UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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BRIEFING ON THE REVISIONS TO THE REGULATORY FRAMEWORK FOR STEAM GENERATOR TUBE INTEGRITY

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ROCKVILLE, MARYLAND

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THURSDAY, MAY 29, 2003

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The Commission met in open session at 9:30 a.m., at the Nuclear Regulatory Commission, One White Flint North, Rockville, Maryland, the Honorable Nils J. Diaz, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:

NILS J. DIAZ, Chairman of the Commission

EDWARD MCGAFFIGAN, JR., Member of the Commission

JEFFREY S. MERRIFIELD, Member of the Commission

(This transcript was produced from electronic caption media and audio and video media provided by the Nuclear Regulatory Commission.)

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

>> CHAIRMAN NILS DIAZ: Good morning. Again, welcome. Good morning. We are meeting today to hear about one of our old standing issues, steam generators. They don't seem to go away. Is it old soldiers just fade, but steam generators don't fade. They keep coming back.

We are being concerned with the issue of tube integrity and the steam generator impact on potential safety of the plants. We know that you all work very hard at it. We want to hear what your opinions are.

We know that steam generator replacements have been an issue, but there are many of them that are still around. We want to know what are your opinions about the different issues that confront us. And of course the Commission has been long interested in how we close some of these issues.

And without any further adieu, unless my fellow Commissioners have a comment, please, I don't know what the order is, let me see, I guess you go first. Thank you for coming.

CHUCK DUGGER: Well, thank you very much.

It is really a pleasure for the industry to be able to brief you on the steam generators and the progress that we have made on getting a generic tech spec for steam generators.

With me today are Alex Marion and Jim Riley and they are here to keep me out of trouble so that I don't stumble over something.

COMM. JEFFREY MERRIFIELD: Mr. Chairman, if I may. I think if I'm not correct-- I may be correct -- I think Mr. Dugger, this is your first appearance before the Commission?

CHUCK DUGGER: Yes, sir, it is.

COMM. JEFFREY MERRIFIELD: Well, welcome in that regard. We'll try to treat you gingerly, as we do with everyone else.

COMM. EDWARD MCGAFFIGAN: Are you the new Ralph Beetle?

CHUCK Dugger: I'm the new 50% of Ralph Beedle.

COMM. EDWARD MCGAFFIGAN: 50% of Ralph Beedle -- it took two of you to replace him?

COMM. JEFFREY MERRIFIELD: Marion is the other half.

CHAIRMAN NILS DIAZ: I think Commissioner Merrifield was speaking for himself when he said he was going to treat you right.

COMM. JEFFREY MERRIFIELD: With the same velvet glove steel hand that we normally do, right, Mr. Chairman?

CHAIRMAN NILS DIAZ: Absolutely.

Well, I appreciate that you mentioned that you are now going to be taking these responsibilities and I'm happy to hear from you.

CHUCK DUGGER: Thank you very much, Mr. Chairman. I will be presenting material on the following topics the steam generator program initiative, tech spec improvements and then we'll do a little summary.

And if we are not in alignment on slides, that was the topics slide and go to the next slide, please.

When I looked at the program and when we were talking about progress, we're so far along in this progress that, you know, it would be really nice just to walk in and say we're done, to the Commissioners. We are not quite done, but we are getting very close. But let me talk a little bit about the steam generator initiative.

In December of 1997, the industry committed to NEI 97-06. This is the 18th such commitment that has been taken since 1987.

And these initiatives are requiring 80% vote of the oversight committee of NEI. The vote was taken in December of 1997 and called for the development of steam generator programs consistent with NEI 97-06 by January of 1999.

NEI 97-06 is a living document with Revision 2 expected out this year, this fall.

Revision II will be addressing operating experience and comment resolution from the generic license change package effort. Next slide, please.

Where NEI 97-06 provides the framework of the steam generator program, the EPRI inspection guidelines provide the details for the inspections.

These guidelines include inspection, integrity, assessment, pressure testing, and water chemistry guidance. And 100% of the pressurized water reactor plants have committed to these guidelines. Next slide, please.

Let me say that the industry is not seeking NRC endorsement of NEI 97-06. Resolution of NRC comments as the program changes and new technology is brought forward would be a long process.

This would also raise questions about a review of the EPRI guidelines and the EPRI guidelines of course were not developed as a regulatory compliance issue. The industry thinks this would be an unnecessary restrictive process and could inhibit or at least delay improvements in steam generator initiatives. Next slide, please.

