at the specific guidelines. The agenda topic for 1:00 says what criteria should we use to select guidelines. I'm not sure that that's the exact way to state that, but another way to state it might be what attributes are important

for implementation of a performance-based regulatory approach. I think we'll ask Prasad to just do a real brief summary of the guidelines at that time, and they flow from the white paper. So I think they're pretty basic.

At 2:30, we're going to talk about implementation issues. There are some listed on your agenda. At 3:30, we'd like to make sure that all of the key issues in the additional information portion of the Federal Register notice were covered. One of these is, are the guidelines clear, and I think it would be important for us not only to have your opinions on whether individual guidelines are clear, but is the relationship between, for example, the guidelines in Section A of the Federal Register notice and Section B and Section C clear. Is it clear what the relationships are between the individual guidelines on viability?

There's also a lot of implementation issues in the additional information and we think that these questions are going to come out during the discussion, but just to make sure we systematically cover them all, we'll go through those again at that 3:30 session and that will bring us back to some issues that we've discussed before.

So at any rate, we're glad that you're with us and we

do have representatives here from the materials and waste disposal areas, as well as reactors, and I'll try to make sure that the little sailboat of materials regulation doesn't get swamped by the reactor powerboat here. But I think it should be an interesting interplay between materials and reactor regulations. These guidelines are intended to cover all areas and I think that's one reason they're called high level, and Prasad will expound upon that.

But let's begin with introduction of all of you around the table. Let's start with Cathy.

MS. HANEY: My name is Cathy Haney. I'm with the Office of Nuclear Materials Safety and Safeguards, particularly in the Rulemaking and Guidance Development Branch, and I'm just interested today in hearing all the views on the guidelines, the draft guidelines that we put out in the Federal Register notice.

MR. CAMERON: Bill?

MR. UFFELMAN: I'm Bill Uffelman. I'm Director of Public Affairs and General Counsel for the Society of Nuclear Medicine, and I guess as of yesterday, also the American College of Nuclear Physicians, given our joint management venture.

I'm here today basically because we are very interested in the topic and thinking about the ocean that we're all floating in. Yes, ours is a very small boat compared to that other one and some days we feel like we're getting swamped.

MR. BROWN: My name is Roy Brown. I'm Director of Regulatory Compliance for Mallinckrodt. Mallinckrodt is a major radiopharmaceutical manufacturer. I'm also Chairman of CORAR, the Council on Radionuclides and Radiopharmaceuticals. That is the trade association for manufacturers of radiopharmaceuticals and medical radionuclides.

Our interest here today is on performance-based standards. Our experience with them has been very, very positive and we applaud NRC's approach to look into this. So we're here to interact on that subject.

MS. SHOLLENBERGER: My name is Amy Shollenberger and I'm a Senior Policy Analyst for Public Citizens Critical Mass Energy Project, and I focus on the materials side, particularly on high level waste and a little bit on low level waste issues.

MR. LOCHBAUM: David Lochbaum, Union of Concerned Scientists. I'm here because our next report is going to be on how the NRC is using risk. I just want to understand the move

towards performance-based regulation.

MR. CAMERON: Okay. Thanks, Dave. I guess that report is still in draft, right?

MR. LOCHBAUM: Yes.

MR. CAMERON: Although you probably have settled on a cover.

MR. LOCHBAUM: The one with the man hiding his head was disallowed, so we went to this one instead.

MR. CAMERON: Well, we may hear more about that. Prasad?

MR. KADAMBI: My name is Prasad Kadambi. I'm with the Office of Nuclear Regulatory Research at the NRC. I have a deep intellectual interest in performance-based regulation.

MR. CAMERON: Does that mean it's not in your elements and standards, Prasad?

MR. KADAMBI: Sort of.

MR. CAMERON: All right.

MR. BERLINGER: My name is Carl Berlinger. I'm in the Office of Nuclear Reactor Regulation, Divisions of Systems Safety and Analysis. I'm sitting in today for Gary Holahan and I'm here primarily to find out the opinions and information that we are receiving back as feedback from the industry and

stakeholders.

MR. CAMERON: Thank you, Carl.

MR. RICCIO: Good morning. My name is James Riccio. I'm with Public Citizens Critical Mass Energy Project. I'm here today because I have grave concerns about the direction that this agency is heading. I wouldn't be nearly as concerned about performance-based regulation if we weren't simultaneously ripping Part 50.

I also find it especially ironic that just at the point where we move to performance-based regulation, the agency destroys its ability to actually track performance, and I believe that relying upon industry and INPO data is going to come back to haunt this agency.

My presence here today is in an effort to at least shore up this system to be as rigorous as it possibly can be, because we've already torn up the tracks of the old regulatory system. So we need to really move ahead.

Thank you.

MR. CAMERON: Thanks.

MR. BRADLEY: I'm Biff Bradley. I'm a Senior Project Manager in the Regulatory Reform and Strategy Group at NEI. My interest in performance-based regulation is primarily having to

do with its implementation into regulatory reform activities. We're developing the guideline to implement the Part 50 reform activities and we view performance-based regulation as a major way to address treatment of components.

I guess I better get my name tent or I won't be able to participate in the rest of this, according to the protocol here. Thank you.

MR. RAY: I'm Harold Ray. I'm with Southern California Edison Company, a power reactor licensee of the agency. I also chaired the Regulatory Process Working Group, which, for example, worked on the maintenance rule implementation, including the recent modifications to the maintenance rule, and I am a member of the Risk-Informed Regulation Working Group that the industry has formed to provide input to the agency on risk-informing the regulations.

So I'm very, and have been for a long time, interested in both risk-informed and performance-based regulation and the evolution of those requirements. I look forward to participating today.

MR. CAMERON: Thanks, Harold. Steve?

MR. FLOYD: I'm Steve Floyd, from the Nuclear Energy Institute. The industry is very interested in and supportive

of the agency's move in this direction to explore the feasibility of performance-based regulation. We see it as potentially having a stand-alone application. There are certain regulations that we believe are overly prescriptive that actually inhibit the ability to have more efficient and effective ways of implementing the requirements that are intended by the current regulations.

We certainly also see a linkage between performance-based regulation and risk-informed regulation and we're interested in getting the agency's view on that today and hearing what others think of that relationship.

MR. CAMERON: Thank you, Steve. My apologies to Amy for leaving the E-R off of her last name. It is Shollenberger, for the record.

Are there any questions about the agenda, about how we're going to proceed, before we go to Prasad?

[No response.]

MR. CAMERON: Okay. Prasad, are you ready?

MR. KADAMBI: Yes.

MR. CAMERON: All right.

MR. KADAMBI: Good morning, again, and thank you, Chip. What I'm going to cover is the overview of NRC's

performance-based regulatory initiative. I want to give you the context from which I come. I'm with the Regulatory Effectiveness and Human Factors Branch. Jack Rosenthal is the Branch Chief.

We have been assigned a lead role in working with the other offices to propose the guideline, prepare these guidelines as a part of the effort of the Performance-Based Regulation Working Group, and there are several members of the working group over here.

We publish them, as I mentioned, in the Federal Register notice and it's my hope that this group will help us stay coordinated with the other regulatory improvement initiatives, such as the risk-informed activities going on at the other offices.

So why do we want to pursue a performance-based regulatory approach? The short answer is because we see some promise in its ability to help us improve the regulatory framework, regulatory structure, practices.

NRC is not the only agency in the government attempting to use performance-based approaches. As Chip mentioned, we had hoped that we would have coverage of how it's being applied elsewhere, but we do know that it is being used,

people have found it useful to bring about improvements in the regulatory structure, and we would certainly like to know, as Chip mentioned, what anybody else can offer. We just don't know as much as we should in this area.

The first aspect of performance-based regulation, I believe, to emphasize is the flexibility that it affords both the NRC and our licensees to determine how best to ensure safety. From the NRC's point of view, the flexibility is ability to consider changes in regulations, regulatory guidance, inspection guidance, technical specifications.

We have a variety of methods by which we can pursue these improvements.

From the licensee's point of view, we believe that the flexibility enables pursuit of the most cost-effective option. The flexibility allows NRC and licensees to do various things. I would suggest that it allows appropriate response to new information, new technology, changed circumstances, while maintaining adequate safety margins at all times.

I'd just like to offer at least some examples, ideas of what I mean by this. New information. I believe the risk insights that we have achieved from -- we have gathered from many of the analyses that have characterized the work on

probabilistic risk assessments over the past many years are part of the new information base with which we can improve regulations and how we regulate.

The improvements may point to a need to reduce risk or they may point to a need to reduce conservatism. New information can arise from research results. For example, recently, some N reactor experiments in, I believe, France showed that the transient behavior of some kinds of fuels may not be exactly as we had expected. How to take such information into consideration while we go about changing our regulations is part of our performance and results should be a very important part of what we -- how we regulate.

New information also comes about as part of operational experience. Now, operational experience is what we gather everyday in events and other things, but also one can include operational experience in the downward trend in reactor trips that we have observed over the past ten years.

New technologies. Well, when I say new technology, the thing that comes to mind is the ubiquitous computer these days, with getting more and more powerful, which enables everybody to run complex PRA models which these days can be used not only in reactors, but fuel cycle facilities, anywhere

one would want to, really.

Another aspect of new technology is the digital instrumentation and control system. This is really something that we are facing every day.

Changed circumstances. The classic example is the way deregulation is affecting the electricity generation industry. Another changed circumstance, a few years ago, we had expected a set of options on waste disposal, radioactive waste disposal, which today may or may not apply, landscape constantly changing.

Now, it's hard to envision the benefits of performance-based approaches in the abstract. I think we need to really consider any benefits in the context of what some of the problems are that we have experienced with the existing structure of prescriptive regulatory requirements.

I believe that prescriptive regulations inhibit creativity. We are recognizing that in various revisions to regulations that we are pursuing right now, revisions to Part 60 and 70, based on the kind of prescriptiveness that is in there right now.

Now, the Commission has really emphasized the need for us to try our attempt and develop some of these new

approaches. The strategic plan offers a very prominent role to risk-informed and performance-based approaches, and we certainly want to be at the forefront of the learning experience from these new methodologies and hopefully help us be more effective.

So what is our objective in employing performance-based approaches? I believe these are the sorts of things that are open to discussion and primarily what I offer over here are my thoughts on the matter. But I believe that one of the first objectives is to assign responsibility appropriately.

The Commission has stated that the safe and secure use of nuclear materials for civilian purposes is the responsibility of NRC licensees. Therefore, we believe that the licensees have a very significant role in ensuring public health and safety and really using the performance-based approach should include this aspect of it.

Also, there is the question of efficient use of resources, because of resource constraints all around, everybody is motivated by maximizing the level of safety that can be obtained per unit dollar cost.

Then greater flexibility that's afforded to

licensees, I believe, would tend to increase the accountability of licensees to seek optimal solutions.

So when we published the guidelines in the Federal Register and invited people from all over the country to come to the NRC and participate in this workshop, we had a responsibility to envision how this workshop would achieve success, and I've tried to capture some of the important things for us over here.

The first thing is that the Commission has, as I mentioned, expressed a lot of interest in this, has given specific direction. The most important part of this, in my mind, is the white paper that the Commission put out, in fact, one year ago today, March 1, 1999.

We've got copies of the white paper available outside. I hope there's enough for everybody.

So achieving a better understanding of the Commission's directions on strategies for improving the regulatory framework is definitely part of it. The Commission recognizes, I believe, that there's considerable work that needs to be done before we can more widely use performance-based approaches.

The second thing I hope will happen at as a result of

this workshop is a better understanding of the terminology. Again, the white paper is a very significant accomplishment in defining terminology in some kind of a consistent manner and establishing a benchmark of meaning for some of these terms.

I hope all of you will use that in such a way that all of us can have a common understanding of the meaning when we discuss these terms. Of course, there are new terms that come along all the time and that's definitely not covered in the white paper. These days, it's become part of the jargon to talk about option two and option three and things, but it's only by communicating among ourselves that we can maintain a common understanding of the terminology.

Now, because we have a working group that cuts across office boundaries, I hope that you will -- if you have any questions, you will be able to use us as a resource to help you get information from the right source within the agency, after coming to this workshop and getting to know us.

What I would hope that we get from you is that you will give us your perspectives on what we are talking about using performance-based approaches, kinds of performance-based activities that we may be proposing. I'm sure that you've come here with certain views and some of the views may change as a

result of communicating with the others over here and we would certainly want to know how we can improve our ability to foster such communication.

We certainly want written input on the questions that we published in the Federal Register notice. I want to point out that the public comment period ends on March 24, which is a good three weeks away, and I think offers considerable time to prepare your comments and it's very helpful for us to have written comment. That way, we can make sure that we address all the questions, the concerns raised. And certainly if there are some additional questions, we'd be interested to hear about them at this workshop and also receive them in written form.

Among the most important, I would say what would be very helpful to us are specific examples; examples of regulatory requirements and rules, guidance, specifications, wherever you see them, where you find that requirements are too prescriptive. Where do you find that performance and results do not seem to make any difference when they should, from a technical standpoint, make a difference.

I believe that we intend to use the flexible approach that would be available to us in dealing with the regulatory framework to institute improvements as they are best merited.

Let me take a little while to explain what we have had in mind when we develop these guidelines. I should emphasize that we call them guidelines for a reason. These are not meant to be go/no-go decision points at every step. These are not meant to be black-and-white decisions.

I believe that we are constantly dealing with shades of gray. What we want to do is have a framework, a sort of a disciplined process and a structure within which we can propose improvement, plan the work that would be needed to implement the improvements, before we commit any resources to doing it.

So the end is, we foresee for the guidelines, is to help us both identify and assess activities. The identification would be part of some kind of a screening process, again, open to discussion as to how exactly this could be implemented. We've got quite a bit of time set aside to pursue that in more detail. And if we decide to commit resources and to pursue an activity, we would really use them to also assess how we are accomplishing what we set out to accomplish.

Now, there has been some confusion about the term high level applied to these guidelines. At least a couple of people have asked me if this implies an association with high

level waste. That's where they see that applied most often.

Well, the term high level really came out of the Commission's directive for us to develop high level guidelines and I believe what that implies is that we should look for similar concepts that are applied to a wide range of activities and if we apply these concepts consistently and coherently, then the regulatory approaches would be consistent with each other across the range of activities that we see represented over here.

I think this concept is very well exemplified in the white paper itself. If you look at the white paper, you will see that it doesn't focus only on reactors, it doesn't focus only on material, and as it proceeds with describing the terminology and what the Commission meant by it, it offers examples that cover all the different areas of regulated activity.

But because these principles or these guidelines are at a high level, it's really the particularities of a given issue or a given activity that would determine how best to apply the guideline, the level of the application and the significance that we would associate with the attributes.

So I would say that what this means is that the

details are context-driven. Now, what we have proposed is a structure within these guidelines and, by the way, I'm sure people have noticed that the guidelines needed to be re-published after the first January 24 publication and the reason for that is because on the January 24 Federal Register notice, the kind of hierarchical structure that we had in mind with these guidelines just didn't come out in the way it was published. It just came out as a laundry list.

We felt that it didn't really present the guideline as we wanted it presented. So we re-published it with the kind of hierarchical distribution that hopefully makes it less repetitive and more easily understandable.

But what we had meant is to really divide it into three classes. The first would be as a screening tool, if you're dealing with a given issue, we would try to see to what extent the current regulation possesses the characteristics associated with viability, either the current regulation or the proposed improvement.

So is it viable for attempting a performance-based approach? Now, if we say that it is viable, then really what opportunity for regulatory improvement would be observed in this? What are the benefits of the change?

Then as we look more into what kind of changes we may want, we would certainly want to keep in mind that we are dealing with a network of NRC regulatory policy that is characterized by what I would say are keystones. These are the very fundamental principles that we would certainly give the greatest degree of attention to. We've got to remain compatible with these and the examples we would find are things like the principles of good regulation and the policy statements given by the -- issued by the Commission.

These are really the constraints that would guide whatever effort we undertake.

As an assessment tool, what these guidelines would offer is a way for us to assess whether we are meeting our expectations that we set out with. In fact, this is a concept of effectiveness which we are using across the board in some of our other work, is to compare expectations with outcomes as a way to see whether we are being effective. So I believe that these guidelines can also be used in that regard.

Right now, what we expect is that these guidelines would get into some kind of a management directive or some kind of procedural document that would apply to all NRC work and would be applied that way.

I've tried to capture on one slide the draft guidelines. I want to, again, emphasize that these are draft. They are subject to change based on the input that we receive from all sources. Chip, I know that you wanted to address some of this in the afternoon, but maybe I can just very quickly go through this for right now and provide a basis for the discussion.

MR. CAMERON: Okay. Go ahead.

MR. KADAMBI: Here, again, this is divided into viability, the regulatory improvement, and consistency with regulatory principles. The viability attributes are taken directly out of the white paper. In the white paper, there is a paragraph on performance-based approaches and it provides four attributes.

The first is measurable and calculable parameters. What we feel would be most beneficial in this is to have parameters that are directly measured and are as directly related as possible to safety.

It would also be helpful if these are currently being accessed in real-time or if not in real-time, at least periodically, so that there is a record of performance and results.

The second attribute is objective criteria, based on risk insights, deterministic analysis, or performance history. Now, to me, what this says is that the criteria that we use, the criterion that we apply to a parameter provides a bright line that says on one side of this line, you pass, and on the other side, don't pass. So that is where an objective criterion -- that's one way of looking at how an objective criterion might be applied.

Of course, the determination of this bright line could be based on this insight and deterministic analysis or on the basis of performance which has been determined to be safe or unsafe, if we find that changes should be made.

The third attribute is licensee flexibility. Again, the white paper very clearly indicates that the flexibility is afforded to the licensee, so that the programs and processes are really at the discretion of the licensees, as long as the safety objectives are met.

The last attribute describes a framework in which an immediate safety concern is avoided, even if the performance criterion that is, I believe, attribute B is not met. In other words, attribute B offers this bright line concept, where on one side it's okay, on the other side it's not. But what does

it mean for it not to be okay? Well, it should be such that even if it's not okay, you don't have an immediate safety concern and that can happen only if there is a sufficient safety margin, that there is time to take corrective action, and that there is licensee capability to detect and correct the performance degradation.

I believe these attributes are part of what is really embedded into this set of the attributes that the white paper offered.

Under opportunities for regulatory improvement, we have really taken the guidance from the Commission's stated goals. The Commission has stated that maintaining safety, protecting the environment, common defense and security is really the most important of our goals and certainly ensuring the safety margins to accomplish this is what we would look at.

We'd like to think that if performance indicates actual results, quantifiable or otherwise, but objective measures of results, then public confidence would actually be increased. We would also seek to increase effectiveness, efficiency and realism consistent with the Commission's goals.

Certainly, if, as we look at the degree of safety margin and all the other attributes, if we find that there is

unnecessary regulatory burden, then this would be one of the factors that we might choose to pursue. Of course, this recognizes that regulatory burden is really a part of safety regulation. It's only when it gets into a range where it is unnecessary that action would probably be justified.

The fifth attribute under regulatory improvement embodies the concept that there should be some kind of a way to assess the benefit that would come from any such activity. The benefit has to be considered in the context of in many of the activities we are talking about. We are talking of industries that have achieved considerable maturity. So there is a record of performance and a record of how things have worked reasonably well over decades, and the level of maturity of the industry is something that has to be taken into account.

The costs associated with changing something that is characteristic of this level of maturity should be taken into account and really what we don't want is to get into a very complex cost-benefit analysis, but it should be amenable to some kind of a simplified analysis that we can see the benefits and be able to communicate the benefits of such work to the decision-makers and to our stakeholders.

The next attribute is what kind of improvements do we

see in the regulatory framework and by the regulatory framework, I'm talking about a network of components that would probably have the regulation itself in the Code of Federal Regulations at the top and below it would be guidance documents and various other sources of regulatory practice, and we would, I think, look at how amenable a given proposal would be to changing one or more of these components.

The final one is to accommodate new technology. Of course, this is more and more, as we see the tidal wave of new technological improvements that are coming down, we see new technology that offers new techniques and at the same time, unavailability of the old techniques that we used to use. And, of course, the new technology also changes the economics of addressing the regulatory issues that need to be addressed.

The last class of factors would be the overriding NRC goals, principles and approaches, and, as I mentioned, these examples of these are the principles of good regulation, the PRA policy statement; more recently, Reg Guide 1.174. For those of you not involved in reactors, this offers guidance on how to change the licensing basis using risk information.

And, of course, last, but not least, and certainly not least, the principles of defense-in-depth and the

consideration of uncertainty.

So this, I hope, is a broad overview of what is involved in the Federal Register notice, the proposed guidelines, the background from which these were developed, how we have gone about developing them, and, of course, I hope you have a good sense of where we are headed from here. We expect to have another workshop. Most likely, it will be the first of June, and subsequent to that, we would have a draft paper prepared that we would present to the Advisory Committee on Reactor Safeguards, as well as the Nuclear Waste Advisory Committee. By the middle of August, we should have a finalized Commission paper to send up.

MR. CAMERON: Okay. Thanks a lot, Prasad, for that overview, and I think that will probably spare us some time later on today. I'd like to go to all of you for questions at this point. A lot of these questions, I'm sure, may keep up discussion areas or issues for later on.

I just had one process question for you, Prasad, in this. Although there are going to be -- there is an opportunity for written comments, can we assure people around the table and in the audience today that any comments that they offer today will be considered as if they are formal comments

on the guidelines?

MR. KADAMBI: I believe that because we have a transcript of the proceeding, they would be certainly considered, but it would be very helpful if they are also offered in writing. Ernie, did you want to say something?

MR. ROSSI: Yes. I was just going to say that definitely the comments are being collected as part of the transcript and they will be considered. Sometimes if you write in the comment, it will give you a chance to think a little bit more about how you want to say it and perhaps say it better and put it in words that you feel more comfortable with. So the written ones are very useful to us, but we will definitely consider all the comments that we hear today, because we are taking the transcript.

MR. CAMERON: Thanks, Ernie. Roy?

MR. BROWN: Prasad, you indicated that the draft guidelines would be circulated by the Advisory Committees on Waste and Reactor Regulation. Is it possible to circulate this to an advisory committee for materials facilities, maybe ACMUI or someone else?

MR. KADAMBI: Certainly. I mean, I think we would, but I just didn't include that in the list of advisory

committees. But I think all the advisory committees that have cognizance over this area will be getting the guideline, which will be developed at that time.

You know, the thing is what we offer the advisory committees will be the guidelines that will be available at that time, and we are talking about the June-July timeframe.

MR. CAMERON: Does that clear you up, Roy?

MR. BROWN: I'd like to hear Cathy's response.

MR. CAMERON: Cathy?

MS. HANEY: I'd have no problem in taking it to the ACMUI. The only problem might be is that there is not a formal meeting of the ACMUI planned at this point. So we would probably be doing more going through with e-mails and dealing with them that way as compared to a formal meeting.

If timing would allow it to be discussed during a formal meeting, we would certainly be able to do that.

MR. BROWN: I guess my point being that it would be nice for the materials facilities to have a crack at the draft guidelines, too.

MR. KADAMBI: Certainly.

MR. CAMERON: Okay. I'll put that down as a specific recommendation up here. Jim Riccio.