The EPRI steam generator management project has provided a forum for the industry since 1977.

With the frequency of these meetings at three times per year, the industry has the opportunity to share operating experience and changes to technology.

A realtime application of changes provides the flexibility for the industry to perform the best inspections possible as we learn more and more about materials and aging.

All utilities with operating PWR's are members of the steam generator management project with EPRI.

Next slide, please.

This realtime OE is particularly important,

that realtime operating experience. Each plant has the chance to roll new experiences into their planning effort for their next steam generator inspection. This helps us not to learn the same things over and over.

And, of course gives the industry an opportunity as a group to study problems and try various technical solutions through interim guidance and eventual revisions to the guidelines.

Next slide, please.

The Institute of Nuclear Power Operations has been an active player in the effort to improve steam generator performance.

Pilot plants were selected to refine this review visit format. The pilot plants included Perry Island, Farley, Surry, Comanche Peak, and several others. Once the format was established, 100 percent of the PWR's have now been through this process.

The collective findings have been reviewed and revisions proposed to the steam generator management program and as stated, this is a

continuing process of improvement.

Now, I don't know how familiar you are with the INPO review visit process. But let me give you a little background on that for just a moment.

Just as INPO plan evaluations are not an audit of compliance with the station technical specifications, an INPO steam generator review visit goes beyond determining how a station is implementing industry guidelines in NEI 97-06.

The review visits teams recommendations are based on apparent plant needs and best industry practices, rather than on minimum acceptable standards or requirements. Areas where improvements are recommended are not necessarily indicative of unsatisfactory performance. However, the EPRI guidelines are the embodiment of steam generator operating experience and best industry practices and are therefore heavily relied upon as a technical basis for the review visit teams recommendation.

The review visit team needs to thoroughly understand how rigorously the station is meeting NEI 97-06.

Furthermore, if the station is deviating from industry accepted practices, it is the review visit's team responsibility to manage the base -- to review the basis and technical justification for the deviation, and work with station management to determine if the deviation is prudent or justifiable.

Now, this all came about from a 1995 industry request of INPO.

In 1995, INPO was approached by the industry and asked to help improve and prevent steam generator degradation because in the previous 15 years or so before that, we have seen a lot of degradation and derating of units and problems of steam generators that we just had to get on top of.

As a result of that meeting with the industry and INPO, the INPO became a part of the steam generator review visit program. Just a little background of where that came from.

And of course INPO does help us in our continuing process for improvement and marching toward excellence.

Next slide, please.

So how are we doing as an industry? You can look at this data and there are several conclusions that can be drawn from this data.

And I think the most startling is the improvement in steam generator tube leaks causing forced outage from 1994 to 2002.

The improvements can be attributed to many things that include better inspection techniques, steam generator replacements and better chemistry controls as well as the impact of NEI 97-06.

The source of this information is the EPRI steam generator degradation database which is managed by the steam generator management program, of which all pressurized water reactors are a part of.

Next slide, please.

Let's talk a little bit about the tech spec improvement aspect of this. The proposed technical specification changes that the staff and industry have been working on we believe have the right components for a successful steam generator program.

The components are a blend of performance-based and prescriptive elements, a

reference to the industry steam generator program documents and the flexibility needed as inspection methods and technology continue to improve.

Next slide, please.

The changes in the tech spec standardize the way we address tube integrity and mandate conformance with defined steam generator performance criteria and to following NEI 97-06.

By limiting the technical details, the program encourages innovation in both the industry and vendors as they address new technology. And this is particularly important to us.

I know when I was the site VP at Waterford from 1996 through 2000, we saw tremendous changes in the technology for steam generator inspections just during that period. And of course over a longer period, there's been tremendous change.

The ability to have that flexibility and for the vendors to be able to come forward with new products, I think will create better inspections, more comprehensive inspections and certainly give us better performance on the steam generators going

forward.

Next slide, please.

These tech spec improvements would allow extended inspection intervals as a function of tubing material and time in the steam generator life, as well as steam generator performance.

Extended intervals would not be allowed for alloy 600 mill-annealed tubing or if active degradation is present in the steam generator tubes.

Overall, this is a disciplined approach to steam generator inspections based on plant specific experience, industry experience, and potential degradation based on a review of this operating experience; meaning if we have degradation going on in one steam generator that is similar to other steam generators, then it would drive the inspection process for those other steam generators, to ensure that we didn't have the same degradation process ongoing.

Next slide, please.

The lead plant submittal for this tech spec change was February 25th of this year, followed

closely by the generic tech spec on March 14th. These were prepared not as a single entity, but as an industry effort to ensure consistency with general industry positions.

We have requested a concurrent review of these submittals and are getting a concurrent review.

Next slide, please.

We have met with the staff and have received quite a few RAI's and have been addressing these issues going forward as we have been meeting.

There are a few known items outstanding and we believe those are coming to closure and we should be closing those out shortly.

Next slide, please.

Our revised responses to our submittal will be done in June, and then following staff approval, we will encourage the remaining pressurized water reactors to submit their changes in the following 12 months.

We think this is a great opportunity to use the clip process, which would be an efficient and effective use of staff and industry resources to

complete the implementation for the industry.

Next slide, please.

Let me summarize what we have covered here this morning. This has been a long effort on the part of the staff and industry. The product will be a significant improvement and will provide the necessary regulatory framework to give reasonable assurance of steam generator tube integrity.

We stand as an industry, ready to implement the new technical specifications. Once again, I would like to thank you for the opportunity to address our progress on this issue, and we're ready to answer any questions that you have.

CHAIRMAN NILS DIAZ: Thank you very much, Mr. Dugger. Commissioner Merrifield?

COMM. JEFFREY MERRIFIELD: Yes, thank you very much, Mr. Chairman. This has been quite a task for all of us over the course of the last years. I'm going to ask more in detail of our staff. I was looking through a director's quarterly status report that accounts that we spent some -- the agency spent some 43,000 hours working on this issue since the mid

90's, which is an extraordinary amount of effort.

And I know that NEI for its part has also spent significant resources along with its members. I want to turn to slide 10.

On this slide, you talk about the fact that the developed technical specifications allow for improvements in inspection methods in technology in your last bullet. And I'm wondering if you could explain little bit more in a little bit more detail how this is going to be accomplished?

CHUCK DUGGER: I think I'm going to turn that over to one of my counterparts here, Alex Marion or Jim.

JAMES RILEY: This is Jim Riley. The point we are trying to make here is by taking the prescription out of the technical specifications, it allows us to make use of improvements in technology and inspection techniques as they become available and are proven to use in the field.

We don't need to go in and get a technical specification amendment in order to make the kind of changes that we might like to make.

The current tech specs are very prescriptive in terms what you need to do in terms of inspections. That's the point we are trying to make.

COMM. JEFFREY MERRIFIELD: It's my understanding that one of the remaining issues that we have at this point that needs to be addressed involves structural integrity performance standard and what appears to be a difference of opinion between the staff and industry on the appropriate safety factor.

Without getting too far into the weeds on the technical details, I'm wondering if you can elucidate a little bit better, what some of the implications are of this difference?

ALEX MARION: Well, that's -- this is Alex Marion. That's a point that's currently under discussion and hopefully we will achieve resolution between industry and the NRC staff. We are looking at that issue right now in terms of its practical impact if you will on the operational assessments and we don't have a specific answer to that yet. But we will, something that was just identified recently.

COMM. JEFFREY MERRIFIELD: Recently?

ALEX MARION: Yeah.

COMM. JEFFREY MERRIFIELD: There is nothing that would indicate that it is an unbreachable divide or is that not the case?

ALEX MARION: Well, it's currently under review and it would be premature for me to draw any conclusion at this particular time. Duke Energy is looking at it from the standpoint of impact. We just don't have the answer yet. We would be more than happy to follow up. We should have an answer in about a week or so.

COMM. JEFFREY MERRIFIELD: I would certainly like to keep on top of that one. Turning to Slide 7, enhanced industry response to operating experience: The issue of sharing and I know NEI and INPO as we are, are committed to rapidly communicating operating experience. And without elicitating them, obviously some of the problems that we have encountered over the years, even up to today have been as a result of failure to do that, you try to communicate, but in the end it doesn't happen.

I would like you to talk a little bit more

about your mechanisms for communicating here and whether this is a process in this initiative which is used just for the steam generators, or it is a model that you are using across the board?

CHUCK DUGGER: Let me address just the general operating experience venue and then one of these gentlemen can talk about the specifics to steam generators. But in the general venue, operating experience is shared on a daily basis through the Institute for Nuclear Power Operations. And that information is provided to all utilities daily as new information comes forward.

We also screen through the NRC operating experience reports that come through on a daily basis.