MR. RICCIO: Would it be possible, at the next public meeting or some other get-together, that we could have people from the regions also participate? I think it's pretty evident that not only are the stakeholders involved, but the people at the NRC are also involved in making this change occur, and I believe that Public Citizen isn't the only one that approaches this with skepticism.

The report from Inside NRC that showed that only 19 percent of regional staff thought that the new process was going to work is indicative of the necessity of bringing in your people, as well, and I found their participation in the pilot plant evaluation panel to be very instructive and helpful in framing the issues.

MR. ROSSI: Yes. At the next meeting, we will try to involve the regional -- some regional representatives. I think that is very important and I'm sorry we didn't do it today. That would have been a good idea.

MR. CAMERON: Are the regions represented on the working group? And maybe we should have the working group introduce themselves now.

MR. KADAMBI: Certainly, we can introduce the working group, but right now, we don't have any regional

representatives on it. Perhaps I can just identify -- Cathy Haney is on the working group and over there we have Jim Smith, Sid Feld, Joe Birmingham, Steve West, certainly Jack Rosenthal and I are members of the working group.

MR. CAMERON: Okay. Thank you. Other questions at this point? Is it clear, for example, what the relationship between the guidelines in Section A of the Federal Register notice are with Section B of the Federal Register notice? Perhaps that will come out during the discussion.

Prasad, you may want to just quickly comment on that, but is Section A sort of a first screen in terms of attributes of performance-based regulation, but even if a particular area meets that screen, that it also has to meet the -- what I call the benefits screen in Section B before the NRC would proceed?

Is that the relationship?

MR. KADAMBI: I would expect that when we apply these guidelines, we would take an integrated view of it. That's the way we've presented it. It would be a logical process to go from what you call Section A, which is, I think, what you're talking about as the viability criteria -- in other words, to what extent does it can it meet the attributes given in the white paper, and then we would get into really what kind of

benefits would flow from really doing something that would, in fact, change it.

So there is a sense of a logical flow in it, but none of this is rigidly constrained and I believe that it would be an iterative process. So only in that sense that I would say it's not necessarily just going from Section A to Section B to C in that way. We would be considering all of them together, but then when we infer something and we make any recommendations, we would, I think, try to structure it in such a way that we would see the viability and then compare it with the benchmark, which would be the current situation.

MR. CAMERON: Let's go to David, and then we'll go to Amy.

MR. LOCHBAUM: I don't have a question about that part of it. I have read that white paper a number of times and I don't understand the difference between performance-based, risk-informed and what we're doing today. That's in the form of a question.

Are there any plans to revisit the white paper or do you have somebody who could explain it?

MR. KADAMBI: Well, I don't know of any plans to revisit the white paper. The white paper really was a long

time coming. It was issued, as I say, a year ago today, after several months of deliberation, I believe, at the Commission level.

MR. LOCHBAUM: I didn't realize that more than one month went into it. Then I'll withdraw the question. It's clear enough then. More than a month went into it.

MR. CAMERON: Okay. I think that we need to, in the discussion period after the break, probably need to address this issue of the relationship between risk-informed and performance-based. I'm going to just note David's point up here on action, with a question mark after it, is that the need to revise or put a finer point on some of the things in the white paper, that may be something that comes out of the discussions on the guidelines.

Amy?

MS. SHOLLENBERGER: I now have two questions. I think, first of all, just a quick follow-up on what Dave just said, because the one thing that I had trouble with was the fact that you could have performance-based without risk-informed. That was something that I really had a lot of trouble with and I'd like to get that on the list.

But to go back to your guidelines and the order of

whether it's an integrated process or whether you're going to do it Section A, Section B, Section C, one of the things that I was really concerned about was that you have maintain safety, environment, common defense and security by ensuring safety margins, in the second tier.

It seems to me like that should be the very first question and not after figuring out whether it's going to allow the licensee to have flexibility or whether it's got objective criteria.

I think you need to figure out first if it's going to keep people and the environment safe. So I was a little bit encouraged by your answer that it's an integrated process, but I'm not sure that I really believe that.

Also, I don't really see how it being in this tiered process, how that will do anything to increase public confidence. I mean, I'm feeling unsafe just reading the guidelines, and it's not even being implemented yet.

So I think that it's going to be really difficult to explain to the public what kind of process this is based on these guidelines.

MR. KADAMBI: I take your comment, but I'd like to ask, is there something we can do to prove it in such a way

that we can communicate the message that maintaining safety is certainly a very important part of actually implementing the guideline and the aspect of public confidence is to offer more transparency to the process, that people can see what's happening and why it is happening and what is being changed.

That is the hope and if we are not accomplishing that hope, I would certainly like to hear from you how we can.

MR. CAMERON: I think that that will be a key item for discussion at probably the 1:00 session, when we get into the specific guidelines. But I think that this relationship between A and B and whether that denotes any sort of hierarchy or whether it's just something different really needs to be spelled out.

Jim?

MR. RICCIO: I'm just wondering, as to the measurable or calculable parameters, who is actually going to verify the data that's submitted? We're already seeing instances in the risk-informed side of the house where certain utilities are having a problem accurately or adequately reporting their performance data and this goes back to my original comment that basically I saw us wipe out AEOD just at the point when we're going to go and deal with performance-based regulatory

approach.

I'm watching the industry split hairs over functionality and operability and my concern is that the data that you're going to be basing this new process on may not necessarily be accurate.

I was wondering who was going to be in charge of verifying that what the industry submits actually is what is going on out there.

MR. KADAMBI: I'm not sure that I have a full answer to your question. Generally, I would bring you back to the point that these are high level guidelines. We are talking about we don't necessarily know how it would be applied in the act as opposed to other areas, but these are the kinds of questions that I think will be forced upon us as we go through the process of using the guideline.

MR. CAMERON: I think that that's also something that we need to discuss at 1:00, because certainly if we have a high level guideline for viability of measurable parameters, in order to implement that, you're going to need to be sure of what data is going to be used, where is it going to come from. But I think that's a good issue for discussion later on today.

MR. RICCIO: Not that I like to quote Ronald Reagan,

but, you know, "trust, but verify."

MR. CAMERON: All right, Jim. Thank you. We've already seen some agenda issues up here, I think, that we're going to get into in more detail and before we take a break, let me go to see if there's anybody in the audience that has a clarifying question in terms of Prasad's overall presentation.

Yes, and please state your name and affiliation.

MS. HELFER: Lara Helfer, Hopkins & Sutter. I'm just curious how this will impact current or regulations about to be implemented, such as the new oversight program. I understand the risk-informed side of it. If you start making it performance-based, I see the benefit, but I don't understand the implications.

MR. CAMERON: There is a space on the agenda for that, for a detailed discussion of that later on this afternoon at 2:00, as what is the relationship between ongoing efforts and the guidelines efforts. Prasad, do you have anything to offer on that at this point?

MR. KADAMBI: As currently published, we envisage that the guidelines will be applied to new activity, but these are the kinds of questions that I'm sure we will get into and I think maybe Ernie may have something to say on that.

MR. ROSSI: I was going to make another comment, and that was that before we break -- although maybe you ought to finish with that one before I make my other comment.

MR. KADAMBI: I think these are the kinds of questions that we will be wrestling with, but we will have to be more clear in our minds as to what these guidelines actually would look like when we are ready to present them to the Commission, before I think we would be in a position to address how it affects specific ongoing activity.

So I guess my answer is I just don't know right now.

MR. ROSSI: I don't think at this point in time we have any intent to go back and revisit the oversight process specifically because of these guidelines. I mean, the oversight process will be looked at, the revised oversight process will be looked at in the context of how it works and the pilots that are going on and that sort of thing. So I don't know that we would go back and re-look at that, and that process is intended to have a lot of performance-based approaches in it, as well as be risk-informed.

The other comment I was going to make is that as we hear questions, I think there may be others that have their own views of what the answers to what some of the questions. There

are industry people here and there are others in the NRC, so I'd like to hear their views on some of the questions, also.

MR. CAMERON: We will and that's what the purpose of the discussion period is. This question period is sort of teeing up discussion items for us and going back to this relationship issue, I'm not sure that the implication of the question was that the oversight process should be revised, but that the relationship between these guidelines and ongoing activities, like the oversight process, should be clear.

And, of course, these are draft guidelines and so any views on what the relationship should be, for example, with the oversight program or anything else is open for comment at this point.

Anybody else in the audience?

MR. KADAMBI: Can I just make a point? We have registration forms. It would be very helpful if people who have not filled them out, fill them out so we will know who is at the workshop. Appreciate that.

MR. CAMERON: Okay. Good. Well, thank you. Let's take a break, to give you time to get up to get coffee, if you need it, till -- let's give you 20 minutes. So that's 10:45, be back here, and we'll start the first discussion period.

[Recess.]

MR. CAMERON: I guess we're going to get started now. We have everybody back and we're going to run to 12:00. First of all, let me apologize for some misinformation that I gave, which will confuse things even more, but hopefully not after this explanation.

I kept referring to A, B and C in terms of what are the relationships between these parts of the guidelines and it's really I, II and III. Okay. In other words, there's A, B and C under Roman Numeral I, but what I was talking about is what's the relationship between Roman Numeral I viability and Roman Numeral II, et cetera, et cetera. So I think that confused people.

This discussion topic going to noon is intended to take a look at more the conceptual foundation of performance-based regulation. Do we have a common understanding of what performance-based regulation means? Is it possible to develop a common understanding? What's the relationship between risk-informed approaches and performance-based approaches? When are they separate? When are they linked?

If we could use examples as much as possible to try

to answer some of these questions, that would be useful. And what are the objectives that we should be trying to achieve with performance-based regulations?

So I guess I would like to open it up in terms of addressing the question of does everybody have a clear understanding of what performance-based regulation is, and I'll go to Amy for first comment.

MS. SHOLLENBERGER: Thanks. Well, like Dave, I was a little bit confused when I read the paper, but I think I figured it out and I'd like to put forth what my view of this whole move means for the public.

MR. CAMERON: All right.

MS. SHOLLENBERGER: The way I see it is that the risk-informed part has this underlying principal of the risk triplet, which are three questions; what can go wrong, how likely is it, and what are the consequences.

It seems like a prescriptive-based approach the way it's described in the paper. They claim that -- the paper says that prescriptive-based only answers two questions, but I think there's a third question, as well, and I think those three questions are what can go wrong, what are the consequences, and how can it be prevented; in other words, what can we do along

the way before the systems fails to prevent a system failure.

It seems like the move towards performance-based regulation moves to three different questions and I think those three questions are what will go wrong, how long until it will, and how mad will the public be.

As far as I'm concerned, the move from prescriptive-based or deterministic, as the paper refers to it, regulation to performance-based regulation is a move from prevention to mitigation and the mitigation is focused on -- not on the consequences for public health and safety, but mitigation to public rage; in other words, how can we make sure, once the system fails, that either the public doesn't find out before we can fix the problem or that we can calm the public down once they find out.

That really concerns me, because that's really the message that came out pretty loudly and clearly from the white paper.

MR. CAMERON: Let's have some comments on that. Amy used a number of terms, including deterministic, and I think that she might have juxtaposed that with prescriptive. Let's address her basic comment, but, also, if it would be possible, to get a clear understanding of where these terms fit in these

different boxes. In other words, prescriptive versus performance-based, I think, is usually one link set.

In other words, you're on a spectrum of regulation that can be very prescriptive, which usually means detailed, I guess, versus something that is a general performance objective. Amy mentioned the word deterministic, which is also used in the white paper, usually associated with the risk-informed side of the equation.

I think we need to get some clarity on this and at some point, I think we need to address Amy's perception of whether the move to performance-based really might have some deleterious consequences in terms of public health and safety.

Steve, do you want to go ahead?

MR. FLOYD: I guess maybe an example might help a little bit. I agree with your risk triplet analogy. I think that's right on and that's essentially what you do do in applying risk insights to decide what is important.

I guess this goes a little bit to the linkage between performance-based and risk-informed regulation. You would use the risk triplet analogy that you put forth to -- as the risk-informed aspect of it to tell you what's important and what you ought to pay attention to as a result, but then you

would use the information that went into each of those three questions to decide what would be an acceptable performance criteria, such that if there were a failure, it would not result in unintended or unacceptable consequences to the public.

A good example would be you do an analysis on a system in a plant. You look at all the various failure modes and potentials that result and what the consequences are to core damage frequency and you decide what's an acceptable value for core damage frequency and you look at what values of availability and reliability on that system result in an acceptable frequency for core damage or at least an acceptable contribution of that system to the overall core damage frequency, and you set it at a minimal value, and then you monitor your performance against that criteria that's been established.

For example, you might say I want this system to be available 95 percent of the time and when it's called upon demand, I want it to have a reliability that 98 times out of 100 it's going to work without a problem, and you have determined, on the basis of your risk insights, that that's an acceptable threshold.

It's not that you want to have failures. I mean, your goal is not to have failures, but you're monitoring your performance and if you start to see an unavailability that gets close to your target or exceeds your target, then you take aggressive corrective action to restore the performance back to the basis for the establishment of the criteria in the first place.

I don't know if that helps, but you certainly -- I think your question begged an important -- one of the criteria that was on the board this morning, and that was the failure.

If you go to performance-based regulation, the failure can't result in unacceptable consequences. So if the failure would definitely have an unacceptable impact on public health and safety, then you've got the wrong performance criteria, because you're trying to establish performance criteria well before it reaches that threshold. MR. CAMERON: Okay. Amy, we're going to keep your perception -- we're going to keep that sort of hovering here throughout this discussion and make sure that we focus in on that. What I would like to do is to get people's views on what performance-based is in relationship to risk-informed, as Steve just gave us an example of that.

Jim?

MR. RICCIO: I agree with what Steve just said, strangely enough, in theory. Unfortunately, it doesn't seem to be what's happening in practice. I think the IP-2 event is a good example of that. When you alarm steam generators to go to rupture, you have a problem on your hands where the public is not protected, and the way I'm viewing it at this point is we're already ripping Part 50. That train has left the station.

What we're looking at now is I'm hoping that the performance-based aspects of this new system can basically shore up what I see as a deregulatory effort on the other side of the fence. And whether or not, once you have an incident or an event, that the reaction of the agency and the industry is going to be sufficient enough to restore defense-in-depth prior to there being a reduction in the margins of safety, I have grave, grave doubts about at this point.

Like I said, the reason I'm here is to hopefully shore up this performance-based side of the house, so that it is rigorous enough to withstand the deregulatory effort that's going on in getting rid of important parts of Part 50.

MR. CAMERON: So when you -- and, Jim, let me clarify

something. When you said that you agreed with Steve in theory, is there some way that you can sort of capsulize what -- shorthand for us what your agreeing with?

MR. RICCIO: Had he characterized the risk, then that would be possible. The problem is, though, I see all the weaknesses in your characterizations. I see the fact that your PRAs are not based in reality, that you don't have a design basis that is adequate to maintain safety.

When you guys can explain to me how you allowed Haddam Neck to operate for 28 years with an emergency core cooling system that wouldn't have performed its function, then maybe I can have a little bit of faith that you're going to actually catch the problems before they event themselves in meltdowns.

MR. CAMERON: But you're focusing on risk and I guess the question I have is that going back to one of the issues we talked about during the last session, is -- and this is, I think, what Steve started with, is you start with risk and then you move to performance-based.

Is that always -- in other words, do you always need to go through the risk part of the equation to get to performance-based and what does -- and can we have an example

of what -- can someone give us an example of what a performance-based -- it doesn't have to be a real example, but how would you state a regulation in performance-based space versus how would you state that regulation in prescriptive/detailed space, and what would be the benefits to a licensee, the NRC, the public from taking it out of the prescriptive detailed space and putting it up into performance space.

So let's go to Harold, and then to Steve.

MR. RAY: I guess the first comment I'd have is you ask too many questions. I can't keep track of them all. So you've got to shorten them up into smaller bites, but I've been waiting to answer.

The first question you asked had to do with risk relative to performance and right out of the white paper itself, I believe it's true, it says a performance-based approach can be implemented without the use of risk insights. That appears on page four. It then explains how that would be the case.

It can also complement or be used with risk insights. But to get back to the more fundamental question here, I think it is, does one prefer prescriptive or deterministic -- that is

to say, I think prescriptive is better used here -- requirements for maintaining safety margin or are there some cases where you should be more confident that the margin has been maintained with a performance-based approach.

I would argue that there are circumstances in which anyone, any public interest group or anyone else in the agency, would prefer to see a performance-based approach as giving greater assurance that margin is maintained, because I could give you many, many, many examples where simply complying with the prescriptive requirements that existed and were developed largely back when people didn't really know how best to achieve the performance, which is the goal that everyone has, how simply following those prescriptive requirements does not result in maintaining a larger or better or more confident margin of safety.

And you really do need to look at what the failure rate is of any given component or system, even though you have been absolutely and fully complying with all the prescriptive requirements that could possibly be written down, using the best trained people in the world.

As Prasad indicated in the introduction, technology changes, our understanding grows, and you learn how better to

achieve the performance or the reliability of performance, which is the ultimate goal in any margin objective that one would have.

You don't have safety margin because you followed all the rules. You have safety margin because the result of what you do is a reliable system. That's what provides safety margin.

Now, there's a lot of limitations in looking at results, because for example, you need to have performance in an earthquake, in a harsh environment, and many circumstances which you cannot measure ahead of time what the performance has been.

So there are very real limitations on where you can apply a performance-based approach to regulation. But on the other hand, I would say to you it's exactly what you want to do if your real concern is maintaining robust and adequate safety margin. There are places where you do want to do that.

MR. CAMERON: Okay. That's a useful clarification, Harold, and it goes back to those attributes, I suppose, in I, about trying to figure out when you can profitably use the criteria, where you can use performance-based to heighten that margin of safety.

Do we have some comments on what Harold just said? Amy, go ahead.

MS. SHOLLENBERGER: I think, first of all, I would say that I would agree with you that there -- you know, I can imagine places where someone has followed all the rules and the system fails anyway and I would like to say that, like Jim said, in theory, I don't really have a problem with saying that in some cases, it's better to look at the performance rather than how well the licensee is following the 2000 rules that make up the total system.

But I have a few concerns with that. One thing that I was thinking about while you were talking is in a former life, I used to tutor speakers of English as a second language and it reminded me how I could teach them all the rules of the English language and they could still be pretty terrible speakers of English, because it's not always about the rules. It's also about the context in which you're using the rules.

But it's also the case that without the rules, it's impossible for them to speak good English. You can't learn the language without having some basis in the grammar and what the words mean.

So I think there has to be a really careful balance

between those two things and my overall concern, and this goes back to what Steve was saying earlier, is my concern is who decides, how do you decide what is an acceptable level of failure, and that really scares me, because I see time and time again decisions being made where you talk about low risk versus high consequence -- or low probability versus high consequence or high probability versus low consequence.

And when it -- it's really kind of removed from life when you draw your little matrix and say, well, fits in this box, and so it's okay if it fails ten times before we have to fix it. But the reality is that someone lives there and after it fails ten times, I mean, it might be on the ninth time that it causes the problem and so that person has to live with that risk, living next to whatever the system is, whether it's a reactor or whether it's a nuclear waste dump or whether it's a transportation cask driving across the country with high level waste in it.

So my concern is just that I don't believe that the standards are going to be set high enough at the performance-based level. At least when you're on the prescriptive-based, there are really definite rules that the public can look at and say, well, we agree with this or

disagree with this.

But on the performance side, it's harder for the public to figure out, well, how does that affect our lives.

MR. CAMERON: So we're going to get responses to that.

MR. RAY: Could I just respond directly to that?

MR. CAMERON: Yes, go ahead.

MR. RAY: Because it was a comment on what I had said. Again, I think we find ourselves probably in more agreement than disagreement often. I would still say to you you're better off having the ability to wrestle with the question of acceptable performance than to proscribe it and not have that ability.

So I would think, from your point of view, certainly from mine, as well, but that you would want to establish that capability and then set -- make sure the threshold is set very high.

I don't have any argument with Jim's point that he wants to make this a robust and very effective measure of performance. That seems perfectly logical to me to do. But I don't think it should be rejected as a way of ensuring that we're achieving our safety objective.

MR. CAMERON: Let's try to put a finer point on this and we'll go to Steve and Roy. Just one question. I wanted to make sure that everybody understood what -- I think the implication of your statement is that from a public confidence, public perception point of view, think the public feels more confident that with -- when they see a bunch of detailed regulations rather than just sort of a broadly stated performance regulation.

MS. SHOLLENBERGER: I'm not sure I could speak for the public in that way, but I think that Steve lists this as one of the goals to make the process more transparent and to have the public be interacting with the regulations in a more robust way, if I understood that correctly.

It just seems like there's just a lot more possibility that the regulations would be obfuscated on a performance-based level, because I might know what it means if somebody doesn't oil a machine once a month, that's something I can relate to, but I might not know what it means if you say, well, this pump, that pumps water out of the core or whatever it does, can fail three times before it's unsafe, because that's just a little more removed.

I'm not saying one is better or worse for inspiring

public confidence. I'm just saying that you have to be really careful in the way that you do it to make sure that it is transparent and that there is a way for the public to understand what's going on.

MR. CAMERON: Okay.

MR. RAY: I think there was a bias in the way you asked the question that I have to --

MR. CAMERON: I'm having trouble with my question, just excuse me.

MR. RAY: Nevertheless, what you were contrasting was detailed things to something very general. I don't think performance-based needs to be cast in the mold of something only very general and that that then needs to be compared with something that's very detailed and precise and prescriptive.

It can easily be the other way around and so that's --

MR. CAMERON: I'm glad you brought that out, because I think that that's maybe something that we have to address here, is that what is performance-based. I characterized it as something general versus something prescriptive and I suppose that's wrong. Detailed versus general, is that better? I mean, I'd like to find out --

MR. RAY: No, no. I think what's wrong is to contrast detailed with performance-based, because performance-based can be very detailed. The contrast would be between performance, which is what's the result of what you do, and prescriptive, which is what you should do.

For example, a prescriptive requirement might be maintain this thing regularly. Now, that doesn't have any detail in it. It's simply prescriptive. It says you have to have a periodic something called maintenance. Whereas performance can say every time you start this thing, you have to monitor whether it came up to speed and produced the required output and it has to do that 99 times out of 100.

That's more detailed, but it's performance-based and it doesn't say to you how you achieve that goal necessarily.

MR. CAMERON: Okay. Well, that's good. Thank you, Harold. Is everybody -- you've just heard Harold's explanation on this, which, I think, is a useful one at least for me. Do we have any comments on this, on what Harold just said in terms of the difference between performance-based and prescriptive, the inherent nature of that?

Ernie, did you want to comment on what Harold said?

MR. ROSSI: Yes. I just wanted to go back to the

example of oiling the pump once a month, which I guess would be very prescriptive and a performance-based approach. It seems to me that oiling the pump once a month is prescriptive and it may even be the right thing to do, but a better way to do it would be to look at, as Harold indicated, when you start the pump, how fast does it come up to speed, what's the flow that you're getting out of it, and that's the performance-based.

So there you're looking at what really counts rather than just whether you've oiled the pump once a month. And another example which may be too crude to be of use is that you could decide to change tires on your car at a certain number of miles. That's all you're going to do. You're going to change them every certain number of miles, and that could be quite prescriptive, I guess. But a better approach might be to have a performance-based requirement on the tires, that you're going to look at the tread and see what the tread really is and you'll change the tires when the tread gets down to a certain value, which still leaves you safety margin, and you may get down to that value very quickly if you're driving over certain kinds of road surfaces compared with others.

So in some cases, you may need to change the tires more frequently, and in other cases, at longer intervals, but

you'll be looking at the thing that's most important and that's the tread rather than the time between tire changes.

I don't know whether you want to comment on that example or not.

MR. RAY: No.

MR. CAMERON: Okay. Let's continue along these --

MS. SHOLLENBERGER: Let's continue along these lines. Steve, you had your card up for a while. Go ahead.

MR. FLOYD: I'm actually responding to a different question that you asked about 15 minutes ago, I think, and that was did anybody have an example of a performance-based regulation that was perhaps not risk-informed to show that there's two possible populations.

I think a good example of one that might fall in that category would be fitness-for-duty rule requirements. It's very difficult, and this goes to, I think, what Jim Riccio was pointing out about the limitations of the PRA, in some cases, or risk analysis, in general, that it doesn't always apply in every case and you don't have some good data to support it.

What you might be able to do in the fitness-for-duty rule to make it performance-based would be to say something like along the lines of the licensee is to establish a valid

statistical sampling program to provide assurance that the abuse rate of alcohol and unauthorized drugs is no greater than, pick a number, ten percent of what the general population is -- that could be a performance-based rule -- as opposed to a fitness-for-duty rule that could be very prescriptive that would prescribe that the licensee is to have an officer in charge of the program and they have to sample X number of people a month and they have to basically specify what would be a statistically valid sampling program, which may vary depending upon the size and population of the plants, which could get to Harold's point, where you could actually specify particular requirements which might work for what your objective was at one facility, depending upon their makeup and size and constituency, and may not work at another facility, yet both plants would be meeting the regulation and the rule.

And if you went to a performance-based set of objectives, then each plant would then have the flexibility to tailor their program to meet what the intent of the rule is, again, going to Harold's point, which is what is the desired result that you're trying to achieve.

MR. CAMERON: Okay. Thank you. And I guess that illustrates one of the benefits of performance-based, is that

plant by plant flexibility.

Roy?

MR. BROWN: I'm also responding to a question from quite a while ago and it's an example of a materials licensee situation. But before I get into that example, I would like to comment on the difference between performance-based and prescriptive-based. I think in our side of the business, there's not necessarily a difference in level of compliance or the level you have to meet to assure compliance and in some cases, the performance-based can even be more stringent than the prescriptive.

The example I have dates back a few years ago to EPA's radionuclide NSHPs rule. This was an air effluent emission rule that set a limit of protection of the public of ten millirem per year and EPA came out with this regulation and said that you have to meet this ten millirem per year standard, which was a performance-based standard.

However, EPA went one step further and gave some very specific guidance that said you must use these methodologies to demonstrate compliance. So they came up with a prescriptive side of the regulation that told us exactly how to measure, exactly how we would take the stack effluent, the exact

equipment we would use, exactly how we would report it, and exactly the software to use.

So that's an example of a performance-based versus a prescriptive-based regulation. The trouble is when you get very, very prescriptive, you limit yourself. You limit the licensee and what you can do. You don't keep up with technology. The methodology, if it's wrong in the first place, you've got a problem.

I mean, there are several problems when you get prescriptive in nature. The problem with the radionuclide NSHPs is that when we got the regulations and the guidelines, we looked through it and we said, well, okay, for stack effluent monitoring, you need a specific piece of equipment, you need aluminum clad sodium iodide detector to measure the stack effluent.

We said fine and we started looking at the equipment and we said, hey, wait a minute, among other isotopes we have going up our stack, one of the other isotopes we deal with is I-125. I-125 has a very, very low energy. I-125 cannot be seen through the aluminum cladding on the sodium iodide detector.

So we had a situation where if we followed the

prescriptive regulations, which we were required to do, we would report zeros for I-125 when the number was not zero.

So this is an example of how prescriptive regulations can really get you into trouble. It didn't allow for newer technologies, the plastic simulators, the reverse electrode jelly detectors. It didn't allow for changes in equipment, it didn't allow for changes in technology. It didn't allow for the knowledge that people at the operating sites knew about what would work and what wouldn't work.

So I guess that's what worries the materials facilities about very prescriptive regulations. A lot of times, no offense intended, but a lot of times, we feel that we know how to measure these things and we know how to meet the standard better than the regulator does, because we know what goes on in our plants.

MR. CAMERON: Okay. Thank you, Roy. Jim?

MR. RICCIO: I'm just harkening back to the comments about a performance-based approach can be implemented without use of risk insights. Is that basically telling us that you're going -- if you're not going to risk-inform certain aspects of the regs, you may actually still impose a performance-based approach and are there specific examples of the regulations

that would fall into that category?

While I understand that that is the case, I just -- I happen to see all the stuff that's being risk-informed on the other half of the equation and it seems that we are going to need a rigorous performance-based approach.

Even if you have the best detection and methods of measuring the iodine that's coming out of the stack, you're going to need some sort of level to be set as to what is within the safety parameters that you're going to establish.

So I understand that -- and I understand that the industry may be better at doing some things than the agency is, but unless we have a standard that's set at a prescriptive regulation, then the performance-based approach doesn't mean a heck of a lot.

MR. CAMERON: Go ahead, Roy.

MR. BROWN: Maybe we're mincing terms here a little bit. We don't have any problem with the regulation being set and you shall meet this emission criteria or whatever. In my mind, that can be a performance standard, where here's what the level is, you go meet it now.

Where we have a problem is here's a level and here's how we want you to measure it and here's how we want you to

report it. Let us figure out how to measure it and what the best way to do it is and where we put the monitors, things like that, but we don't have any problem with setting the standard there.

The standard needs to be set and that's -- you can set a standard and still have a performance-based.

MR. CAMERON: Harold.

MR. RAY: I want to make sure we're answering the questions that are on the table here. I think a standard is part of any performance-based scheme. So a standard by itself is necessarily prescriptive, because it's a number. But when we talk about prescriptive regulation, we're talking about how to achieve the goal, which is a margin of safety, as contrasted with a performance-based approach, which necessarily does include a standard and the standard may be set very -- in such a way as to maintain a very large margin of safety, and that's appropriate.

So I guess I'm just basically saying from a terminology standpoint, I don't think performance-based should be understood to lack definite and conservative standards. That's not the case.

MR. CAMERON: Okay. I think that's useful. It's

more how to is where the emphasis is with performance-based, how to achieve --

MR. RAY: I think the white paper elaborates that and I can't find any way of changing the words here to say it any better than it does.

MR. CAMERON: All right. Ernie?

MR. ROSSI: I was just going to point out that in the draft guidelines under viability, that one of the guidelines is that there be measurable or calculated parameters that are directly measured and directly related to safety and are readily accessed in real time or periodically. That's one of the guidelines.

And then the next one is that there be objective criteria for judging these measurable, calculable parameters, as to whether they're adequate or not, on risk insights, deterministic analysis, or performance history.

So you have to have something that you can look at and monitor and the you've got to have some kind of criteria as to when it has reached a bound, according to my reading of the guidelines.

MR. CAMERON: Go ahead, Harold.

MR. RAY: One additional thought here, just in case

it's escaped anybody's attention. From the industry standpoint, they much prefer often a prescriptive thing that just says do this, do that, do the other thing, and performance-based rules of the kind that Ernie has just now summarized are not something that's seen by the industry as some way of escaping regulatory requirements. Much to the contrary.

They can be very much more difficult to meet, as I think has been said earlier, than simply requirements to oil a pump every so often or change the tires on the car every so often.

MR. CAMERON: Thanks, Harold. Let's go to Jim, and then Amy, and we'll come back over to Ernie.

MR. RICCIO: While I agree with a lot of what was just said, unfortunately, when I drag it back into reality, I'm also seeing that the standards are being deregulated, as well. I'm watching basically a peer panel which is made up of people who don't believe in the linear drug dose threshold equation. I'm seeing an attack on the source term.

So while we agree there needs to be a standard set, I'm watching the standard being lowered as well as a risk-informed approach, as well as a performance-based approach

being laid over the top of it.

So I'm concerned that overall we're going to actually end up with a much lower level of protection for the public in the long run.

MR. CAMERON: So your point is that when you put this into the total scheme of agency activities, that it might be lessening safety, but that performance-based is not necessarily, in and of itself, a --

MR. RICCIO: No. The performance-based isn't necessarily the culprit. It's happening on the risk-informed side, it's happening in the revisiting of how we calculate what type of doses the public gets or how dangerous we believe radiation is.

Unfortunately, the previous peer panels have been relatively balanced and we've seen -- each time we've seen an indication that radiation is more and more dangerous than previously believed, and, unfortunately, with this, the constitution of this peer panel, I'm afraid that is going to be reversed and without a real broad segment of the population being included in that panel.

MR. CAMERON: Thanks. Steve and Biff raised their cards in response to that, and maybe that problem that you're

raising can't be or shouldn't be addressed --

MR. RICCIO: No, I just wanted to drag us into reality once in a while.

MR. CAMERON: All right. Thanks, Jim. Steve?

MR. FLOYD: Yes. I think you have to be a little careful when you look at the standards and changes to standards to construe that each change to a standard is automatically a reduction in margin.

I think some of the changes in some of the standards that are going on right now is that when the standards were first developed, there was a great degree of uncertainty in what the actual impact from the activity was. So you set the standard at a very high level to account for the uncertainty and then with time, you understand that some of those -- you eliminate some of the uncertainty and you realize that there was a lot of over-conservatism perhaps in the standard, such that the standard can be changed, but you're actually, in fact, preserving the same amount of margin actually to public health and safety as what was intended by the original standard.

The other thing to keep in mind, I think, in some of the standards is if you set an artificially conservative standard, in some cases, you can actually cause some perverse

consequences in other aspects of the operation. For example, in some of the radiation standards, if you set a very conservative level, you can actually cause some automatic actions and isolations to take place in the plant which actually inhibit the operator's ability to get from one plant to another to respond to equipment, and if that's unnecessary, because the risk is not actually there, based upon improvements in understanding and reductions in uncertainty, you can actually make the situation worse and result in a more risky plant evolution, because you're inhibiting the operators from being able to carry out some functions which are actually more important than the function that you thought you were protecting against.

MR. CAMERON: Thank you. I think Harold pointed out to us earlier that using performance-based over prescriptive can actually increase safety or give a better guarantee of margin of safety, and that's another example that you're offering of where prescriptive can actually have deleterious health and safety consequences.

Biff?

MR. BRADLEY: There's been a fair amount of discussion of the regulatory reform effort in Part 50 and I

just wanted to say that we do see a major use of performance-based approaches there and there is a connection between the use of risk insights, at least in the reactor safety area, and generally there is going to be a connection between risk insights and where you set your performance criteria.

To not use risk insights or to try to set your performance criteria without their use would be deleterious to the whole objective you're trying to achieve.

The deterministic design basis does not include all the sequences and equipment that may -- that we've subsequently found to be important and much of what we're doing in Part 50 will actually expand the regulatory envelope to cover equipment that's currently outside the deterministic design basis and it will include setting performance thresholds for that equipment.

Certainly, the overall result of that wouldn't be a reduction in safety. I think that the use of PRA and risk insights has dramatically improved the awareness, the focus on components that are important, even if they're not important in a deterministic design basis.

In fact, there have been hundreds of improvements implemented in the plant totally outside the design basis

framework to address risk insights and all we're trying to do in Part 50 reform is to bring the regulatory framework into line with our state of knowledge with regard to what is important in the plant, and it's not at all intended -- as a matter of fact, every parameter we set up to measure and the way we measure risk, the whole point is that we would not increase the risk to the public through the incorporation of those approaches.

There are a lot of what we call pedigree requirements on equipment that are very prescriptive. QA is a good example of a requirement that's implemented in a very prescriptive manner. In some cases, you're going to have to retain that pedigree requirement because the component, either through testing or operation, you can't really demonstrate that it's going to meet what it needs to do in an accident.

A good example of something that has to perform in a harsh environment, you really can't demonstrate that through testing or performance. So you will retain that. The objective isn't to universally replace a pedigree or a prescriptive approach with a performance-based approach, but in many cases, equipment is amenable, if you can test and show that it will operate in its mitigation function, then it's

certainly appropriate to look at the balance of what you're doing up front in a prescriptive way versus the performance of the equipment and to try to set that into balance based on the risk insights, and that's really what we're trying to do with Part 50 reform.

MR. CAMERON: Thank you. Thank you, Biff. Amy, besides the comment that you're going to give, you had a couple of concerns that you expressed about the use of performance-based standards. After you've heard Roy and Harold and Steve, at least in general terms, do you still have a concern with the use of performance-based? Do you -- go ahead. I won't ask another question.

MS. SHOLLENBERGER: Yes, I do still have a concern. I hear what everyone around the table is saying and, again, I think, in theory, it sounds great. But I still have a concern and I think I was going to go back to the tire example, but I think I'll let that go for now and respond to what Biff just said, because I don't know much about Part 50, because I don't do reactors. That's Jim's job. I do waste.

And it really -- one of my biggest concerns with this move to performance-based is in the paragraph in the white paper that compares -- that says performance-based approach

tends to emphasize results over process.

The example it gives is can the pump perform its intended function as opposed to is the maintenance technician trained. I think if I were writing this paper, I would not have used that particular example. But since it's in there, I'm going to use it, and I think that one of the biggest concerns that I have is that very thing, is that there is a certain amount of process that needs to be considered even if you're looking at performance.

I think you were sort of getting at that with what you were saying about your pedigree regulations and things like that, but I've been dealing with the Department of Energy's impact statement on Yucca Mountain for the past 180 days and one of the things that did not happen in that impact statement and that DOE has pretty much said they won't do is take into account human error when they're deciding what the impacts of the program are going to be and how well the system is going to perform.

They say, well, we just can't predict it, and so we're not going to worry about it, basically. And so when you have -- now, I'm sure that the licensees that are sitting at the table are concerned about making sure their technicians are

trained and probably they all are. But when you have a licensee who says, well, you know, we are so confident in our quality assurance that we don't even have to worry about the fact that someday a technician or a trucker might not tie down a transportation cask as well as he should and we know that the tie-downs work well, so we're not worried about a cask rolling off a truck, that just -- it doesn't work for me and it makes me very concerned about the whole results over process.

I think I'm going to go back to the tire thing, I just can't resist. My dad was a truck driver and one of the things that he talked about a lot was retread tires and they were not a safety concern for him as a trucker because if one of his tires blew off, he had 17 other tires, he didn't have to worry too much. But if you were a car behind the truck, it was a big safety concern, because I don't know if you've ever experienced that, I had one hit me once and I almost killed myself.

There are a couple different ways to think about retreads. There's one that says, well, if you have retreads on your truck, you should get new ones every so many weeks. The other one is, well, you should look at your tires every day before you go out and see if they look like they're about to

snap.

And even after 30 years of trucking, my dad cannot always predict when his retreads were going to fly off. And I think that there's a point where you have to say, you know, the technician needs to know what's going on and we have to say the results have to happen and we know that there are certain things that make those results happen.

I think that instead of saying performance versus prescriptive, maybe we should talk about -- and I think this is what you were getting at, Biff -- performance plus prescriptive. I think then I might feel a little less concerned.

MR. CAMERON: Let's go to Harold and Steve to see if they can put the tire analogy perhaps in context for us.

MR. RAY: I think that's really a good opportunity to clarify something here. Basically, the example that Amy gave of a retread tire illustrates a change from a tire that is -- I don't know what you call a tire that's not a retread, but I'll just call it that -- to a different kind of tire and it has a failure mode and she indicated what it was.

The failure mode is that the retread material comes off and it can fly around and create a hazard, and that's an

important thing certainly to keep in mind.

I think that it introduces the need, therefore, when a change takes place in the plant, to ask the question as to whether or not the performance standard that is being applied continues to be all that's needed for that changed component in the plant.

It may introduce what's called a new failure mode and the new failure mode is that the retread comes off, in the case of the tire example. And the thickness of the tread probably has very little, if anything to do with whether or not the tread is going to come off and create a hazard for another driver or vehicle on the highway. You need to have a different criteria for assuring that that isn't going to happen.

I don't know enough about tires to know what that criteria should be, but it may well be a time-based criterion or a mileage-based criterion, as opposed to a tread thickness criterion.

But it is different. The hazard that the retread creates needs to be addressed with some criteria that takes into account this failure mode.

MS. SHOLLENBERGER: Can I ask you a question? How will you know if there's a change being made if you're only

looking at the end result of the performance of the system? How will you know, for instance, that Roy has put in a different detector than the one you thought he should use, if all you're looking at is how much stuff is coming out of the smoke stack?

MR. RAY: Well, it should not be the case that that's all you're looking at. So that, I think, is part of what the shortcoming in the communication that's going on here is about, is the notion that you no longer look at whether the technician is trained.

You know, the words used in the example that you cited in the white paper shouldn't be read, I don't think, to imply that you no longer care, which was what you said, about whether the technician is trained or not.

Further, to get back to our tire, trying to stay on that for a minute, it's very important to know that you've done something in the plant that introduces a new failure mode in this system that you're talking about, as against what was originally the case, and the requirements to ensure that you're aware of that need to exist and they aren't done away with by simply looking at what's going up the stack.

You do need to know that you haven't made a change in

the monitoring system somehow that makes you blind to some isotope that you were formally monitoring.

So maybe we're mixing too many analogies here or metaphors, but it is the case that you cannot simply look at the result and nothing else. You do need to know whether or not you've got a retread tire on the truck or it's not a retread, for example, and if it has the failure mode that you described.

MS. SHOLLENBERGER: I think then that that should be added into the guidelines, because I think it's not clear from the guidelines that that's the goal.

MR. CAMERON: We can get to that issue when we look at the guidelines, but I was going to ask Harold a question along those lines, which is you cannot simply look at the results, that there's a whole bunch of other things that need to be considered.

How is that accomplished within the regulatory framework?

MR. RAY: Well, the requirements -- I can defer to some of my colleagues here that would maybe be quicker with the cites than I am, but in any case, the design basis of the plant is in the licensing basis that sanctions the existence of the

license describes the plant as it exists.

And when we then establish performance measures, it's based upon that design. If you change the design and you put in some digital computer system instead of the analog system that is described as part of the design and you introduce new failure modes as a result of that, that's a change and the regulations clearly recognize it as a change and one that has to be reviewed and approved in accordance with the regulations, 50.59, for example, or if tech spec amendments are required and so on.

So the use of performance measures does not eliminate the requirement to have a known design and to not change it in such a way as to introduce new ways of failing that you're not even monitoring for performance, if that's appropriate.

MR. CAMERON: Okay. Good point. Steve, and then we'll go to Jim and Roy.

MR. FLOYD: What I think I'm hearing around the table from some of the public representatives is that they have more confidence in the prescriptive regulations as providing public confidence than in the performance-based regulation, and I guess I'm a little bit struck with I wonder if that's not the fault of the prescriptive regulations themselves in this sense.

The way some of the prescriptive regulations are written almost imply that if you follow those regulations, you won't have a problem. The premise of Appendix B, for example, with the 18-point program, is that if I have a program that meets the 18 points and I implement it, that my equipment will perform just fine and we know that's not reality.

Another good example is Appendix R, which is a very prescriptive regulation which specifies that if I protect train A from a fire and assume the fire only protects train B, that train B will be 100 percent available to respond to the fire, assuming I lost train A. That's also not reality.

So I wonder, when you make the shift to performance-based regulation, an element in a lot of aspects of performance-based regulation is an acknowledgement that things aren't perfect, that there is an allowed failure rate. You don't set 100 percent availability and 100 percent reliability target values, because you're acknowledging that there will be failures, some within the licensee's control, some beyond the licensee's control, and some of the prescriptive regulations don't seem to acknowledge that and I wonder if we've left the public with the impression, with the way we've written some of the regulations in the past, that they shouldn't expect

failures and then when they do, they're surprised.

MR. CAMERON: Let's hear from Jim, but let me ask both Dave and Amy to think about Steve's point there and to respond to that.

MR. LOCHBAUM: I don't -- I somewhat agree with where you started out from, that it seems like the public has more confidence in prescriptive regulation. I think the public has confidence when a regulator does what it says it's going to do, when it doesn't do that, as it didn't do in prescriptive regulation, it seems less likely to do in performance-based regulation, confidence is going to go down.

When you do what you say you're going to do, no matter what it is, confidence is going to go up, unless you just don't trust people to start with.

But in this case, the problem, I think, we have is that when a prescriptive regulation is supposedly simple, it's black-and-white, either in compliance or not in compliance, and when non-compliance was found, the NRC didn't do anything about it.

This new flexibility that's built into the performance-based regulation makes it less likely that the NRC is going to take any action. There's going to be a huge debate

over whether being on the right side or the wrong side of this bright line that we've learned about is acceptable or not.

So it's less likely that the public is going to have confidence with this new process over what they have today.

MR. FLOYD: If I could just respond to that. I guess the real issue then is what is the exact nature and scope of the performance-based requirement. If it is a very loose and general requirement, I think I would agree with you, but if it's a requirement which has a great degree of specificity, it should be very, very clear whether or not you're in compliance with the performance-based objective or not.

MR. LOCHBAUM: I guess I would agree, but the same thing applies to prescriptive regulations. It's very clear when plants are outside compliance and the NRC says let's -- it hasn't killed anybody this week, continue running. That's what we want to get away from and this move to performance-based regulation does not seem like a step in the right direction.

MR. CAMERON: Let me -- I think that Steve gave a useful -- this discussion between Steve and David was useful and brings back something that Harold brought up at the beginning, is that David mentioned or used the phrase bright line in terms of can you tell whether the licensee is in

compliance or not.

I'm putting aside this issue of does the agency follow up on what it should follow up on at the time, but Dave used bright line and Steve came back with, well, that makes the nature and scope of the performance measure important, which took me back to my use of the term detailed, which Harold correctly correct me on, that it's not necessarily detail or lack of detail.

But I guess, Steve, from what you're saying, is that you can use performance measures and you can do them in such a way so that there is a bright line compliance. Harold, would you agree with that?

MR. RAY: Yes, surely. And -- well, let me not go any further. Yes.

MR. CAMERON: Okay. Great. Let's go to Jim for your original point and anything that you have on this last discourse, and then Amy, and let's go over to Biff, and then I think we'll go to the audience. Jim?

MR. RICCIO: I don't know where to start first on this one now. I like the retread analogy because it raises some of the problems that have already existed in this industry. I'm afraid that when we move from having equipment

that's safety grade to non-safety grade, it isn't held to the same standard.

There's been a long history of the use of counterfeit and substandard parts in this industry. There was a very nice GAO report written on that. I'm afraid that with the shift moving from safety grade to non-safety grade, even with the view to risk, that you're going to reintroduce some other common mode failures that you may not be aware of at some point, because equipment, while not safety grade, is often relied upon to mitigate accidents.

I don't remember what actually triggered this thought, in my mind, about -- it was something that Steve had said about the reality of the prescriptive regulations. Part of the reality is that under this new program, what we're seeing is -- you know, talking about the difference with safety trains, with fire protection, whether or not you have one train or not, depending on whether or not you've been wiped out by a fire.

What we're already seeing is that with on-line maintenance, we're disabling both safety trains simultaneously while the reactor is operating. That happened at Seabrook.

So I think we have to be very careful that we don't

lose the forest for the trees in looking at the theory and, again, bring it back down to reality.

That's enough for now.

MR. CAMERON: Okay. Thanks, Jim. Let's go to Amy and then we'll go over to Biff.

MS. SHOLLENBERGER: I'm going back a little bit, but I would still like to reiterate my question of how will you know when these changes are being made to the components of a system.

I don't really feel confident that there is going to be a procedure set up so that it's clear when those changes are being made, especially with the move in the NRC to reduce burden and make it easier for things to happen and encourage technology.

I think it's a great thing to encourage technology and to spur creativity for improving safety, but last week, I sat in on a Commission meeting where they were talking about the new 72.48 regs, which would allow licensees to make changes to cask designs, that's ISFSE cask designs, dry cask storage, without prior approval by the NRC, which means that -- and basically what it boiled down to is the NRC is looking for ways to make sure that when they issue their certificate for the

cask design, that they don't include anything in that certificate that's irrelevant, because that's how it's going to work.

If the change doesn't affect anything in the certificate, then the licensee can change the cask design basically without asking permission.

That concerns me, because although the idea is to make sure that everything that affects safety goes into the certificate or into the tech specs, is the other thing that it will have to work with, it seems to me that a cask can evolve over time and that maybe at the beginning, the one design change will be -- you know, I don't know, I'm making this up, because I don't design casks and I'm not an engineer, but, say, instead of using 14 bolts, in the end we use 13 and we change the configuration.

So that's one change and that wasn't in the certificate or the tech specs, so that's okay. And then later on we figure out that, well, we can make the cladding less thick and maybe that wasn't in the tech specs, or whatever. It seems like there's a cumulative effect of the changes that might not be taken into account that couldn't be predicted when the regulators write the certificate.

It seems like the same thing could happen with this performance-based regulation. It's the same type of thing. You can make changes as long as they don't affect the safety. Well, how many changes is it okay to make before the safety is compromised, and that's what is not clear to me.

MR. CAMERON: We may be getting into another area, I think, in terms of the whole aspect of cumulative change. As I think Harold indicated, there is a process, a requirement for when licensees have to act on change and I'm not sure how cumulative effects are handled.

But I just would want to make sure that we're still on addressing the use of performance measures versus getting into something that may be a regulatory problem, but doesn't need to be solved in a performance measure.

MR. RAY: I think that's a quick -- let me just underscore that and say that prescribing performance-based regulation won't alter the situation that you described. In other words, there isn't an ability to make more changes without NRC approval, because you're using performance-based measures, than if you don't.

There is a limit on making changes without prior NRC approval. It's described under, for power reactors, under 10

CFR 50.59, and what you referred to was an analogous provision for dry cask storage.

But that's not -- there isn't any connection between that and performance-based regulation. If it's problematic in any way, it ought to be addressed in its own context.

MR. CAMERON: Okay. Let's go to Biff and, Jim, you have a final comment for us or a question.

MR. RICCIO: If I could just -- actually, Harold kind of led into it with his 50.59 analogy.

MR. CAMERON: Why don't you go ahead and then we'll finish up with Biff and see if there's any questions in the audience, and take a lunch break.

MR. RICCIO: I guess the problem we have with performance-based is that you're still going to have to regulate to a certain standard and under the old 50.59, there was a line in the sand, thou shall not increase risk, and it was very black-and-white and the industry still couldn't get it right.

Now we've moved to a new 50.59 that allows for incremental increases in risk. Now, whether or not you agree with the new standard or not, that incremental increase is going to have to be measured to a certain standard under a

performance-based approach.

While I don't believe that we should be increasing the risk to the public, I still think that even under a performance-based approach, you're going to need to set a certain standard, and whether or not we have prescriptive or a prescriptive/performance-based approach, absent of a standard that basically established and verifiable, we're going to run into problems.

MR. CAMERON: Okay. Biff?

MR. BRADLEY: Let's move off the subject of change control for a minute. I just wanted to come back to something that Jim said earlier, because it provides a great opportunity to once again advertise the benefits of PRA. The issue he raised was substandard and counterfeit parts and there are a couple of interesting issues with regard to that.

One is that the current system of prescriptive requirements results in a large volume of paperwork and very high cost accompanying parts, and it actually can provide an incentive for those types of activities.

On the other hand, the point he made that by eliminating some of the pedigree requirements, you could potentially raise the occurrence of common cause failures, is

not something that we are lost on with regard to regulatory reform.

As a matter of fact, PRA is very good at addressing common cause failures, something that the deterministic design basis doesn't do at all. Common cause is an important aspect of the overall risk of the plant and when we are working on Part 50 reform and looking at setting performance requirements for components, structures, systems, we have to explicitly include the common cause component in there, and it's not an insignificant component and we are taking into account the fact that the pedigree requirements can impact the common cause failure rates in setting up the sensitivity runs we're going to do to enable that change.

Jim made some comment about Seabrook taking two trains of some safety system out at the same time. I'm not familiar with that specific issue. However, I just want to note that there is a new provision to the maintenance rule that's going into effect later this year that's going to establish a regulatory requirement to do a risk -- a configuration risk analysis and it will preclude -- it's a hard regulatory requirement to preclude you entering into those types of situations.

And I guess I -- even absent that requirement, the industry has certainly put a huge effort already into doing -- and, again, this is an issue where if you're looking just at the deterministic aspect, you may not get all the insights you need. You have to look at the overall risk value of the parts you're taking out of service to make that judgment.

The final point I wanted to make was on the issue of prescriptiveness and the idea that having a prescriptive regulation generates this perfectly black-and-white line that's very obvious whether you're on one side or another. In reality, for many regulations, that's not true.

Prescriptive regulations are not a panacea for that issue and many regulations have a history of an evolving understanding of what is intended or what you have to do to meet that 50.59 and Appendix R are perfect examples of regulations that went from, over the years, an evolving interpretation.

There's certainly a place for prescriptive regulation. There's a place for performance-based. There's a need for a balance. Neither one of them in isolation is going to solve -- is going to be a perfect solution and Part 50 reform is looking at establishing that balance and integrating

that with risk insights.

MR. CAMERON: Thanks, Biff. Let's see if anybody in the audience has a point that they want to make or a question. Please identify yourself and your affiliation.

MR. MIZUNO: Geary Mizuno, Office of General Counsel for the Nuclear Regulatory Commission. I don't have a question, but I have a comment to respond to the gentleman that I believe represents the materials industry, I guess, or materials licensee.

I believe, as I understood his comment, he suggested that the regulators should allow the regulated entities to decide upon the measurement or the method for demonstrating compliance with the performance requirement that would be set up in a performance-based approach.

And as counsel to the regulator, I would have a hard time, in good conscience, allowing -- recommending that my clients accept that kind of approach, because depending upon the measurement technique that you're using, you can come up with different results that may or may not show that you're meeting the performance requirement.

I think a good example of this, which I remember from my law school days, is the -- if you go to a gasoline pump, you

might notice that the octane number there says R-plus-M divided by two. What the hell does that mean? The reason why is because there were two different methods for measuring or for calculating octane numbers, one which was understood to be the method, was called research octane, and that was accepted for many years, and then when the FTC decided that there ought to be octane numbers posted upon the gasoline pumps, the petroleum industry came up with a different method, called motor octane, which resulted in a higher number, I believe.

So that, in fact, if you calculated your octane using the petroleum industry's number, you ended up with a gasoline which was not really what you were expecting to get.

Now, the FTC split the difference by saying, okay, add them up, add the research and motor octane and divide it by two, but I think the point is that the measurement technique can make a difference in determining whether you are in compliance with the performance objective or the performance criterion.

MR. CAMERON: Okay. Roy, I just want to make sure that we're clear on this. Geary made an assumption about what you were saying and I think you were saying that this would be built into the -- would be the performance measure itself, but

go ahead.

MR. BROWN: There's no question that if you use a different methodology, you can get vastly different numbers, or, in the case of if we did what EPA told us, our number would be zero.

I'm not saying there shouldn't be any guidance, there shouldn't be any recommendations, there shouldn't be any technical guidance at all. I mean, the way we always see it is tell us what the number is, tell us what the performance standards should be, we'll figure out a way to do it. For maybe a new licensee or an inexperienced licensee, guidance documents are helpful to say this is a way you can comply with, say, for example, the Part 20 release requirements. For a new licensee or an inexperienced licensee or a licensee that is adding radio iodines that they haven't worked with before, it's nice to have some guidance documents to say this is a way you can do it. But without a doubt, you could put some equipment in there that wouldn't measure at all or you could put some equipment in that would be very ineffective.

I wasn't saying there shouldn't be some standards, but put it in guidance documents. Don't put it prescriptively into the regulations.

MR. CAMERON: Okay. I think that's an important issue that we'll revisit this afternoon in terms of looking at the perspective of what accompanies a performance-based regulation in terms of guidance and what are licensee and other views on that.

Anybody else? Yes, sir.

MR. MILLER: Gary Miller, with Virginia Power. I'm hearing everything going around about performance-based regulations and we have one right now in 10 CFR 50, Appendix J, on containment leak rate testing. There's option A, which is prescriptive, and there's option B, which is performance-based.

As part of the requirements there is containment isolation valve leakage. One is prescriptive, here's the way you do it, here's how often you test, here's a limit. The other is performance-based, and says here is a limit and you test as often as you need to to ensure that you're maintaining your valve leakage within that limit.

Now, as a utility, I could test it daily, weekly, monthly, annually, every refueling outage, every other refueling outage, but somewhere, from a performance perspective, there is a optimum place to be and, say, if that's on an refueling outage frequency, if I test that valve for

three refueling outages in a row and I don't see any leakage, maybe I can go a little bit longer.

If I do it every refueling outage for three in a row and I start seeing a minimal increase in leakage, then perhaps I want to go a little tighter on my leakage rate testing.

That's what performance-based testing would do for me. It would say I can either go longer or I can go shorter time period. That's really what's significant here. But the goal is if I have one prescriptive timeframe for how often I have to test that valve, it may be not often enough, based on how my valves perform over time.

So there already is an example out there. It's already been codified. So it's there and it works.

The pump example I heard early on, I think from you, Amy, was noting that you go and change the oil in that pump once a month and you check how that goes. It might that when I go check the oil in that pump once a month, I find my pump isn't operating to the optimum performance that I want. Therefore, I need to do it bimonthly or every -- semi-monthly, I should say. So performance-based may actually make me go more restrictive based on that.

So as my example for Appendix J, option A and B, they

both have a limit. They have the same limit on leakage for containment isolation valves. I have to meet that limit. Performance-based can assure me that I get there by either going less frequent or more frequent, depending on how my valves perform, and I will know that long before those valves fail by seeing degradation of leak rates over time.

MR. CAMERON: Thank you, Gary. Anybody else right now? Go ahead, ask a quick question, and then we can go.

MS. SHOLLENBERGER: Does prescriptive -- does the prescriptive side say that you can't test more often? I mean, are you -- it sounds to me like you're saying I'm not allowed to test more often if I notice when I'm testing that there's a problem.

MR. MILLER: I guess you go by your valve test results. For instance, on the option B standpoint, if I'm testing and seeing no leakage or seeing minimal leakage over time, I'm doing it however often I'm doing it, doesn't it seem logical that perhaps I can extend that timeframe a bit, as long as I'm still maintaining minimal leakage. I can always do more.

MR. CAMERON: I think this raises questions that we'll get to this afternoon in terms of the guidelines, that

performance-based shouldn't be used in areas where, if there is a non-compliance with the performance-based, that it would create some serious risk to health and safety. I forget what the exact wording of that is.

But let's take a break and come back at around 1:15. That gives you an hour. Then we'll get into the specific guidelines themselves.

[Whereupon, at 12:11 p.m., the meeting was recessed, to reconvene at 1:15 p.m., this same day.]

A F T E R N O O N S E S S I O N

[1:18 p.m.]

MR. CAMERON: Welcome back from lunch, everybody. I'm going to try to get us started relatively on time here.

We talked about a number of issues with performance-based generally this morning and I think a lot of them provide a nice segue to discussing the individual guidelines.

Just in terms of a summary, in terms of the nature of performance-based, we had juxtaposed it with prescriptive as opposed to some other terms. It can be detailed, just because something is performance-based doesn't mean it's not detailed. It also doesn't mean it's not a stringent regulatory regime.

It doesn't operate in isolation from other regulatory requirements and it can include or does include the idea of an overall standard.

There were also some benefits mentioned. It may be more accurate in achieving the desired level of safety, may prevent decreases in safety that might result from the prescriptive regime, provides flexibility to to incorporate new technologies and equipment, allows operational experience and knowledge to be maximized, and can account for

facility-to-facility differences.

We also had two concerns that were mentioned. It doesn't provide a bright line test as to whether a licensee is in compliance and there is also the concern over whether reliable and verifiable data exists.

There may be other concerns and there may be concerns from the industry point of view, also, with the use of performance-based, but the issue of concerns really takes us into, I think, how do you structure the guidelines to take into account those concerns, whatever they are.

Harold Ray, who is with us from California today, does have to catch a plane in a few minutes, so I was going to allow Harold the opportunity to give us some comments on the specific guidelines and then, Steve Floyd, we'll leave the discussion of those in your hands, too, as we go along.

Harold, I'll turn it over to you now.

MR. RAY: Thank you. I request the indulgence of my fellow panelists here. I need to try and make a dinner engagement in Los Angeles tonight.

I did have some comments in response to the Federal Register notice about the guidelines themselves, which I will share with you, if I may, for just a few minutes.

The first question had to do with the sufficiency of clarity and specificity in the guidelines, and I think here it really goes to a question that doubtless is, in many people's mind, and that is trying to understand what is the purpose and function of a high level guideline. It doesn't really do or implement anything at all.

It, I think, has two functions, as I see it. One is to serve as a policy piece for the staff when it works on very specific applications that represents a consensus, which is part of what we're doing here, is trying to achieve a consensus, and it's a tool for communicating with the public, both the regulated industry and other stakeholders in the public arena, as to what this process is about.

But it doesn't obligate, as I see it, anything specific to be done and maybe nothing ever will be done, but at least the guidelines permit work to proceed in some fashion that's orderly.

As always, the devil will be in the details. I think we have heard a lot of concern expressed. I would share a concern about how the implementation would take place in behalf of the licensed community and I know members of the public, interest representatives, would be concerned that it would be

done in a way that would be inimical to their interests and objectives.

I just think we can't tell. We have to look at the guidelines for what they are. They are characterized as being high level and I'll accept them as such.

In asking questions about the implementation of the guidelines, what is -- the first question has to do with what is mandatory for an activity to qualify as a performance-based initiative, and I believe coming out of an earlier staff requirements memorandum, 98-144, the principals that apply here are, and they're stated, that the performance measures be directly measurable or calculable, that they be linked to performance, and that they provide objective evidence of performance.

I would add some other things, as well, and that is that they not incent perverse behavior, for example; that conclusions not be drawn that aren't warranted by the measure that's being used.

I often see inferences made from performance measures and I'll say this from the standpoint of the industry is inclined to draw broad conclusions from specific performance measures that may be improving, which really aren't warranted

by the measure themselves.

It may all be true, but whether or not the performance measure demonstrates the conclusion that people want to draw from it, I think, is an arguable proposition.

So performance measures need to be kept very specific, in our judgment, to what it is they are purporting to demonstrate.

There was a question about what is the best way to implement the guidelines and we believe that they should be implemented by being considered whenever a change is occurring or when new initiatives are being proposed, these guidelines ought to serve as a valuable reference for everybody engaged in that process.

But on the other hand, the guidelines don't represent, I don't believe, a mandate of any kind to go out and do anything on their own. They only serve as guidance for the purposes of things that are already happening for other reasons.

There's a question about the application of the backfit rule. I know the backfit rule is controversial for everybody, I suppose, involved in its use. I don't see that the guidelines are -- the backfit rule should continue to exist

and apply and be used, whether a change is arising from performance-based regulation or for some other reason.

Therefore, these high level guidelines for performance-based regulation don't become an exception to the application of the backfit rule, would be my judgment about that.

There was a question about should they be applied to all types of activity and I think we've earlier said no, that they're appropriate in some circumstances, but perhaps not even the majority of circumstances and certainly not all circumstances.

A question also is should they only be applied to new regulatory initiatives. Again, I would say no. Whenever action is being taken by the Commission, the ability to make the result of that action performance-based, I think, should be seen as an opportunity to improve regulation, to make it more effective. And where that doesn't apply, then the guidelines aren't relevant, fitness-for-duty being an example.

Well, actually, that's an example of where the combination of risk and performance-based regulation doesn't fit or wouldn't be suited.

On a topic we talked about this morning, which is

objective performance criteria, there's a series of questions I'm sure you'll have quite a bit of discussion of this afternoon, and the questions themselves, kind of like my comment earlier this morning, I'm not sure I like the question all that much, so it's hard to answer.

But the first one is in moving to performance-based requirements, should the current level of conservatism be maintained or should introduction of more realism be attempted.

Well, I think the answer depends on whether you think you know what the current level of conservatism is and I would argue that that's not the case. You may, through analysis, conclude that you now have measured the level of conservatism that exists or you may decide that in implementing the existing requirements, you had in mind a level of conservatism that you wanted to exist, and all of those are -- I mean, each of those is a relevant consideration, but the idea that there is some current level of conservatism that is a generic characteristic of regulation and that we're somehow going to deviate from that, making more conservative or less conservative, more realistic, for example, I think, is not a proper construct.

When you go to -- when you change the analysis methodology that you use, then conservative assumptions that

were used in the prior methodology no longer are applicable and you need to identify assumptions that are applicable to the methodology that you're using.

But the idea that because I made this set of assumptions when I was using a very crude analysis method and I want to use a different set of assumptions when I use a more sophisticated analysis method, that I have somehow reduced the level of conservatism is just not true.

I think that clearly the level of conservatism that you want to achieve has got to be geared to the defense-in-depth that exists in any particular scenario that you're considering, for example, and that, therefore, the extent to which, what this question asks about realism, the extent to which realism is attempted is relevant to what is it that we're talking about.

I don't think you can make a generalized -- provide a generalized answer to that question, because there are certainly some things where additional realism I don't think is an appropriate consideration and there are others where they're far from the -- in the event sequence, they are far separated from the safety concern that would exist, where more realism may be appropriate. But I just don't think there is a general

answer to that question.

There is then another question that's even harder, at what level of conservatism or safety margin needs to be built into a performance criterion to avoid facing an immediate safety concern if the criterion is not met. This is a question that was implied in some of the earlier discussion today.

The only answer I think that fits here is, well, an appropriate level of conservatism should be applied and I don't know what that is.

If you're talking about a fitness-for-duty requirement and performance-based rules for fitness-for-duty, that's one thing. If you're talking about the reactor protection system, that's another thing. The level of conservatism that you require in each of those two, I think, should be appropriate to what you're talking about. You don't want to execute somebody who has violated the fitness-for-duty rules the first time they violated it, and yet you may feel like doing that if somebody does something that defeats the purpose of the entire reaction protection system. It's a very hard question to answer.

Similarly, these questions kind of go on. I won't go through each one of them, because I believe that they will be

fleshed out for you this afternoon, and it would be out of order for me to go through each of them. But there is a question that goes on saying recognizing the performance criteria can be set at different levels in the hierarchy, component train system, so on, on what basis is an appropriate level in the hierarchy selected for setting performance-based requirements and what is the appropriate level, again, of conservatism for each tier in the hierarchy.

My view is that the criteria should be set at a level commensurate with the function being performed and typically that's at the system level for safety function. It would appear to be reasonable to set performance at the system level, as well, rather than at some widget level within the system, because you may wind up having a high degree of redundancy, for example, or diversity within the widgets in a system, but the system itself has to perform its function and needs to, therefore, be -- if you're going to use performance measures as a way of assuring system performance or function performance, you ought to apply it at the system level.

In terms of who should propose and justify acceptance limits, I think it's the proponent of whatever is being put on the table. If the licensees, for example, are proposing use of

performance measures in some area of regulation, then the licensees ought to indicate what the standard of performance should be, and justify that, and everybody else can then weigh in.

On the other hand, I think if it's something that originates from the staff, that they're in the best position normally to suggest what the acceptance criteria should be. The public process gives everybody an opportunity to weigh in and ultimately, of course, the agency makes a decision.

I think in answer to the question what are examples of performance-based objectives not amenable to risk analysis, such as PRA or integrated safety assessments, and now we've moved into this domain of the nexus between risk and performance-based regulation, as we mentioned earlier, cross-cutting issues are inherently not amenable to risk analysis and, frankly, a gratuitous comment at this point maybe, but I think they are the area where the NRC yet has the most work to do in terms of how to integrate the results of the things that are going on, whether it's in performance-based, deterministic or risk-based, how do you tie the activities or the observations, the performance in those areas together in such a way that you can recognize a problem in a cross-cutting

area.

That's something that's not yet entirely clear, in my mind, as we move forward here. We've tended to look at specific areas of regulatory interest, see how they can be improved through new insights and better methods. I think the agency needs to decide is there something else that is -- needs to be taken into account in terms of licensee performance.

A cross-cutting issue, for example, we've mentioned fitness-for-duty several times, another one would be maintenance of a safety conscious work environment. That's an issue that I can't see how it comes out of any of the things that we talk about here and yet clearly it's an important attribute of any licensee's performance, and there are others, as well, having to do with management effectiveness and so on.

There is an interesting question here that I don't have a good answer to, that has to do with, in the context of risk-informed regulation, to what extent should performance criteria account for risk from beyond design basis accidents. It shouldn't account for beyond design basis accidents without being carefully -- without some process carefully taking that into account.

Now, risk-informed regulation does reach beyond

design basis events because by its nature, it isn't bounded by any set of defined accident sequences. It's supposed to take them all into account, as Biff was saying. For example, common mode failure probabilities.

So how performance-based -- I guess I just don't see performance-based regulation necessarily taking into account beyond design basis events when the standards are set, there needs to be an adequate margin of safety created by the margin that the standard represents.

And whether that's an adequate margin of safety to beyond design basis events or whether it's just an adequate margin of safety for design basis events, which is the normal deterministic regulatory approach, I don't think makes any significant difference to the standard itself. The standard simply ensures adequate safety margin.

With that, since I've made comments here that there may be questions about and I'm past the time when I'm supposed to be out of here, I guess I should stop and see if there's any burning issue I can respond to.

MR. CAMERON: I think that this will serve as a useful template for discussion for us and just from a facilitator's point of view, to make sure that we understand

everything for when we get into the discussion.

You said that it should not basically provide an incentive for perverse behavior, I think, and I was sort of --

MR. RAY: Right. Right.

MR. CAMERON: I just wanted to ask what does that mean.

MR. RAY: Well, an incentive --

MR. CAMERON: It's an intriguing statement.

MR. RAY: An incentive for perverse behavior, for example, would be if you put too much stress on unplanned outage time. Unplanned outage time is often not a measure of poor performance, but is, in fact, a measure of the interest that the licensee has in making sure that there will be good performance. For example, if you extend an outage and create unplanned outage time in order to perform additional preventative maintenance or do additional inspection, it would be a perverse incentive if you were reluctant to do that, because that would drive you into some bad performance domain, when actually what you were doing was the right thing.

So it's easy for measures to set up perverse incentives if you don't consider what reasons someone might have for doing what you're measuring in the adverse direction

and unplanned outage time is an example of that. An unplanned outage can be exactly the right thing from a safety standpoint.

MR. CAMERON: Okay. Thank you. Let's go to Jim and then Prasad. Jim?

MR. RICCIO: I'd actually agree with Harold regarding not wanting the program to push you into perverse outcomes and actually I'm finding, though, that performance-based actually does that, because what we're finding is that utilities will tend to -- rather than regulate their facilities, they're going to regulate their indicators, and we've already had an example of that in the new oversight process, with Commonwealth Edison splitting hairs over functionality and operability of safety system failures.

I think if you're going to use a performance-based approach, you have to have standards that are basically set in stone, that they should be applied across the board to all reactors, and that basically you shouldn't allow for the manipulation of your data.

I agree that you can have some very perverse outcomes when all of a sudden you're finding that because there's a performance incentive at the site, that they're not adequately reporting safety system functional failures.

MR. CAMERON: Okay. Thank you. We'll continue that.

MR. RAY: Let me make one very brief comment. I think the concern Jim has about false reporting is misplaced. I really think that the licensees will be very diligent in reporting data and that that's probably the smallest concern anyone should have.

MR. CAMERON: All right. I think Harold is late.

MR. KADAMBI: Before he leaves. Harold, I'd really like to know your view on pilot projects and what relationship you see between performance-based and risk-informed pilots.

MR. CAMERON: Okay. This is a quick one. It's both on pilot projects.

MR. RAY: We have been part of pilot projects. I think that they are useful and give everybody a chance to see things in action and so I recommend them. The second part of your question was?

MR. KADAMBI: The risk-informed pilots, do you see a relationship between any pilots we may undertake here and --

MR. RAY: No. I don't necessarily. It doesn't mean that there couldn't be a relationship. It doesn't mean that in a risk-informed pilot, we couldn't also seek to pursue performance-based elements, but I don't think there's

necessarily a relationship and it might complicate things beyond tolerance to deliberately try and combine them and create one outcome.

MR. CAMERON: Okay. We'll let you go and thank you very much for being with us, Harold. We have a lot of -- so let's view Harold's remarks as the first statement on this discussion issue on the specific topics.

I think we added another concern possibly that should be addressed in the guidelines, and this is it should not drive a licensee to what we're calling perverse outcomes, and I don't know if the guidelines -- if there's anything in there to prevent that or not.

But, Steve, let's start with you and then we'll go over to Roy.

MR. FLOYD: Okay. I just wanted to amplify what Harold said and it actually goes to one of the concerns we had on the board, and that is the accuracy of performance data.

I think if the agency wants to go to performance-based regulation, and obviously you're going to have to have some data to show that that performance is being achieved, that the regulator should not just blindly accept the performance data that comes in from the licensee.

I think part of the inspection process, as it's being made, and the oversight process is some spot checks or validation that the licensees understand what data is supposed to be being collected, how it's supposed to be being collected, and whether or not it is being collected as intended. That has to be part of the regulatory process.

MR. CAMERON: We might as well explore that issue in terms of if you are going to go performance-based, then I guess one of the criteria is you need measurable data. How do you ensure that? And you're suggesting perhaps that with performance-based measures, that the NRC would need to go beyond perhaps what it does in the ordinary oversight program.

Just a short question. How do we do that?

MR. FLOYD: I'm not saying necessarily they have to go beyond what they're doing in the oversight process. I think some of the features of the new oversight process that they put in place would be also appropriate for performance-based regulation.

For example, we did have some problems in the pilot program in understanding what the intent of the definitions were, what the interpretations of the definitions were, that did result in some differences between what the licensee

reported and what the NRC thought they were going to have.

One of the features they're putting in place is early on in the new oversight process, there's going to be a fairly intense round of inspector oversight of the licensee's collection and reporting of performance data to flush out as many of these interpretative differences as possible and get them resolved, so that the program can be as accurate as it can as soon as it can.

I think if you establish new performance measures and data that's not currently being collected under a performance-based regulation, you need to implement something similar that very soon nails down exactly what is the right level of data, what's the right interpretation of the data, so that both sides understand what is to be collected and it can do that job.

MR. CAMERON: Okay. Thanks, Steve.

MR. FLOYD: And there needs to be continual oversight that that understanding is still in place.

MR. CAMERON: Okay. Jim, a comment on the verifiable, reliable data.

MR. RICCIO: I think, too, that the problem that we're seeing is that there has been such a shift in what has

actually been recorded in the old process and the new process. There's very little overlap there. Maybe two or three indicators that are even able to be translated across.

I know at ACRS, they said they wanted to put back in safety system actuations and I think that would be a good idea, and a couple of the old indicators from AEOD. Actually, I'd like to see AEOD re-established, but I don't see that really happening under the current regime.

We've seen -- and actually this isn't my comment. This came out of folks from the region. They were asked whether or not they believe that the industry can accurately report their data and their response was no, because they haven't done it yet.

Now, granted, that's probably coming out of Region III and a lot of it has to do with ComEd, but I think that underlies the problem with the whole performance-based approach.

I agree we need some sort of verifiable data, we need it across the board, and I think there has to be some bridge between the old process and the new process and that just doesn't exist at this point. I know we've kicked, for instance, we've kicked security out of the inspection space and

tried to make a performance indicator out of it. That seems to me thoroughly inappropriate.

Measuring whether or not your equipment is working at the site boundary or not really doesn't measure whether or not you can adequately defend yourself against a terrorist attack. I think Mr. Orrik's ability to basically tell the industry what day they were showing up and still basically breach security is indicative of that.

So I think we have to really take a good hard look at what indicators we're using. I don't believe a lot of the indicators in the new oversight process are all that telling and I believe that in certain instances, they may actually result in a false negative, or it's actually a false positive.

MR. CAMERON: Basically, we're in viability number A, measurable parameters, and what I hear both you and Steve saying is that when you establish a performance measure, you really need to see whether the indicators -- what indicators you need to give you the information, you need to measure that.

MR. RICCIO: And I would think, too, that a pilot is essential and that the thresholds, whatever is set for performance-based, not be based solely upon the pilot program, that it be based upon the entire field of industry data, not

just the pilots, because we're finding that under the oversight process right process, the thresholds have been set based on the pilots and although the agency has said several times that they've been established upon the history of the industry, that cannot be accurate because you didn't have the industry data till January 21st.

So the indicators that existed --

MR. FLOYD: I can alleviate your fears. The thresholds, a fair number of them were changed Monday afternoon, on the basis of all of the industry data which came in. So there were adjustments made.

MR. RICCIO: Good.

MR. CAMERON: Okay. Late-breaking news.

MR. RICCIO: I can't make all the meetings.

MR. CAMERON: Are you finished?

MR. FLOYD: No. I just wanted to point out that there actually is quite a bit of bridge between the old program and the new program. Approximately half of the 18 indicators that are in the new program are either identical to data that has been collected and reported or data that has been collected that hasn't been previously officially sent to the agency, but it was available to the inspector on site, and there's no

difference in the data that's being collected and reported as opposed to some of the data that was just being collected before.

MR. RICCIO: I'd love to see that.

MR. FLOYD: I'll get that to you.

MR. RICCIO: That would be great.

MR. CAMERON: We're going to go to David next, and I know Roy may have something to say on something else, but I guess I would like to ask the people in the materials licensing business, there's no new regulatory oversight program there, but if you have any comments on the measurable parameters issue, that would be useful to hear.

David?

MR. LOCHBAUM: I have three comments. One is a hold-over from this morning. There was some discussion about the existing prescriptive regulations preventing safer things from being done, and that's simply not true.

Both on the materials side and the reactor side, there is a license amendment process that people would use if they felt existing regulations were preventing safety from being achieved, and reluctance to use the existing process shouldn't be justification for going to this new based process

alone. The new process might make it easier, but it clearly exists in the old process.

It has been used in the past and it should be used in the future.

As far as comments on specific guidelines, on item II-E, it says that a reasonable test shows that an overall net benefit results from moving to a performance-based approach. Basically, this is the backfit standard that Harold Ray mentioned.

We feel that -- we agree with Harold Ray that the backfit approach should be used for performance-based regulation just as it is for today, but we also believe that it needs to go further in that the backfit rule basically means if a new requirement is to be imposed on any licensee, there has to be some reason for doing that, a cost-benefit study.

The current process involves the ability for the licensees to appeal the cost-benefit studies done by the NRC if they feel that the results have been skewed against their economic interest.

We feel that before any requirement is removed, lessened, mitigated, struck from the boards, however you want to characterize it, that a similar formal cost-benefit study

needs to be done. If one has to be done to protect the licensee from undue burdens being imposed, one needs to be done to protect the public from undue burdens being removed.

So it needs to be the same process, the same formal steps, and the same appeals, both ways. It can't be a one-edged sword.

As far as public confidence, I'm totally amazed by the guidelines. I-A says that there needs to be measurable or calculable parameters and I-B says that those need to be objective criteria and it was described as a bright line between acceptable and unacceptable performance, and then you go down to I-D and it says that the framework should be developed such that performance criteria, even if not met, will result in immediate -- will not result in immediate safety concern.

So as I read those paragraphs, you could be on the line, this bright line, you could be above the line or below the line and it really doesn't matter, because there's no -- at some point, there has to be a safety issue involved with performance and unless you define what that is, the whole thing is not acceptable.

I-D has a subparagraph, which is I-D little-bitty (a)

that says that a sufficient safety margin exists, and I don't -- in the past, that has been a presumption. That hasn't been an objective standard. If that continues to be a presumption, that it allows you to do anything you want to, no matter whether you're above the line, below the line or on the line, then it just won't work; it at least won't work from the standpoint of increasing public confidence.

It might work great from the standpoint of reducing unnecessary regulatory burden, but I don't know how you can -- it doesn't matter where you are, why even draw the line if being above it, below it or on it doesn't seem to matter? I mean, I just don't understand.

I'll go back and re-read the white paper again, but I don't understand that at all.

MR. CAMERON: Let me ask two questions first and then we're going to go to Ernie, just for clarification, for your colleagues. The suggestion to do a cost-benefit analysis for the removal of requirements, did you mean to confine that to only when prescriptive requirements were going to be replaced with performance-based or for the removal of requirements generally?

MR. LOCHBAUM: In terms of today's discussion, it's

just performance-based, but we earlier made the suggestion to Mr. Matthews, David Matthews, earlier we've made the same suggestion on a broader sense to Mr. Matthews. We're on the record across the board. Now we want to say that this is part of that big board.

MR. CAMERON: Okay. We've captured that. The last point about the bright line and sufficient safety margin, is there a recommendation you have for how the guidelines should be changed at all, David, on that? And we'll open this up for the rest of you for discussion on David's points.

MR. LOCHBAUM: I think under paragraph I-D little-bitty (a), it says a sufficient safety margin exists. That sufficient safety margin, again, can't be a presumption. If that's the scheme that's being used to allow performance above, below or on the line, then that sufficient safety margin needs to be quantified. It needs to be transparent.

It can't just be -- you know, this defense-in-depth is a huge umbrella that justifies almost any performance and that's wearing thin.

MR. CAMERON: Okay. Great. So unless that can be clearly demonstrated what that is, then we shouldn't be moving into the performance-based measure. Okay. Thank you.

Ernie, why don't we go to you, and then I want to come back over to --

MR. ROSSI: That's fine. I just wanted to address the comment of Dave Lochbaum on sufficient safety margin. The idea wasn't that you could operate above or below or on the line. The idea was that the line was there and if you went below the line, that that should allow you still enough time and enough safety margin to correct the problem before you had an immediate safety problem.

So when you went below the line, you have to correct it on a time scale that's appropriate for being below the line. You can't just stay below the line indefinitely, and that was what was meant by that.

MR. CAMERON: Okay. But you understand the nature of David's concern on that.

MR. ROSSI: Yes.

MR. CAMERON: Okay. Let's switch over to the materials side for a minute. Roy?

MR. BROWN: I just want to make sure everyone realizes that with materials facilities, just because you have performance-based standards doesn't mean you stop there. What happens in the radiopharmaceutical side and the medical

radioisotope side is you have a performance-based standard that's set there, that's the bar, that you have to be below the bar, but then all of our facilities, what we do is we set internal limits that go even lower than that, because we want to make sure we don't get even close to the bar and certainly we don't want to go over the bar.

So we set internal guidelines, internal limits that we have that are on top of the performance-based standard that are already there for the NRC.

Also, performance indicators I think are getting a bad rap. A lot of our companies, all of our companies use internal performance indicators. What we do is we set up -- we say, okay, what's important for good safety performance. Well, we may have environmental releases, we may have employee exposures, we may have contamination control. There are several things that we can watch and make sure those things are under control and what we do -- what we do in my company is we track ten to 12 of these things on a weekly basis, on a monthly basis, and say, okay, how are we doing on this, how are we doing on that, how are we doing on that, and then we have an overall composite index to show are we really doing a good job on the things we should be paying attention to.

So don't think that just because we have a performance-based standard, everybody says, well, we're meeting a limit, we don't have to do anything else. There are all kinds of internal guidelines, all kinds of internal limits, all kinds of internal performance indicators to say even though we're well below the line, even though we're maybe 25 percent of the performance-based standard, we want to go lower. There's an ALARA concept that's in place. We want to go lower, lower, lower on all these performance indicators, and that's what really makes these programs safe, not whether it's a performance indicator or a performance-based standard or prescriptive regulations.

It's really the internal commitment and I think that's an important consideration.

MR. CAMERON: Okay. Thank you, Roy. Any questions for Roy on that point, which I think illustrates a generic point that was brought out later, that these performance-based standards don't necessarily exist in isolation from other things that are going on? Amy?

MS. SHOLLENBERGER: I think maybe my question is better directed at Ernie or Steve. I guess I'm interested in how you would determine what that safety margin is; like, how

long the licensee would have to correct the problem.

Coming from the waste end of it, I could imagine you saying your performance standard for Yucca Mountain is failure of a waste canister. Well, if a waste canister fails and radiation comes out, you can't put it back in. I mean, it's not like you can say, oh, well, yeah, it leaked, but, well, we'll just stick it back in there. It doesn't work like that.

I'm not sure that I'm totally understanding how you're going to apply this to something like Yucca Mountain, which seems like it's going in the direction of a performance-based standard, because everything they're doing is based on total system performance analysis and defense-in-depth, which, frankly, just looks to me like -- it reminds me of a game my son used to play when he was little, where he would line up dominos and see how far apart he could make them -- you know, how close he could get them together before they would all fall down if he knocked one of them over.

That, to me, is -- that's how I think of defense-in-depth, is like how far can we push before the system falls apart. So it's not really clear to me how you can say, well, here is where the line is, that it's still safe if this fails.

MR. CAMERON: Let's try to answer that question, and I would turn, I guess, to any of the NRC folks, including Cathy, at this point. Can you put a little bit more meat on the bones in terms of I-D? That's what we're talking about now. The framework to avoid immediate safety concerns. There's not much more in the guidelines or the white paper to really explain that, I don't think.

Would Prasad or Ernie or Cathy tell us how that might operate in different arenas? Prasad or Ernie?

MR. KADAMBI: I'm going to take a crack at it, but, Cathy, do you want to try it in materials?

MS. HANEY: You go first.

MR. KADAMBI: Okay.

MR. CAMERON: Okay. Prasad, you're on.

MR. KADAMBI: I think the two concepts of an adequate safety margin and the time to take corrective action are related. They're not separable really. And in a sense, these are related by offering up the concept of a leading indicator to a problem. This isn't that if it crosses the line, that you have reached a problem, but it is that it is an indicator which impels you to take some actions.

So it is this combination of something that would

provide an objective measure of the safety concern as well as how much time you have to deal with it that has to be taken together and also we have to be convinced, I think, that for the particular context we are dealing with, that either the licensee or the group of licensees -- I mean, when you're dealing with a diverse group like the materials licensees, the assumptions you make for one group may not apply to another group or if you're comparing reactor licensees with other licensees.

So there's a lot of judgment involved in these things, but I would submit that at some level, you can have objective measures of the margin of safety which could be radiation exposure. It could be millirem.

Sometimes the margin could be just in terms of time to react. If there is enough time to take protective action, then that is part of the mitigative function of a defense-in-depth strategy, because defense-in-depth is not just any one thing. It's the combination of trying to prevent accidents, as well as mitigate the effects of accidents.

MR. CAMERON: And can we get a -- we'll go to Ernie, too, but if anybody has an example from either the reactor or the materials area that would demonstrate how I-D would be

applied -- in other words, an example of where a framework to avoid immediate safety concerns would not be present, so that you would not move into performance-based regulation.

If anybody has any examples like that, that might be useful. Ernie, do you want to add anything to what Prasad said? Then we'll ask Cathy if she has anything.

MR. ROSSI: I was going to use -- it's difficult to, off the top of my head, try to invent examples without -- and that cover all bases, but let's assume that we're looking at the reliability that a particular system needs to have in order to keep the core damage frequency above a goal.

We know that that system has to have a certain reliability in order to do that. Then we could set the performance-based criteria as to when you have to take some sort of corrective action more conservative than that limit. So when you got down to the point where you cross the so-called bright line and had to take corrective action to improve the system reliability, you would still, at that point, have margin to the point where you could really go to and just meet the core damage frequency objective.

So that's the kind of thing -- or in the case of leaks in the containment, if you got some sort of leak rate

that truly could get you to a limit which would, in and of itself, probably be very conservative, you'd set the leak rate criteria for a performance-based approach more conservative than that, so that when you got to the bright line based on the performance-based approach, it would require you to fix the leak rate before it went any further or take corrective action.

MR. CAMERON: Let's got to Dave first, and then Amy for a response on Ernie's example, I think.

MR. LOCHBAUM: I understand the difficulties of coming up with an example spontaneously, but I have a concern with that example in that I-A says it has to be a measurable or calculable parameter. You can calculate core damage frequency.

In fact, you tell me what core damage frequency you want for any event and I can fudge the numbers to come up with that number. They're totally useless from that standpoint.

So if that's the method that's going to be used to justify performance-based monitoring, this ain't going to work, because that is not -- it is calculable, but it's not objective and it's not meaningful.

So that won't work and that won't be -- in our minds, that cannot be used to define safety margins. NUREG-1150 says core damage isn't even defined. It's up to the plant owner to

determine what they consider core damage. It's not the right tool to use, in our view.

MR. CAMERON: Let's go to Amy and then I want to give Cathy a chance and then we'll go back over to --

MR. ROSSI: You might go to Biff, because I think he wants to reply to some of the things that have just been said.

MR. CAMERON: Okay. Biff, do you want to address this specific thing that David said?

MR. BRADLEY: Yes, I'd appreciate that. NUREG-1150 is getting to be pretty old and the state-of-the-art has advanced significantly since then. Recognize, there is some variability in PRAs, but that is being addressed through a number of processes right now and I would certainly disagree that you can fudge the data or the model to generate any core damage frequency you want or even that the definitions of core damage frequency really have a significant impact on that.

Those are theoretical issues, but they are well understood and much work is underway to address that. So I don't see that -- I think PRA is an excellent tool to -- you know, it's hard for me to imagine anything any better tool that you would have today to set your performance criteria by, other than by looking at the PRA and your assumptions about the

performance of the equipment, and then, as Ernie said, making some conservative back-off from that to set your performance criteria.

There's a better way to do it, rather than just saying that's not good, I'd like to hear what you think it is, because to me, that is by far the best tool to do that.

MR. CAMERON: Go ahead.

MR. LOCHBAUM: We think risk assessments could be that tool, but risk assessments to date omit too many things that the numbers they provide, even the latest state-of-the-art ones, don't provide that. They don't consider all risks. They only consider core damage frequencies. There's a lot of radioactive material at sites that can hurt both workers and the public that's not considered. So they're flawed from the get-go.

They don't consider sabotage, they don't consider terrorist acts, they don't consider design flaws, they don't consider a number of other things that are true risks. We have data on it. They just ignore them and, therefore, we think that PRAs, even the latest state-of-the-art ones, belong in the fiction section of the NRC's library.

MR. BRADLEY: Well, it's true that you can't bottle

all the entire picture of risk, sabotage is a good example, but I don't think that obviates the potential to use the data from a PRA to -- I still go back to what better -- where else are you going to go to get the equipment performance you need and we can, for the vast majority of the risk components, that we can't understand, we do have that knowledge and it would seem unfortunate to disregard that in establishing your performance basis.

Now, with regard to things outside of core damage that may be components of the public or releases or what have you, I can't really speak to that. I'm really speaking to those things that do relate to reactor safety. Materials issues is not -- there may certainly be stuff going on there, but I can't speak directly to that, based on what I'm working on, but I'm constraining my comments to the reactor safety issues and they are measuring more than CDF. It's also looking at LERF and the other things that equate to public --

MR. CAMERON: Let me ask -- thanks, Biff. We're going to go to Jamie and Cathy, and then we'll go to Jim, who has been waiting, and pick up Prasad.

But just let me ask the group a question. This interchange between Dave and Biff, does that go to I-B

objective criteria based on risk insights or does it go to another of the viability criteria? Jim?

MR. RICCIO: I think it goes to D(a), sufficient safety margin, as well.

MR. CAMERON: Okay. And that's -- so it goes there primarily, but perhaps others -- all right. I just wanted to orient everybody.

MR. RICCIO: Because you're basing your concept that there is a sufficient safety margin on your PRA, which is fallible.

MR. CAMERON: Okay. Ernie?

MR. ROSSI: I would just say that I think it goes to both I-D and I-D(a).

MR. CAMERON: Okay. Good.

MR. ROSSI: Maybe some others, too, if you look at them closely.

MR. CAMERON: Okay. Because that, I think, is useful for the NRC staff. Amy, comment from you, and then, Cathy, we'll get your perceptions on this from the materials and waste disposal side. Amy?

MS. SHOLLENBERGER: I'd like to go back to my original comment before you guys got into talking about core

damage frequency.

I'd like to know how -- where in the guidelines there's a way to tell -- a way to be confident that within that sufficient safety margin, there's the ability of the licensee to mitigate whatever problem is going on, because I can hear you saying that, well, we could say here is where the safety concern really happens at this line, so we're going to set it here, because we think it should take this long to correct the action or no longer than this.

So if we set the guideline here and the licensee starts fixing it immediately, it might get a little worse, but before it gets down to here, it's going to be fixed and it will be above the bright line of safety.

But my question is, you know, if you're really concerned about increasing public confidence, how are you going to -- how are you going to show that you -- how will the licensee be required to show that they can meet that requirement to mitigate before the safety concern exists? I mean, I can think of places where there are safety concerns and everybody knows it and, gee, they'd really like to fix it, but we don't know how or we don't have the technology or it costs too much or it would create more danger to fix it.

I'm thinking Hanford and I'm thinking Palisades, I'm thinking other places like that, where you have a situation that's clearly outside of any margin of safety and yet we can't fix it because we don't know how.

I think it's really different on the waste side, because on the reactor side, you can say, yeah, we know what causes a meltdown and if these things start to happen, we just stop, but you can't stop on the waste side. I mean, the stuff just keeps coming out at some point.

MR. CAMERON: Let's go to Cathy and maybe she can shed some light on that and how does mitigation play into I-D, and then let's also go over to Prasad to see if he can shed any light on Amy's concern. Cathy?

MS. HANEY: Okay. I guess I would take it from the standpoint of taking it to a real example in the materials world of where we probably would not go performance-based and use that to demonstrate the immediate safety concern.

Part 34 of our regulations deal with industrial radiography and it's a fairly prescriptive regulation as a whole, because of if things aren't done correctly, you can actually get some significant exposures to the occupational worker, as well as to the members of the public.

There's a requirement in there that an industrial radiographer, when they're performing radiography, have -- or that they're wearing either a film badge or TLD or a TLD, an alarming rate meter and a pocket dosimeter, which is very, very prescriptive.

I mean, we could basically say have appropriate dosimetry equipment to assure that you don't get over-exposed and call that a performance regulation, but we've gone prescriptive because these individuals are operating in environments where something could go wrong and if it does, they could get a significantly high dose in a very short period of time.

So in that case, the immediate is -- it was pretty easy to figure out, because it's a high dose in a short period of time. I think Prasad was right, when we're looking at the immediate safety concern, I think we're going to have to take into account some judgment and that obviously what went into -- the thoughts that went into coming up with the final conclusion would really need to be documented in the Federal Register notice for the proposed rule, just so that the public would have the opportunity to comment on it, because I think some of the immediate term is possibly going to have to be on a

case-by-case basis.

Immediate in industrial radiography is probably less than ten minutes. They're not going to get an over-exposure immediate in the medical environment. It's possibly going to be a couple of days even and then even with that, it's dependent upon the radionuclide that you're using.

So I think it is going to fall a little bit to judgment and it's not going to be able to be the same thing across the board.

But I guess from my viewpoint, sitting in on some of the working group meetings, the key here was immediate, as far as why we put it here, and this would be just one of several things that we would consider when we were looking at whether regulation could be made performance-based.

MR. CAMERON: Okay. Prasad, do you want to amplify on that? Then we'll go to Ernie. I think that was a good example, Cathy, and it really focuses light on this term immediate.

MR. KADAMBI: I wanted to address Amy's point by saying that one of the questions, and I'm not sure which one right now, asks whether any of these guidelines should be made mandatory and it could well be that for some of the situations

that you're addressing, there could be one or more guidelines that would become absolute black-and-white situations, where we don't deal with the shades of gray or maybe have too much judgment allowed.

I mean, I'm just saying that because these are high level guidelines and cover all activities, it doesn't mean that they apply to the same level for all activities.

So these are the sorts of things where input from stakeholders would be very useful to know that, hey, much greater weight should be given to one of these guidelines in relationship to another, let's say.

So, I mean, I think it is implied and not directly addressed, your concern is implied in the way some of these things are dealt with.

But since I have the mic, I'd like to also take the opportunity to say that when it comes to the calculable parameters, there is a point of view that core damage frequency just does not cut it when it comes to being a calculable parameter.

That given the particular regulated activity, there may be some good calculable parameters and there could be some that we would just not accept as being a calculable parameter.

There may be good reasons for that.

Now, I don't know whether core damage frequency falls in that or not, but the thing is it could well be that there would be a significant amount of discussion and analysis that would go into what exactly is used as either one parameter or a collection of parameters, some of which could be quantitative, but maybe not all of them can be quantitative.

These are all the sorts of things that, depending on the situation, we would have to get into more detail.

MR. CAMERON: Ernie, do you have a quick comment on Amy's before we go to Jim?

MR. ROSSI: Yes. I was going to talk a little bit more about the rupture of the cask. If indeed the rupture of a cask was such an event that there was nothing that could be done about it and it was basically a sizeable safety problem, then I don't think you would apply performance-based approach to that. That would be addressed in other ways and I think the other ways would be in design requirements on how the cask is designed, the quality assurance and that sort of stuff.

But I would like to point out that even when you have design requirements and manufacturing requirements, generally, there is some sort of a quality assurance process there that

can't eliminate every possibility of a flaw, but what it can do is tell you whether that process produces components that have a very specified level of probability of flaws, and then you address it that way.

MS. SHOLLENBERGER: Well, that really worries me, since you can design casks now without getting the design pre-certified. You can build casks before they're certified and worry about it later, whether they meet the criteria or not. So I think just going down that path is eroding public confidence more and more and more.

MR. CAMERON: Let's go to Jim. You've been waiting for a while.

MR. RICCIO: I want to address D(a). My concern with this is it reminds me of the license renewal rule. I want to make sure that D(a) does not become -- go from being a criteria to becoming a declaration.

Under the license renewal rule, one of the criteria for license renewal was that the reactors adequately maintain their licensing and design basis. Once that was proven that that really didn't happen, they changed that to being a declaration; that all licensees met the current design basis and the current design basis was sufficient, and that's a

crock.

I just want to make sure that once we get into this design basis stuff -- I'm sorry -- once we get into this performance-based stuff, that all of a sudden a sufficient safety margin exists. It doesn't go from being a criterion to being a declaration, because it could basically undermine the rest of the process.

In terms of public confidence, I want to harden back to some of the things that David said before about the backfit rule. Under this new process -- and David is right. If there was a safety problem, because the regulation was too prescriptive, the licensee would come marching in or could come marching in with a license amendment. That license amendment would afford the public an opportunity for a hearing.

Under this new process of basically ripping Part 50 and going to a performance-based approach, there is not going to be an opportunity outside of the rulemaking for the public to participate, and public confidence is premised upon our ability to be involved in the decisions that affect our families, homes and communities.

Unless that opportunity exists throughout the process, all the confidence is going to be thoroughly

undermined and rather than having a very strong base that has four cornerstones, you're going to have a three-legged table.

MR. CAMERON: Thanks, Jim. That's an issue I think we need to get back to in the next section, is what is the process for utilizing these guidelines. And if you could just clarify what you meant by declaration, I don't know if that's a term of art in the nuclear business.

MR. RICCIO: No. What happened with the license renewal rule was one of the criteria for getting your license renewed was that you had maintained your licensing basis and a report that I did, as well as reports that AEOD has done, as well as all the two pages of fines that have been levied against the industry just in the last year, have proven that many reactors have not maintained their licensing basis.

However, after Bob Pollard intervened in the process up in Rowe and shut down the reactor, they rewrote the license renewal rule. That criteria of maintaining your design basis went from being a criteria to a declaration and it went from being that you were to maintain your design basis to that everyone has maintained their design basis, and that's just not the case.

I don't want to see this a sufficient safety margin

exists go from being a criteria to being a declaration, and that by dicta, the Commission has said that safety margin exists; therefore, we can move to risk-based regulation.

MR. CAMERON: In other words, in the license renewal area, there was a generic finding to that fact.

MR. RICCIO: There was a generic -- and that was after it was proven that it really wasn't the case and they basically said, no, you're wrong, everyone has maintained their design basis. And if that were the case, then you wouldn't have had the Millstones, the Haddam Necks, the Maine Yankees.

MR. CAMERON: Okay. Thank you. We're going to go to David and, Amy, I think you probably have to go. I just thank you, for all of us, for being here on the materials issues. David?

MR. LOCHBAUM: I just have a quick correction to show that you can come up with any number you want to. I had earlier said that NUREG-1150 was the source of material. I was actually wrong. It's NUREG-1560, which is a much newer document, came out in 1996. I had cited the wrong number. I checked in the report.

MR. BRADLEY: Well, 1560 is a study of IPEs that were done 12 years ago and since that time, practically every PSA

has been improved.

MR. LOCHBAUM: But your IPEs haven't. Once.

MR. BRADLEY: IPEs were a one-time thing. But 1560 was explicitly a study of the IPEs. It didn't look at the state-of-the-art of PRAs as they exist today. I wouldn't be a proponent of going forward with risk-informed regulation based only on what we knew from the IPEs, and that's not what we're proposing.

MR. CAMERON: Okay. We've -- and we'll come back to the audience, too, on these issues. But we've been talking about some of the viability criteria.

What about some of the items under regulatory improvement? I asked Prasad earlier what the nature of these items was -- what they were supposed to accomplish. For example, if you meet the viability criteria, then you have to also go through the second filter, so to speak, in terms of the regulatory improvement criteria.

Do you want to just clarify that again for people and then let's have some comment from everybody on those criteria?

MR. KADAMBI: What I said earlier, Chip, was that these things have to be considered in an integrated manner, but you can structure it in such a way that you deal with one part

of it first and another part second, et cetera.

But I fully expect that when it is actually applied, there will be some iteration among these factors, also. Now, as far as the particular factors under Roman Numeral II, I see these as being the kinds of questions that we would ask in order to see whether we want to actually allocate resources or ask that licensees allocate resources in order to do something.

Really, what I would foresee is that while not any one factor would be overwhelmingly important, at least the first four would be taken as a group, because they represent the goals of the NRC. That is in the strategic plan. The Commission has said that these are the goals that we aspire to, and we would see how well we are doing in those and how much better we might be able to do.

I would see E as something that, again, is like a smell test, as it were; you know, does it make sense to really get into whatever proposal that is being offered.

And then the other two are really pragmatic kinds of how would we actually do it, what is there that is available now that we can very specifically address. In the framework, we would look at is there one section of the standard review plan that if we made some relatively incremental change, would

address a significant aspect of maybe all the other factors.

Sometimes the location of the problem that has been identified is really quite easy to pinpoint and if something can be done in that manner, that's, of course, preferred, and what we would do is try to do those things first that we can accomplish quickly and easily.

So it's in that manner that I see the sequence going.

MR. CAMERON: I think that's a useful explanation, and I guess going back to the point you made before about should some guidelines be given greater weight than others.

Are the criteria in I and II -- they're going to be applied in equal weight, just for people's information?

MR. KADAMBI: I would suggest, again, that's context-driven. It depends on what you're dealing with.

MR. CAMERON: Okay. Let's go to Dave.

MR. LOCHBAUM: I guess I compare Section II to the -- I equate Section II to a parole hearing, where, if a convict comes in and it's the middle of the winter, he doesn't have a place to go, he's going to answer these questions, what are you going to do when you get out, I'm going to rob a liquor store, steal a gun, rob a liquor store and party till the cows come home, because he wants to stay in jail. Otherwise, he's going

to be answer the questions that I'm going to be a model citizen and all the other nice stuff that comes out.

Those questions are very subjective. If it's something the NRC wants to do, the answer is going to be, yeah, it maintains safety, yeah, it increase public confidence, yeah, it increases efficiency, of course. There's no way to measure those things. It's all very subjective.

For example, last year, Public Citizen commented that the NRC closed Commission meetings to the public because it would increase public confidence. If it's what you want to do, you can answer those questions any way you want to.

So I think just to save some time, just eliminate that all together.

MR. CAMERON: Okay. That's -- is there -- I'd like to get the comments from other participants on David's take on that and your recommendation, Dave, was like get rid of them all together. Is there any other either substantive or process way that you could address your concern through fixing those in some way?

MR. LOCHBAUM: I'd have to renumber three to two, I left that part out. After eliminating section two, I'd renumber three to two.

MR. CAMERON: All right. How about some comments from people on that? Ernie, go ahead, and then we'll go to Steve.

MR. ROSSI: Mine is sort of a reminder of something that I don't want to have forgotten, and that is that we today have rules, regulations and reg guides and in the future, we're going to be establishing new rules and changes to rules, changes to reg guides and so forth.

And the question I think we're really trying to ask here today is, is there a way that we can use a performance-based approach to do that overall better than it would be done in the traditional way or however we do it if you don't have performance-based approach. That's really the question.

It's not a question of whether we do performance-based approach or nothing. It's do we use a performance-based approach as a better way of doing things that we are going to have to do or have already done in the past.

I think that's really the question. I think some of the comments here are almost as if we're not going to do anything at all, like the one on the cask rupture. The one on the cask rupture, you can probably not approach it in a

performance-based way, but if we're going to have casks, it's got to be approached in some way.

So I don't know whether that was useful or not.

MR. CAMERON: Okay. Thank you. I would just give David the opportunity. Your comment didn't seem to be like eliminate performance-based regulatory approaches. It was that -- which may have been your assumption, Ernie. I don't know.

MR. ROSSI: No, no. I wasn't particularly addressing his last comment. I was addressing a number of things that have occurred in the past 45 minutes. It was a reminder to cover a number of things that have been said, I think, over the past 45 minutes or so.

MR. CAMERON: All right. Sorry. Let's got to Steve, on David's point on the criteria in II, regulatory improvement.

MR. FLOYD: I guess I respectfully disagree. I think you can objectively measure, maybe not all of those, but you certainly can measure a good number of those objectively. In fact, we have evidence to that effect looking at an example that Gary Miller from the audience brought up before lunchtime.

Appendix J, option B, you can measure the reduction in burden that occurred and show that you're still meeting the performance criteria that was established, that's consistent

with the old rule, between the old Appendix J rule and the new Appendix J rule. So you can make the assertion that certainly safety was maintained because you're still meeting the same level of performance criteria that was set for the containment and the licensees can certainly show that there was a reduction in burden as a result of that regulation.

So I think there are instances and examples in the past which shows that you can do that. Now, can you do that in every case? No, probably not. But I think it not be the right thing to do to throw the criteria out all together on the premise that because you can't measure it all the time, it's no good, because I think there are certainly instances where it can be and has been measured.

MR. CAMERON: Some of them may be more amenable to measurement than others. Let's go to Jim.

MR. RICCIO: Criteria has already been violated. If you go back and look at the very first time, you all used 1.174 at Farley. I think you're going to have to duck and cover from that one.

Level of conservatism and uncertainty and supporting analysis would be assessed to assure adequate safety margins. The ACRS debunked that in their meeting. It's being called

regulation by religion. I agree with Biff that PRAs are good tools. The problem is not that they're not good tools. It's that they're being used as a basis for regulation at this point.

At Farley, you did three analyses and you had to basically beat it over the head before you got the answer that you wanted, that was let the reactor run without doing inspection of steam generator tubes.

You don't have enough history in the industry to have a defensible basis for that position. That's not my point of view. That's the ACRS' point of view.

If you're going to establish criteria, you damn well better apply them, and in the very first instance out of the box, you've already violated them.

If you want to increase effectiveness and efficiency and realism, instead of using these pie-in-the-sky numbers for your PRA, why not use two in 2,500, which is actually the core damage frequency that this industry has already achieved?

I have a hard time sitting in these meetings, because I find them to become -- they're sophists. We ignore the things that we don't like and we include the things we do like.

It goes back to Dave's thing, toss the whole thing

out, because if the industry and the agency want to do it, they're going to do it. And while I appreciate the opportunity to participate, to blind ourselves to the reality of what's going on here isn't going to serve the agency or the public very well.

I think you should take a good hard look at Farley, because I think the industry made a mistake in that instance and you're just lucky that the steam generator tube rupture occurred at Indian Point 2 rather than at Farley, because if occurred at Farley, it would have buried your whole risk-informed approach to regulation at the get-go.

MR. CAMERON: Let me go to Steve Floyd, and then we're going to go out for questions out here before we move on. But there may be, I think in the next section of the program, we're going to talk about process and what NRC needs to do before they implement performance-based and that may be relevant to some of the things that you were concerned about, Jim.

Steve?

MR. FLOYD: I just wanted to comment that if we -- if I accept Jim's two in 2,500 number for core damage events, then I guess he wouldn't object, since we haven't had any terrorist

or saboteur events at nuclear power plants, that the probability of those are now zero.

MR. RICCIO: Steve, I would seriously disagree. When an ex-mental patient can get into a nuclear reactor and lose himself for eight hours, armed with nothing more than a Chevy station wagon, I think you have a security problem.

MR. FLOYD: That's not a terrorist saboteur.

MR. CAMERON: Okay. Jack, you had a comment before. It's probably so long ago, you forgot.

MR. ROSENTHAL: Jack Rosenthal, Research. Perhaps with a little bit of modesty, we have a list of four criteria under viability, seven under regulatory improvements, and really one under consistency.

It was a judgment call. We thought that these would be the kind of attributes that on would examine, and I hear a fair amount of discussion about the sub or the sub-sub level on these and I would like to get some sense if these are the right kind of attributes, should we strike some of these attributes, should we be adding other attributes.

So far, the one that I did pick up on is public confidence, where, in my foolishness, I thought that if we advertised that it was a .95 diesel and we showed the data that

it was a .95 diesel, that that would increase public confidence.

But at least from today's discussion, I'm getting the idea that what I might consider public confidence is not public confidence to somebody else. So it may be presumptuous of me to say that something that I do would increase public confidence. Maybe that should go and we should leave the other attributes, or maybe the most radical change, I guess, David is saying just strike these attributes.

MR. CAMERON: And I guess that based on what Jim said, to the extent that it was demonstrated in the process for initiating a regulatory or a performance-based approach, that the information under those criteria in two were objective criteria, good numbers, that Jim or David might think that those criteria would be okay. That's a question for you.

MR. LOCHBAUM: I recognized it as a question. I don't think you can ever make those numbers. They can be objective in that they will be numbers, but they won't be -- you can come up with anything you wanted on any one of those. It's easier to fudge this number than it is the PRAs.

MR. CAMERON: And we've heard from -- going to Jack's point, I think we have heard some recommendations on some of

these. Steve disagreed on eliminating those criteria, because you can provide good numbers, at least on some of them.

But I would ask if anybody else in the audience has a question at this point or if anybody around the table wants to recommend the addition of some criteria here or talk about deletion of criteria.

Let me just see if anybody -- okay. I think we're okay with the audience. Jim?

MR. RICCIO: I just want to do a snide check on Dave. You're really serious about tossing out the whole Section II? I would actually -- if you were to actually do Section II and have it be -- if you could actually do Section II, then I think it's necessary. But since the very first time you did it, the first application of 1.174, it doesn't even pass the smell test at ACRS, I think we have a problem on our hands.

You set up these guidelines and not really abide by them would undermine public confidence even further.

MR. CAMERON: Is there a -- a point of information, I guess. Is the 1.174, you refer to that as an application of these guidelines. Is that by analogy or -- I'm a little bit confused on that.

MR. RICCIO: No, no. 1.174 is one of the bases of

regulations or --

MR. CAMERON: Let's go to Biff and maybe he can shed some light on it.

MR. BRADLEY: I just wanted to clarify a little bit. What happened at Farley was not the first application of 1.174. 1.174 has had many applications since its creation probably about two years ago. It's the basis for all the risk-informed applications that have been undertaken in the industry and it's just one of many applications and the Farley situation, these things work both ways.

There are many cases where there have been cases where plants can meet the all the licensing basis requirements and still have the 1.174 questions imposed on them, such as the Union Electric electrode sleeving issue. So this thing cuts both ways and to say that because Farley got relief under 1.174 somehow impugns the whole approach, I don't quite understand that.

I mean, they met the criteria of the guideline and it's just one of many applications. It cuts both ways and it seems to be an anecdote more than something of substance that affects what we're talking about today.

MR. RICCIO: But when the ACRS tells me that you

don't have a defensible basis for what you're doing, I think that's a little bit more than anecdotal. I take your point. I believe it was the first instance. I'll take your correction, as well. But I feel that what happened at Farley was unjustifiable.

Basically, you did three analyses. One said inspect. That was the deterministic. The second analysis was half deterministic and half probabilistic. That said inspect. Then you finally pencil-whipped it to death and you got the final answer you wanted, which was let the damn thing run for another cycle.

If a steam generator tube goes there prior to you trading those steam gens out, you're going to have a real problem on your hands, because you'll have evidence that your basis wasn't defensible, other than just the ACRS' conclusion.

MR. BRADLEY: I can't speak -- the staff made that conclusion based on extensive review of it. If ACRS disagrees with it, it won't be the first time. I'm not going to argue the specifics of it. But 1.174 has its own process and it's been well discussed with ACRS and everyone else and if it meets the process and the staff agrees with that, I guess I just don't understand what the point is.

MR. CAMERON: Okay. Let me note, before we move on to the next section, that Jim seemed to indicate that he thought that these criteria in II might be useful if they were -- just let me say -- done right. As a shorthand, David has a less, say, view of that. Steve gave some examples of how they could be used objectively. We've had a lot of comment on criteria in I.

Before we go on to these process issues, does anybody -- harkening back to Jack's point, does anybody want to add anything on the criteria in II or I? Geary Mizuno, let me get you a microphone.

MR. MIZUNO: Recognizing that these are only my personal opinions, I won't represent the Office of General Counsel here. It's always been my view, when I saw this paper come up, that C, D and E were kind of redundant or if they are somewhat different, it wasn't all that clear to me, and certainly they could be expressed better to recognize or to explain what the difference is.

I guess more importantly, my concern is with II-C, where they talk about realism. To me, realism, in and of itself, is of no regulatory import. It shouldn't be an end in itself. Realism has to be a means to achieving one or more

ends.

It might be that you want to increase realism in order to get a better idea how much margin actually exists. You might want to have realism because you want to know what that margin is and you want to determine, yes, I want to reduce an unnecessary regulatory burden, because now I have reduced uncertainty and I want to have a certain amount of what people would generally agree would be a sufficient safety margin.

But I don't see realism, in and of itself, as being anything more than a means to an end, and I would suggest that realism be removed as a primary goal.

MR. CAMERON: Geary, while you're up here, I had a related question for you. Is II-A, maintain safety, environment and common defense and security, is that -- how similar is that, do you think, to the I-B criteria and perhaps --

MR. MIZUNO: I think that they're definitely different, because I look at II-A as being sort of the equivalent to the Atomic Energy Act's requirement that whatever we do, at least in the reactor area, impose no undue risk and how we've translated that into adequate protection and also that there be a sufficient protection to maintain protection to

public property.

I mean, the whole range of those Atomic Energy Act requirements. Whereas, I looked at E as being, yes, once you've met the minimum statutory requirements for safety, environment, I guess, which also comes out of NEPA, that you then look overall and say, okay, how much additional safety am I willing to afford, because it's cost-justified.

MR. CAMERON: Thank you. I think all of these comments, or at least Geary's, go to the issue that's stated in the additional information that we're going to go through to make sure we captured all that, is are the guidelines clear; not only what each item in the guidelines means, but is it a discreet thought concept from any other guideline, because I think that might eliminate some confusion.

Prasad, I'm going to ask you. In terms of process, there are some process issues here, there's what's the relationship of the guidelines to ongoing programs. We already had a question this morning about what's the relationship of the guidelines to the regulatory oversight program. There may be existing rulemakings ongoing in the materials area, for example, that are, quote, performance-based.

Are there lessons for the guidelines from those

experiences or how do the guidelines -- how would they affect those experiences?

Prasad, in terms of process, what are the possibilities that the staff was thinking about as to how these performance-based guidelines would be used? We heard Harold say that they should not be used to necessarily initiate anything, and, Steve or Biff, please correct me if I'm misinterpreting what Harold said.

Not that you're the keepers of what Harold says, but --

MR. FLOYD: I would never take that challenge.

MR. CAMERON: But it seemed that he expressed an opinion of they should just be sort of a -- what do you call it -- a reference for the staff. Can you just tell us a little bit more on process?

MR. KADAMBI: Let me take a shot at it and since we have several of the working group members here, they can also chime in and perhaps correct me, if I say something wrong.

But I think in the Federal Register notice itself, we have said that we expect to apply these guidelines just to new initiatives. In other words, they may or may not apply for things that are going on right now.

The second thing is that we would expect, after these are finalized and how they get finalized is, again, part of this ongoing process, but once they are finalized, we would expect to put them into something like a management directive which is like a procedural guidance on the staff, for the staff to take it into account within the parameters that would be within the management directive.

And the results of this assessment, I would foresee, would be documented somewhere and to that extent, I think David's concern would be addressed in the sense, even if it's not necessarily objective in every aspect, when you build up a sort of case law on it, where you deal with different cases and you see how these factors are assessed for the different circumstances, I think it becomes comparable, where you can compare one set of decisions to another, and there is an increasing level of objectivity.

It doesn't mean that right from the first time you apply the guidelines, you can be objective about it, but I believe that if it is applied in the way I'm describing, over time, there will be increasing objectivity in the process of applying the guideline.

At the same time, we would also be looking at whether

the guidelines themselves should be changed, because as we apply it in each case, we would ask the question is there something about the guidelines themselves that maybe should be reexamined.

So that's the position that I believe we've come up with in the working group so far.

MR. CAMERON: Okay. We're going to go to David, and I believe Harold also said that it should not just be confined to new initiatives, also. You sparked my memory on that. David?

MR. LOCHBAUM: I just want to address the formalization of subjectivity. I guess I would disagree with you. I think that was the trap that the senior management process got in for the watch list, figured the fact that it was replicated many times didn't make it objective. Hardly anywhere close to that.

I think the new process, the oversight process addresses some of the problems with that, even though the same process will be used over and over again and you can go back to the record and see the decisions made.

There are times we can use data in lieu of objective numbers, empirical databases. I'm not arguing against that.

But I don't think that in these guidelines, having a series of -- in fact, we've made the subjective decision six times and always came out this way, I guess I would disagree that that proved anything.

I'm comfortable with just getting rid of it all together. All those things are given. You're not going to do anything that's going to reduce safety, if, in your mind, you think it reduces safety. That's a given. If, in your mind, you think it's going to reduce public confidence, you're not going to do it.

So I think those are all givens and it's a wasted effort to even go through the process.

MR. CAMERON: Okay. David, do you think that the -- go back to the assumption, based on your recommendation to eliminate criterion II and III, they're not up there anymore, but in terms of the application of I, you would still anticipate that there would be a fairly transparent process for applying those criteria to decide whether a particular regulatory area should be performance-based or not.

MR. LOCHBAUM: I guess I don't -- I understand the question, I'm not sure I know how to answer it, because, again, I don't understand the white paper, so I don't understand

performance-based regulation. So it's not clear, in my mind, when you would and wouldn't do it.

MR. CAMERON: I was just trying to get to exactly that point about whether, at least for purposes of your understanding, what your stance was on the use, potential use of performance-based regulation.

MR. LOCHBAUM: I guess in general, I don't care what system you use or what you call it, as long as you do what you say you're going to do. For UCS' long history, before I joined it, we very seldom say that the rules are inadequate. Our concern for 20 years has been just the NRC doesn't do what it says it's going to do. If you'd do that, I'm out of a job. But I don't think -- I think I've got job security.

MR. CAMERON: Jim.

MR. RICCIO: Going back to section II, I think it's very telling, if you look at E(a), (b) and (c), a reasonable test shows an overall net benefit results from moving to a performance-based approach.

We're talking about, in (b), that it's expensive, we have to take a much closer look. So what's the real goal here? It's to reduce regulatory burden. I don't see safety included in that entire paragraph.

MR. CAMERON: Now, you're talking about --

MR. RICCIO: The guidelines to assess performance-based regulatory improvement, E(a), (b) and (c). The reason we're here today isn't because you guys have any new improved insights into the risks posed by nuclear reactors. We're here because this industry has come to the realization that given the competitive environment they're placed in, they can't compete.

Unfortunately, I'm afraid safety is being shunted aside and I think (b) is a very good indication of that. If stakeholder input indicates that a change in the regulatory practice is likely to be expensive, a much closer examination of the benefits would be warranted.

I think we're shifting the focus of what this agency is supposed to be about.

MR. CAMERON: I think that was raised initially by Amy this morning and I think it's an important issue for others to respond to. Prasad?

MR. KADAMBI: Well, my response has to do with understanding really what these guidelines are to be used for right now, which is we want to use them to decide whether we will work towards some kind of a regulatory activity; in other

words, to change something.

Would we want to change something which we know that industry is not going to implement because it's too expensive, no matter how we worked on it?

MR. RICCIO: If it improves safety.

MR. KADAMBI: If it improved safety, then it falls in a totally different category. We would certainly look at how much it would improve safety and if it improves it sufficiently, we would definitely go forward with it.

MR. RICCIO: I think that should be mentioned in the guidelines, in that section.

MR. CAMERON: It might be useful to give us a rack-out of how that would -- how that would work, I mean, if you were applying the guidelines, Prasad, in an area, how that improvement of safety would be factored in and where and does it need to be made more explicit in the guidelines.

MR. KADAMBI: We are dealing with a hypothetical case here where we've looked at a given regulatory issue and we see that it meets the viability attributes, right?

MR. CAMERON: Right.

MR. KADAMBI: We are saying that there is something that we can measure and we can also make objective decisions

about what we measure and that maybe there is not enough flexibility or that there is something about the safety concern that -- an immediate safety concern that would lead us to believe that we should undertake some activity in this.

So that is where I -- it has, in a sense, passed through the screen for viability; that is, we should be looking at it further in order to see whether there is an opportunity for improvement.

Now, at that point, we would look at to what extent are we able to meet the agency's goal of maintaining safety and defense of environment and common defense in security by ensuring safety margins. If we have an opportunity to increase the safety margin, then that would certainly impel us, and that's one of the reasons why it took us first to really push to take that action.

MR. CAMERON: Could it say increase rather than maintain?

MR. KADAMBI: I mean, the presumption I believe that is at the root of these agency goals is that the level of safety that we are observing, on the average, in the aggregate, is at a level where we should really be working hard to make sure it doesn't decrease. I mean, that is at least one way of

looking at the agency goal as it is phrased.

MR. CAMERON: And, Jim, I guess you're suggesting that it should be -- this is a question. Are you suggesting that it should be an explicit criteria that safety is increased before a performance-based measure would be used?

MR. RICCIO: It's not necessarily that it's increased. My problem here is that basically if we go to increased safety and it increases the cost on NEI and the industry, they're going to come in and basically slap on the backfit rule on us. Yet, we're going to allow NEI to basically deregulate left and right and the public is basically obviated from the process, unless, of course, it comes through license amendment.

Obviously, Dave and I are sitting at this table, so we're included, to a certain extent, but through this whole risk-based, performance-based regulatory approach, there's very little opportunity for the public to intervene in a meaningful way to make changes. We can come in and give our two cents and then you pat us on our head and send us on our way.

But the reality here is that this is about deregulating so we can improve the economics of this industry and whether you like me saying that or not, I see guys cringing

on my right, honestly, I believe PRA is a tool. My problem is you're shifting it from being a tool to being the basis of regulation and it's not good enough.

MR. CAMERON: Okay. We're going to go to Roy now and then we're going to go back over to Steve, and don't forget, if you have concerns about how this is done, is there a specific process that you would recommend that the staff implement in association with these. Roy?

MR. BROWN: Jim, you've got people cringing all around the table. We're not looking at this as a, gee, this is a way to cut corners, this is a way to save money. It's not a case where, gee, if we can go to performance-based rather than prescriptive-based, we can lay off people and save all kinds of money. That's not the way it is.

What we're looking at is we're saying do some risk assessment, set up the risk-informed, decide what it is you want, where is that safe level you want to set it at, we have a margin of safety built into it, and then develop a performance-based standard.

We know much better how to achieve that performance than if you tell us how to do it. Don't make us do it in a certain way. Tell us what we have to do. We'll develop a

margin of safety below that and then we'll figure out the best way to do it.

Now, we fully expect NRC to come in and inspect it and say, okay, prove to us that you're meeting that margin of safety, prove to us you're doing it the most effective way you can. But by giving us the opportunity to do it the way we know best, the way that's most effective, it's much better for us. It may cost us more money in the end, it may cost us less money, but it's really not a money issue. It's a safety issue for us.

I mean, we want to be well below the regulatory limits. We don't want you guys or the public or our employees -- you know, we want everyone to feel safe, we want everybody to feel comfortable. So it's really -- in our boat, it's really not a cost issue. It's really not a corner-cutting issue.

MR. RICCIO: I just want to apologize. I tend to paint everyone with the same brush that I paint the reactor side of the house and I realize at times that may not be appropriate.

MR. BROWN: Well, I'm not sure that doesn't apply to the reactor side, too, I'll let them speak for themselves.

MR. CAMERON: Let's go to one of the painted people over here.

MR. FLOYD: Well, we're used to being painted, but I guess, in response, I'd just like to say that we clearly are not doing this because we don't believe we're competitive. In fact, five of the ten lowest cost producers of electricity in the world last year were U.S. nuclear power plants. So I think what the U.S. nuclear industry is realizing is they can be competitive.

So that's not the reason why this is being done. To get back on the real topic at hand, I think the way I kind of looked at this, maybe I looked at it the wrong way, but the way I looked at it was that the going-in premise in this approach is that the current set of regulations are providing an adequate level of protection of public health and safety.

If they were not, then the agency could make a case on a cost-benefit basis in accordance with the backfit rule and impose a standard to increase the current level of safety above what it is today. So I think if you're into that process, you're really outside this process.

Now, given that, let's stipulate for a second that there isn't an instance where that is the case, so now you're

into this process. What you're really trying to do is to see if there is a more efficient and a more effective way of maintaining the current levels of safety. If you can also increase the current levels of safety somewhat, without having to pass the backfit test in the course of doing this, hey, that's great, too, but the real objective here is can we become more efficient and more effective without having a negative impact on safety, and I think that's where the bottom line objective is. At least that's what we think it is.

MR. CAMERON: Thanks, Steve. Ernie?

MR. ROSSI: I was going to say, it's very much along the lines of what Steve just said, that I think that when you look at this item about stakeholder input indicates that a change in practice is likely to be expensive, a much closer examination of benefits would be warranted before such a change is pursued.

MR. CAMERON: You're going to have to talk into the mic.

MR. ROSSI: I think that item -- I guess it's E -- would be taken in the context of the first item up here that safety would be -- that we would maintain safety, the environment, common defense and security by ensuring safety

margin.

So I think what we're doing is we're trying to decide whether we should take a performance-based approach or a more traditional approach and we may conclude that the performance-based approach has some merits in providing licensees with more flexibility and it is more amenable to new technology and that sort of thing.

But it wouldn't necessarily change safety at all, but if we then did a cost analysis of it and found that just to change over to this new approach to provide more licensee flexibility was going to cost a tremendous amount of money with no real change in safety, we would look very carefully at it before we pursued it.

I think that was the context that this was meant.

MR. RICCIO: Can I just address that?

MR. ROSSI: Because I think it has to be taken in the context that we -- one of our guidelines is that we'll maintain safety of the environment, common defense and security.

MR. RICCIO: And I understand that. The only problem is that there has been a shift in the burden of proof here and it's evident in the oversight process and the ripping of 50 and in this, as well.

It used to be that the industry had approved that they were safe and what we have now is that the agency has to prove that the industry is not safe before it can regulate. I think that shift in the burden affects this guideline.

MR. CAMERON: Any comments from Steve on that? Steve?

MR. FLOYD: Well, I think all of the current regulations still apply. So it's not that we're not being regulated. We certainly are still being regulated, but the burden has been shifted. Now we still have to prove to the agency that we are in compliance with all of the existing requirements that are out there, even the new oversight process does not relieve the responsibility of any power reactor licensee to comply with the current set of regulations.

MR. CAMERON: And is there any clarification from our Office of General Counsel? I think it's -- if there is some misunderstanding about that point, I think it's an important point that should be clarified on the record here. You've heard what Steve said.

MR. MIZUNO: Licensees must always comply. They always have the regulatory option -- I mean -- sorry -- requirement to comply with their license and any license

conditions and the regulations and I think that that's a given.

I think what Jim Riccio was trying to get across was that not so much from a compliance standpoint perhaps, but in this process or as the agency goes forward now with the claim that the regulatory -- I'm sorry -- that the nuclear power industry is a mature industry for which the regulations and the general level of safety is now well understood and that we have achieved a level of adequate protection through compliance with the regulations, I guess what Jim is trying to say or at least as I understand it, is that the burden is now generally on the agency to demonstrate, through backfit analyses or otherwise, when it intends to institute a new regulatory requirement upon the industry, that either it's necessary for adequate protection or that it is cost-justified.

I guess the only thing I would say is that it doesn't matter whether the NRC was doing it 30 years ago or now. It seems to me that any responsible regulator would have to do that. Our regulatory requirement is either justified or it's not justified and it doesn't matter whether -- and the time element, to me, doesn't matter. I think what does matter or how the time element or the level of knowledge affects the regulator's decision is to what extent is the regulatory

requirement going to include some margin of safety or some additional defense-in-depth, if you want to call it, so that you can take care of those kinds of uncertainties.

MR. CAMERON: Thank you, Geary. Let's go to David for a comment and then before we break, at least I'd like to poll everybody on this idea of pilots, because I think the staff is particularly interested in that.

David?

MR. LOCHBAUM: I just have a process comment. I don't understand much about performance-based regulation, but question II-B says what is the best way to implement these guidelines and I don't have to know what the guidelines are to know that we would prefer that they be applied across the board to all licensees. We've seen, in other applications, that there is the ability to retain what you're doing now or have this option and right now there are 103 different plants having different regulations.

It just seems to get things more and more muddied with less and less regulatory efficiency and effectiveness if you allow options and you can do this if you want to and it's all voluntary. That just seems -- it also seems -- what was that word -- delirious to --

MR. CAMERON: Deleterious.

MR. LOCHBAUM: -- to public confidence.

MR. BRADLEY: Delirious may apply before long, too.

MR. LOCHBAUM: So I guess if you do this approach, we don't want to see the voluntary option. It needs to be either most of the licensees will do it or all the licensees will do it or not, not pick and choose.

MR. CAMERON: Okay. In other words, once a performance-based measure was proposed that met the guidelines, that it not be implemented in a manner that plant by plant, they would be optional plant by plant. Is that clear to NRC staff what David was suggesting?

Going to perhaps a related concept, what about the pilot idea? Steve, do you want to make your comment and also have anything to say about pilots?

MR. FLOYD: I guess we believe that unless the new requirement can pass the backfit rule requirement of being mandatory in position, that there should be flexibility allowed to allow the change in the regulation to be optional. Different plants have different situations.

What we've found is because of the differences that have already occurred in the licensing process for the 103

plants that are out there, which is why we do have -- I agree with Dave -- about 103 sets of regulatory requirements for the facilities, some of these regulations will be more beneficial or less beneficial to individual licensees. They won't be uniformly equal.

We see that in some of the risk-informed applications that have gone on already and in-service inspection and in-service testing. Depending upon the vintage and the current licensing basis requirements for the facility, it may be cost-beneficial to pursue risk-based in-service inspection or not cost-beneficial to do it.

So I think that flexibility needs to be maintained, unless it does indeed pass the backfit rule of providing a sufficient amount of additional protection to be warranted.

MR. CAMERON: Are you suggesting that there may be performance-based measures that meet these criteria, might not meet the backfit rule, but plants should have the option of using that?

MR. FLOYD: Yes. They would have the option of staying with the existing regulation and requirement that is not performance-based perhaps, staying with the prescriptive approach, if that's what it is, or going to this one, if their

evaluation individually, since it's not mandatory because it didn't pass the backfit rule, they make their own determination as to whether it's cost-beneficial for them to employ the new change.

MR. CAMERON: Okay. And let me ask the staff, is that something that you contemplated when the draft guidelines were developed? I just would note that, as well as noting what David's recommendation was, note this recommendation, but it's not something that was specifically spelled out in the guidelines, was it? It was implicit or -- Ernie?

MR. ROSSI: Well, I don't know whether it's stated specifically in there, but clearly, in order to impose a new requirement across the board on the industry, it would have to meet the backfit rule. Now, one of the comments that was made today, and I think it was by David, was that when we go to a performance-based approach in some area, that we ought to do the same kind of a rigorous analysis that we would do if we were imposing a new regulation to show that the performance-based approach did not degrade safety.

I think that was your comment this morning, was it not?

MR. LOCHBAUM: That's correct.

MR. ROSSI: And I believe that in general, that's consistent with what we had in mind with the guidelines. So that the guidelines would be voluntarily.

But I think mostly we looked at these guidelines as not having a big effect on safety or probably not having any effect on safety, but it was a matter of whether a performance-based approach would be a better approach and give licensees more flexibility and they would have more ability to use new technology and that kind of stuff, and achieve the same degree of safety as some alternate approach.

MR. CAMERON: Before we go to Geary, which I think he's going to talk on this particular issue, I just want to make sure that we have views on pilots out on the table. We heard from -- Jim made a mention of pilots, Harold did. Steve, pilots?

MR. FLOYD: I agree with Harold's comment, that I think pilots are very useful. I don't think you necessarily need a pilot for every possible performance-based regulation to change them, and there may be some that are relatively simple and your evaluation is that you have all the data that you need from the performance in the industry to date, and the experience in the industry, to go ahead and make the change

without running a pilot on it, but when you get to perhaps some of the more complex ones that you don't have all the answers for, that's when it's useful to run a pilot to sort out those -- to gather the additional information that you currently don't have and to deal with -- if you think there's going to be some particularly challenging implementation details associated with the change in the regulation, then a pilot is useful to flush those out in advance.

But I wouldn't say every time you think you want to change a regulation and make it performance-based, that you have to have a pilot first before you broadly apply it. That may not be the case.

MR. CAMERON: Okay. Let me just ask Bill's opinion on this specifically from the medical community.MR. UFFELMAN: I was going to say, based on my longer period of time in the chemical and waste industries, pilots are always a good way to start.

Again, I said earlier, when we started today, I feel like we're all in this one ocean and I'm a little tiny boat and you all -- that there's a lot of waves going on.

There is an irony here. I was reviewing a document that is a pilot of how we're going to inspect on the medical

side and somebody pointed out that, in fact, if this is the pilot towards deregulation, it shows how way over-regulated we are.

So I hope that it is successful, but on behalf of the medical community, pilots make sense.

MR. CAMERON: Thank you. David, do you have any comment on the pilot issue?

MR. LOCHBAUM: I agree with Steve's comments. There probably would be times it makes sense and there's other times that it would not make sense. So I think it's a case by case basis, I agree with Steve's comment.

MR. CAMERON: Ernie?

MR. ROSSI: I was going to make one other point. I think what we had in mind was to use some pilots to test out the concept initially, to test out the guidelines and the concept of how we go about doing performance-based regulation, and then clearly, for specific cases, I would agree that it depends on the specific case whether you do a further pilot in that case.

MR. CAMERON: Let me make sure that everybody has an opportunity to answer that particular point. Before these guidelines are finalized, should there be a pilot to test the

guidelines. That basically goes to your point, doesn't it, Ernie?

MR. ROSSI: Right, yes.

MR. CAMERON: Any opinions on that? David?

MR. LOCHBAUM: I can understand the advantages, but I'm not sure it's required, because if you have to go through a rulemaking process, that essentially will --

MR. CAMERON: Biff?

MR. BRADLEY: Just a couple of thoughts. One is we're writing these guidelines after the fact, that there's quite a bit of performance-based regulation in place now and maybe one of the things we could do is compare the guidelines against what we have established already.

The maintenance rule is a very encompassing substantial impact on every plant and its performance-based regulation. Also, what we're doing on option two of Part 50 will, in fact, employ a lot of performance-based approaches. So the pilots that we're going to have there are implicitly going to test not just the categorization piece, but also the treatment, the regulatory treatment, which, in a large respect, will be a performance-based approach.

So whether you need something -- maybe you can

somehow baseline your guidelines or test them against some of these ongoing or already in place activities rather than have new pilots.

MR. CAMERON: And that has application to the materials area, I think, in terms of the rule that's ongoing, rulemaking that's ongoing now for the medical community. It might be instructive to take these guidelines and see how they apply, what the result would be if you applied them to the Part 35 rulemaking.

MR. UFFELMAN: Yes.

MR. CAMERON: All right. Ernie?

MR. ROSSI: I just wanted to say one other thing, and that is that we have heard that there are regulatory activities that perhaps cannot be made risk-informed, but could be addressed through performance-based approaches, and those are areas that I'm not sure we have a lot of experience in, where pilots may be useful to test the concept.

MR. CAMERON: Okay. Jim.

MR. RICCIO: Just one quick question before we break. When reactors opt in, is this going to be like a Chinese menu, like one from A, one from B, one from C, or is it going to be that if you're in, you're in? Are you going to have a reactor

that's half under the old prescriptive-based and half under the performance-based approach or is it -- I know this voluntary thing has me a little bit confused at this point.

MR. BRADLEY: I can only speak for risk-informed regulation. It's a policy issue that's still -- the Commission has basically stated, correct me if I'm wrong, but I think that they're willing -- they're going to have to test that through the process and make some later determination on that. How selective the implementation can be is a difficult question.

Pragmatically, it may not be -- I can only -- in risk-informed space, it may not be practical to try to do selective implementation. So that remains to be seen and I think that's what the Commission has said in the SRMs on risk-informed regulation.

MR. CAMERON: And I think the other part of the answer is that there may be, just as there is now, on the assumption that there are performance-based regulations now, that under this guidelines approach, if this was responsible for initiating a new performance-based regulation, that if that went final, that that would just be one more piece of the regulatory framework.

So that there would be performance-based regulations

for some activities, and there would be prescriptive regulations for other activities.

Is that correct, Prasad and Ernie and Geary? I think that that's Jim's question.

MR. ROSSI: Let's take, for example, the fitness-for-duty rule and suppose we decided to use that or make that performance-based and we did it. I guess I wouldn't see a problem with making use of that performance-based approach voluntary for just that particular thing, because it's pretty separate from a lot of other things and I don't see why you would have to adopt a performance-based approach for a whole set of regulations and activities, just in order to go to performance-based for fitness-for-duty.

But, again, I don't know that we have fully addressed this as yet and it is a complicated question.

MR. CAMERON: David.

MR. LOCHBAUM: I think the guidelines that I've seen so far make that issue very important and if you have some plants that do this and some other plants that do that, it makes it difficult for the NRC inspectors to ensure that plants are complying with the regulations, doing the right thing.

If everybody's got a different set of rules --

Representative Markey asked the NRC about two years ago on some very specific rules for Salem, how did the fire protection rules apply for Salem Units 1 and 2. The NRC staff, it took eight months to answer the question of what the regulations were for Salem Units 1 and 2.

And since it took eight months, you've got to wonder how in the world the NRC was doing fire protection inspection at Salem up to the point that that effort was complete, and that's just one area.

So if every plant in the world starts having different combinations, NRC oversight seems to be going south very quickly.

MR. CAMERON: Steve?

MR. FLOYD: I would just respond that, unfortunately, I think we're already there. I mean, a large -- I don't know what you'd exactly call it -- Q list for power plants largely determines the scope to which the current regulations apply. We have plants, all the vintage plants that have as few as three or four thousand items on the Q list, up to latest vintage plants that have 100,000 items on the Q list.

So the scope and breadth to which the current regulations apply based upon the vintage of their licensing has

resulted in a very unlevel application of the requirements today.

So I'm not sure it's that big of an issue when you get into a couple of individual regulations where some reactors may apply and some reactors may not apply it. The difference is already so great, I think it's going to be lost in the noise level, personally.

MR. CAMERON: And maybe a generic way to look at it is there is no guideline in II, but the ability to uniformly apply it across the industry, I suppose that if we're looking at the benefits of performance-based in any area, that there would be more of a case for benefits if it was uniformly applied across the industry rather than on a case-by-case basis.

That may put a finer point on David's recommendation. Let's let Geary Mizuno make his point and then let's take a break for about ten minutes and come back and make sure we covered everything.

Geary?

MR. MIZUNO: This was going back to that backfitting issue and backsliding, and I think David and Jim both talked, I think, about something equivalent to sort of a reverse backfit

test, where you're going to be reducing safety requirements, that you do some sort of check on that.

I guess my only comment was that I don't think that the current guidelines would permit the NRC, under this process, to reduce the safety or to remove safety requirements, because I thought the first criteria was that you are going to maintain safety.

So wherever it may be now, you would not be doing anything as part of instituting a performance-based approach, which would in any significant measure reduce the current level of safety. But what you would be attempting to do is try to achieve the existing level of safety in a more efficient manner.

Let me tell you why that's an important issue from a regulatory/backfitting standpoint, because you don't want to have the agency in a situation of saying here, as part of this process, we're going to allow safety to slide backwards, but then the very next day, turn around and say, however, now we are applying the bckfit test and we find that there is a substantial increase in safety that could be cost-effectively achieved. You would end up with a flip-flop situation, where at any particular time, you're going back and forth.

You can't have that. So I thought that this process was intended to assure that once the agency has ratcheted up to a certain level of safety, that this process in particular was not going to result in any reduction in safety.

MR. CAMERON: Okay.

MR. ROSSI: I think what you say is true. If we did anything in this area, I guess it would be some sort of a more systematic analysis or a systematic analysis, which we'd probably do anyway, to show that safety was indeed being maintained at essentially the same level if you went to a performance-based approach.

MR. MIZUNO: Right, and that wouldn't, of course -- what I'm saying is I'm just talking about this process. There may be other processes out there which I think your comment would then be very relevant as to what the agency should go through in order to reduce the level of safety, but that was separate from this thing, which was just a matter of saying when are we going to be using performance-based approaches.

MR. CAMERON: Okay. Let's take about a ten or 12 minute break. Steve, did you just want to get one quick thing on? You're okay. Let's come back at quarter to and then we have a couple of things to wrap up on and then we'll be done, I

think.

[Recess.]

MR. CAMERON: We are going to get started and I know that Jim and David and everybody else are going to roll in here. I guess we have Jim and David left at the table. We need Ernie and Prasad.

All right. I don't think this wrap-up has to be to extensive, but you guys are the judge of that. We wanted to do two things here and one is make sure that we did, to the extent that we haven't already, and I think we've covered a lot of these, just allow people to give their input on these additional information questions that were at the back of the Federal Register notice.

I would also ask Ernie and/or Prasad, after we go through these, to just tell everybody again, what is going to happen after this point, how will these comments from today be rolled into what product and what happens to that product.

But, first, to go through these FRN questions, clarity, specificity, I think we've had a lot of discussion on those three sub-bullets. We've had some comments about, well, you don't need certain guidelines or some guidelines are redundant.

Does anybody -- I guess the best way to do it -- does anybody want to say anything about clarity and specificity of the guidelines at this point? Any more to add on that? Except for -- I don't think we're recognizing Walt Schwink here. Go ahead.

MR. SCHWINK: Let me go back to the draft guidelines themselves, that slide. I raise this in the context of building stakeholder confidence. I have a copy of a green book which is our 2001 budget and it talks about out-years as the budget green book is supposed to do.

Went to Congress, went to OMB, is in the public arena, that already lays out the Commission's goals, metrics, and measures. So it seems to me that the debate of whether those should be or shouldn't be has been displaced by the Commission's decision, as referenced in or actually reflected in the green book.

So I kind of want to say this discussion should be how do we look in the real world of those we regulate, and get meaningful indications of how those are being achieved, those goals are being achieved, using an overlay of the measures, the metrics and measures that the Commission has stated in that green book.

Quite frankly, it's attached in the context of GPRA, the government -- the name I can't remember.

The second thing that I heard in the discussion was a lot of reactor discussion. Cathy, correct me if I'm wrong, 100,000 licensees under our jurisdiction.

MS. HANEY: In the NRC materials area, we're probably closer to around 5,000.

MR. SCHWINK: I'm including the agreement state, because in reality, we grant that to agreement state.

MS. HANEY: Then we're up around 20,000, 15 to 20.

MR. SCHWINK: That are active.

MS. HANEY: Yes.

MR. SCHWINK: There are only 110 reactors and I think that number is going down. So when we talk about things like backfit rules, it applies to 110 of them. So my question is I'm not sure what you're asking for in terms of the draft guidelines, other than how do we go about getting real-world indications and controlling real-world performance both from a licensee point of view and from a regulator point of view, to achieve an acceptable level of risk and something that's not zero.

Then the other thing I wanted to make a comment on,

and a fellow named Bill Olmstead, who was an attorney, taught me, whenever I got confused or didn't know where I was going, go back and read the Atomic Energy Act. The Atomic Energy Act talks about safety, national security and commercial use of nuclear energy.

If you look up the word commercial, the definition is commerce in the context of business and profit, so forth. It would be foolish to say that we can't consider or shouldn't consider the economics of nuclear energy. By the same token, it would be foolish to assume that we should not say safety and national security.

To me, what all of this process evolves to, and we've talked bits and pieces, and, quite honestly, I've heard things, I agree, even though they were disagreeing views, I've heard things I agree in all of them. The real bottom line is we're trying to strive for a stable, predictable regulatory environment.

It's not about fee reduction and I really don't believe ultimately it's going to be about cost reduction as much as it is a stable, predictable, safety level that licensees can commit and are meeting in not only the short term, but the longer term.

The benefit to the commercial sector is now from a capitalization or a longer term operability point of view, there is a stable, predictable regulatory environment to be able to make those judgments that stockholders like and companies that are buying companies like to hear about.

From the public's point of view, I'm going to offer the worker in there, there's a level of safety that they're assured as a stakeholder in the nuclear energy use. From the Congressional point of view, which is also a stakeholder, there is the most efficient and effective use of NRC's resources to make all of that come about.

So I think to think of this in terms of burden reduction and to think of this in terms of safety reduction really isn't the focal point. I think those are things you have to keep in mind because you certainly don't want to decrease safety and you certainly don't want to go what I call for the zero risk; at any cost, zero risk.

So to me, I'm not sure where we're heading in terms of having an outcome, a performance outcome, rather than a risk outcome.

MR. CAMERON: Thanks, Walt, for that perspective. I guess I would just address two points, put it out here. This

is a question for Ernie and Prasad. Although these guidelines under regulatory improvement may have been part of the green book, part of another context, they could have been selected here as these are potentially good guidelines to use.

I don't know if Ernie or Prasad has a comment on that particular -- that one aspect. Prasad? Ernie?

MR. ROSSI: We've heard various comments on the usefulness of the items under II and I guess we'll have to go back with our working group and consider what to do with that.

I mean, today we're collecting the comments and the information and we'll be resolving them and we'll consider them. That's about all I guess I can say at this time.

MR. CAMERON: I guess they would still be, in this context, draft guidelines, although I think it was good.

MR. ROSSI: I don't think they're inconsistent with what's in the green book. I mean, they were intended to be consistent with all that for this specific application.

MR. CAMERON: I think Walt's point is sort of going the other way, it's can they still be draft guidelines. Can you clarify the last thing you said about where we're going in performance in terms of this meeting or this project?

MR. SCHWINK: Let me just offer a point. The public

confidence. I have tried everything I can think of to get public participation, stakeholder participation, and I don't mean just to check a check list. I mean, I have really, really pushed to get it. This has been more successful than me. I see a person here that I've lobbied personally. I won't mention any names, but his initials are Jim Riccio.

The point I'm trying to make is they have priorities, they have business. Look around the room. Count the public.

The Commission has actual measures for public involvement. I don't know how to achieve this. I don't know what to do more than I'm doing now. I mean, ask Jim, ask Dave, I've been a pain and I can't get any plant interest and I can't worker interest.

But the point is the Commission already has metrics and has measures stated in the green book. The point about the meeting is are we collecting comments to go back and tell the Commission it needs to revise what it sent down as its budget and its performance plan and Dave's comments would go along those lines about deleting some of these.

Jim's comments about the considerations in terms of backing off from safety using a reverse backfit rule, the industry's issues about we're trying to do what the Act tell us

to do, and that is commercial use of nuclear energy and, of course, in a safe way and in a way that doesn't damage national security.

If the outcome of the meeting is to go back and consider the comments and then change what the Commission already sent down in the budget process, I'd be surprised that would happen, in reality. But the second part is shouldn't it be focusing on listing those goals and those metrics and those measures and then talk about that in the context of how do I make reality in the real world.

So my question is what is the objective of this meeting in terms of outcome.

MR. CAMERON: I can give you just a reprise of what we talked here and then I'll go to Prasad. I don't think that there's any -- it's not think. It's that there's no intent of going back and revising what the Commission sent to Congress in terms of whatever the context was there. I think there is an intent of considering how these draft guidelines should be changed based on the conversations here today.

Secondly, there have been comments directed at how can these guidelines be made a reality. Obviously, it's going to become a more comprehensive take when the written comments

are considered, but some people think that these can be made a reality and other people think that perhaps they can't be made a reality, at least in terms of the second one.

But, Prasad, go ahead.

MR. KADAMBI: I'd like to take two aspects of what Walt just asked. The first is having to do with the green book and the second is to address actually where I see the results of this workshop feeding into what we are planning to do.

First of all, the green book, I saw in at least the latest version of the green book an attempt to have certain performance-based concepts become incorporated into the Commission's submittals to Congress.

I see some elements of really some of these guidelines, but I don't want to get into a mode of taking the green book and applying these guidelines to it and seeing how many of them they meet or whatever.

But I do observe that there are some similarities between the concepts that were used over there. So I don't think there is an inconsistency at all. If anything, maybe there is more consistency than we meant to achieve, even maybe by accident.

MR. CAMERON: For purposes of those who aren't

insiders, could someone just tell people what the green book is?

MR. KADAMBI: It's the performance plan for the agency, I believe that's what you're talking about.

MR. CAMERON: It's the performance plan. It's the budget, isn't it?

MR. SCHWINK: It's actually both.

MR. CAMERON: Walt, why don't you go to that mic? But don't dare take a seat at the table, because we'll never get out of here.

MR. SCHWINK: What it is is it's the Commission's planned resources that it needs and how it's going to use those resources and how it's going to measure whether or not those plans, here is what we're going to do as outcomes with those resources, whether those plans are being achieved and here is the metrics we're going to use in terms of measuring that, which ties it to GPRA. MR. CAMERON: Public document?

MR. SCHWINK: Yes, it is.

MR. CAMERON: All right. Good.

MR. KADAMBI: That's as far as I want to go with the green book. But let me just say that as a result of this workshop, we've got a transcript, we've got bunches of notes

which tell us what people feel about the guidelines as they exist right now. We are waiting for public comment. I hope we will get a lot of these things reflected in written comments by March 24.

But after we get all this, we've got to put together a draft Commission paper really. That's what we will be working with in the working group and among the offices, and then really we will be then preparing for the next workshop which will be based on this Commission paper that we would prepare, I believe. If others have the proposals, we can always talk about that.

But I would like to use the results of this workshop as input to the second workshop, where we will try to refine some of the suggestions and get very specific inputs into the Commission paper that we are going to discuss with the advisory committees and then present to the Commission in August.

MR. CAMERON: And I think it may be worthwhile to have a more specific product for the next iteration of this, too, just from a public process point of view.

But that sort of gives people an idea of where we're going and thank you, Walt, for your comments and that perspective about stability and predictability as a goal.

I don't think we have any more on clarity and specificity. Implementation of the guidelines. We've talked a lot -- we've talked about a number of those issues. Anything else on issue II, implementation of the guidelines? Any burning issues on those that people want to get on the record while we're here?

And, Walt, your point is well taken in the sense that some of these issues are very reactor-specific rather than materials-specific. Establishment of objective performance criteria. Now, this goes to those issues of conservatism. We heard from Harold about conservatism. Any comments? I'm not sure we -- we sort of -- we talked about that, but anybody have any comments on any of the points in III? I'm going to try to find what Harold said.

Steve?

MR. FLOYD: I'll be real brief. I know people are anxious to leave. I guess our view on conservatism is you only impose as much conservatism as is necessary to address the degree of uncertainty that exists. That's when we think conservatism is appropriate. If you have a high degree of uncertainty, then you need to put a fair amount of conservatism into the criteria and the performance levels.

But if you don't have a high degree of uncertainty, then it can be far more towards the realistic side and you don't need as much conservatism, and it's going to be case dependent.

MR. CAMERON: Okay. And I think Harold's point was that it's a relative concept. I guess he meant depends on the area.

Anybody else have anything to add on this? I want to make sure that we're not missing something important with this conservatism argument. David?

MR. LOCHBAUM: It was expressed a little bit differently or perhaps a little bit differently last week in the risk-informed workshop. It was that conservatism, wherever it's applied, needs to be applied once, either to the acceptance criteria or to the methodology, not both. I guess we wouldn't be adverse to that.

I think last week the indication was that it should be applied to the acceptance criteria limit and not in a best estimate methodology. I'm not sure that would exactly apply in every case here. But it seems reasonable.

MR. CAMERON: Comments on David's point? Those of you who may be familiar with last week's discussion.

MR. KADAMBI: I think that would -- if that's the way it is being applied in the option III arena, I think there is some benefit to being consistent in the way we would deal with conservatism in the different initiatives.

MR. CAMERON: And, David, you had no problems with the way they decided to create conservatism in the risk-informed area, just to make sure I'm clear on that.

MR. LOCHBAUM: No, not that part of it.

MR. CAMERON: Okay. Ernie?

MR. ROSSI: I just want to say I think it's -- we would very clearly do it the same way. I mean, we're supposed to be working consistently with the efforts to make the regulations risk-informed. This is not to go off in some different direction with a bunch of different criteria. So whatever is done there, I mean, whatever we do, we will do both places.

MR. CAMERON: Okay. Examples of performance-based objectives, not amenable to PRA or ISA.

MR. RICCIO: Security. I think security would have to fall underneath that. I'm sure there are others.

MR. ROSSI: Would they be not amenable to risk-informed or performance-based or just --

MR. RICCIO: Not performance-based, the way I've been seeing them applied in the oversight program. This came up before and I already said that basically just showing that your site boundary machines are working doesn't really say whether or not you can defend against a design basis sabotage or terrorist attack. So I would think -- quite honestly, I still think you should be using Orrik for testing the security of reactors.

MR. ROSSI: But if you tested the security system, that would be a performance-based approach, if you had criteria for the test and that was the way you --

MR. RICCIO: If you want, you can include Orrik as the -- Mr. Orrik as the -- go right ahead.

MR. ROSSI: I'm just saying, I'm not suggesting that we do that, but that would --

MR. RICCIO: I don't think anybody would be too amenable to that.

MR. ROSSI: -- a performance-based approach. There may be other ways to test it that would be performance-based, too.

MR. CAMERON: Just to remind people, I think Harold Ray talked about cross-cutting issues as not amenable. Okay.

And examples of cross-cutting issues was maintain a safe -- or have a safety conscious maintenance environment.

MR. KADAMBI: Work place.

MR. RICCIO: One thing to keep in mind in that, and it's something I disagreed with during the oversight process workshop, the point was made that problems with safety conscious work environment would evince itself in performance indicators and I actually believe that would be exactly the opposite, because if you have a chilled environment, you're going to have people who are not going to report or file PIFs or whatever the heck they're called at different reactors.

But if you have a chilled environment, you're not going to be reporting accurately.

MR. CAMERON: So we're not going to be going to four, for example, we're not going to be getting the data that's needed. Is that what you're suggesting?

MR. RICCIO: If you have a safety conscious work environment that is thoroughly chilled, and I will use TVA as an example, you're not going to get accurate reporting. You're going to have people who are more concerned with keeping their jobs and not having the man come down on their head than accurately reporting to NRC what performance indicators you're

using in a new program.

So I think you're going to have to basically concentrate on -- and I'm not quite sure how to do this at this point, but I believe that when you have a chilled environment, you're going to have to take a good hard look at the performance indicators that you're getting in, or even when you have instances of high level allegations at a facility, I think you better take a very hard look at the data you're getting from that facility to assure that it is accurate and adequately reflects what is actually going on at the reactor or at the materials licensee.

MR. CAMERON: Steve?

MR. FLOYD: Just to be clear, the premise in the program is not that cross-cutting issues would manifest themselves in the PIs, but in the PIs and the inspection finding results. So it's not just the data that the NRC would -- excuse me -- that licensees would be providing to the NRC, but would also be findings that the NRC would be identifying through the inspection process.

While Jim is right, a chilled environment could hide some data, there's certainly other aspects of safety conscious work environment that will manifest themselves in the PIs. If

the chilled work environment is inhibiting a worker from bringing a safety issue forward and that safety issue, therefore, goes uncorrected, it should eventually show up in more challenges to the plant in terms of scrams, transients, safety system performance problems, and the like.

So I think the real problem in trying to establish performance measures for cross-cutting issues is that we talked earlier about performance-based regulation is really results oriented and the cross-cutting issues are really causes for why you may not get the desired results, but in and of themselves, they are not results, and that's why performance-based regulation I think doesn't hold too well for them.

MR. CAMERON: Thank you. Ernie, do you have your card up because you want to --

MR. ROSSI: No.

MR. CAMERON: -- say something?

MR. ROSSI: Because I didn't put it back the last time.

MR. CAMERON: Jack, you want to add something here?

MR. ROSENTHAL: Jack Rosenthal, RES. Getting examples of things which would lend themselves to performance-based regulation, but not necessarily to

risk-based, examples are very important to us. One you mentioned was fitness-for-duty. What I'd like you to do is move your thought processes away from Part 50 because after all, the risk-informed Part 50 effort will cause a major look at Part 50 and look at the rest of the regulatory framework.

And if you have suggestions or examples of other areas, that would be very useful. I think the only one you mentioned was to say fitness-for-duty, maybe fatigue issues, but there's stuff in the financial and reporting. It's a whole big book. Part 50 is only one part.

MR. RICCIO: To go back, you guys spent a lot of money paying off Arthur Andersen to do a study and one of their suggestions was that you have an economic indicator. Underneath the new program, there is none. And not only is there not an economic indicator, the public does not have any access to what used to be O&M costs and things of that sort, so that we could actually create our own indicators. And I'm not sure that given the proprietary nature of the claims being made by the industry at this point, that we're ever going to see an economic indicator, but I would love to have an economic indicator that would basically tell us how well a reactor is situated in terms of dealing with basically

their backload of items to be dealt with and repairs and the like.

Basically, the industry and the -- or basically, the agency has ignored the lessons that they should have learned from what went on up in Commonwealth Edison years ago and the reason that they went out and hired Arthur Andersen in the first place.

MR. CAMERON: I guess I would just ask, apropos of Ernie's comment this morning, that after you've heard this discussion today, it would be helpful to the staff if you want to put a finer or more coherent point on some of your comments and offer examples as one item.

Steve, I guess that Felix Killar, from your organization, couldn't be here today, but you may just want to pass the word on to him that from the materials area, are there examples that could be provided. Also, from the fuel cycle world, right? Correct. Okay.

We've talked about five pilots. The number four, identification and use of measurable parameters, is this our discussion that we had about the data that's going to be coming in? Is there anything else that needs to be added to that that we didn't add? Is there anything else that anybody wants to add to that? Prasad, is there anything else that you need

along those lines and what you heard this morning? Do you want to say anything about it?

MR. KADAMBI: I think there have been various comments that were made that will be helpful in answering that particular set of questions. I'm still looking forward to something in writing that people may have to offer about parameters and how -- what does calculable mean.

As I mentioned, to some people, core damage frequency doesn't really represent the kind of calculable parameter that would be appropriate for this.

MR. RICCIO: Just a quick one on four. In terms of what you can calculate and what the parameters should be, what I'm finding in the oversight process is we're basically only measuring it -- I find it to be like an institutionalization of the current level of operation and there is the point made in the ACRS years ago that prior to Chernobyl, the Soviets thought they had an adequate level of safety and it turned out not to be the case. And prior to Challenger, NASA thought it had an adequate level of safety and that turned out, again, not to be the case.

I'm afraid that here we may be deluding ourselves, because we haven't melted a reactor in the last 20 years, that

we have an adequate level of safety. I want to make sure, and I'm not quite sure how to do this, that the parameters are set so that we basically don't institutionalize the current level of operation at these reactors.

Now, I'm not trying to ratchet up the regulatory scheme on the industry, but I find that those points that were made by the ACRS are very telling and I don't want to see us delude ourselves or get ourselves into a false sense of security that just because we haven't melted a reactor in the last 20 years, that the level we have right now is adequate, because there just is not enough history to send the industry to basically make that claim.

MR. CAMERON: So in terms of identifying performance parameters, don't necessarily assume that the existing parameter or parameters relating to existing operations.

MR. RICCIO: Like, for instance, in the oversight process, the thresholds are set based on the performance that currently exists in the industry, thinking that that is adequate, and it's what exists right now. They don't know whether it's adequate or not. You know, try to get NRC to define adequate.

MR. CAMERON: Okay. Any follow-up comments on Jim's

point? Anybody else? I think we're probably at the end of our rope right now. But I would just thank everybody, first of all, and give you an opportunity to say any last comments that you want to make.

But let me make sure that people out here have said all that they want to. Any comments in the audience? Okay. David, any final comments? Okay. Ernie, let me go to you last and you can sort of close this out, since you're the senior person here. Prasad?

MR. KADAMBI: No, nothing.

MR. CAMERON: Jim? Biff? Steve? Ernie, do you want to close this out?

MR. ROSSI: I just want to thank everybody for attending and I think the conversation and interchange was very useful, and so I assume that everybody has gotten a lot of things to think about, and, again, we're hoping we also get your written comments, after you've thought about what you've heard here today, because that will be very useful.

But I'll say it again, we will consider everything we heard today, whether we get your written comments or not. But the written comments may be worded better and they will include what you heard today and so forth. So it would be very useful

to us.

Thank you again.

MR. KADAMBI: Thank you very much, Chip, for your work. Appreciate that.

[Whereupon, at 4:24 p.m., the meeting was concluded.]