So each plant's operating experience organization, whether it's called that or some other name, reviews these on a daily basis and the information is then distributed to the applicable organization, whether it's operations or maintenance or engineering.

Now, there are many meetings that are

established in the industry that include of course the steam generator management program through EPRI that meets three times a year.

And that's probably at the right frequency given the frequency of outages for refueling and therefore steam generator inspections.

And certainly through NEI, we have other forums where the people are allowed to come together and share their operating experience.

And Jim, maybe you could fill in where steam generator operating experience is specific.

JAMES RILEY: Certainly. The SGMP is crucial to the operating experience aspect of what we are talking about here.

We indicated that all the PWR's are members of the SGMP.

COMM. JEFFREY MERRIFIELD: You say all the PWRs, you mean all the domestic PWR's?

JAMES RILEY: That's correct, yes. And actually some international. You're right, all domestic is what I meant. We have meetings three times a year.

There are representatives that come to the

meetings and an important part of that meeting is that each of the steam generator engineers stands up and talks about what the experience has been in his or her plant, lessons learned, things they have experienced, et cetera. There's questions and answers that are thrown around.

In addition to that as operating experiences is identified, the USGMP organization evaluates those things and if necessary, issues interim "guidance" for the industry to use to address similar situations at other plants. And that's handled on a case-by-case basis.

And then finally, there is a requirement within SGMP that at the completion of each utility steam generator inspection, they enter information into what's called a steam generator degradation database that's maintained by SGMP and available to all the members online where they can take a look at what each plant has seen, if their steam generator inspection with tubes or plug degradation mechanism are in place, et cetera.

So through all these different means, I

think we do a pretty good job at spreading out the information that is obtained during inspections and operating --

COMM. JEFFREY MERRIFIELD: So the last part is in fact a reporting mechanism? There is an activity that has to be undertaken by the individual licensees?

JAMES RILEY: Correct. That's internal of course to our SGMP organization, but available to all the SGMP members.

COMM. JEFFREY MERRIFIELD: Well, that seems to be an important element of a successful program. If you look at -- it's one thing to provide all kinds of information. We have our recent example with Davis Besse, all kinds of information being available but not being utilized the way it should.

So to the extent to which there is a more active feedback seems to me to make a lot of sense.

I am curious, though -- I mean, obviously by means of analogy, there is significant international experience and involvement out there with steam generators as well, and I'm curious that this program seems to be focused principally on the domestic operating experience, whereas there seems to

me, things to be gained from understanding where our international partners are in this area as well. Any thoughts in that regard?

ALEX MARION: Well, there are international utilities that are members of the Steam Generator Management Program and they participate in the process as well. Our primary focus is on the U.S. utilities.

JAMES RILEY: They come to all the SGMP meetings. We have representative from international utilities overseas and provide operating experience at the meetings I was talking about, the SGMP, and tie us in with what's going on over there. So there is some assessment.

COMM. JEFFREY MERRIFIELD: It seems to me -- and I'll stop here, but, you know, the industry I think as a whole -- and I'm not criticizing the effort that has been undertaken -- but it seems to me with all the involvement that you guys have in WANO and it may not be appropriate for this program, but it seems to me that that's a perfect avenue of approach to gain some of that international

experience as well and merely sort of inviting people into this one program is great, but is there more and is there a better way of reaching into and understanding that international experience and sharing what you have derived with those international partners as well? Seems to me to be a two-way street that you may want to explore some more.

CHUCK DUGGER: I think we really just kind of scratched the surface of information flow.

Certainly, there is the internal operating experience, external operating experience to accompany and then there is through INPO operating experience which encompasses what goes on in WANO. So that's very well tied into the operating experience.

And I can tell you from just my personal experience at various units that through the owners groups that exist, we get the international feedback on steam generator performance or vessel performance, whatever the topic happens to be within that group of type of reactors.

And I know that one of the chemical

cleanings that we did on a steam generator at Waterford was driven by operating experience that we got from overseas and was a fairly successful process.

COMM. JEFFREY MERRIFIELD: Well, I appreciate that, and I guess just to close out, you know, you never want to be -- you know, when I speak to our staff and I think others do as well, we want to make sure that we are incorporating international experience in the work that we do. That's one of the principal reasons why we are involved internationally.

You never want to be in a circumstance where at some point down the line someone can point to an international operating experience and say, gee, it was there if only you had taken advantage of it and known of it and that is something that I think none of us as a regulator or as a regulated entity want to be in a position as having to respond. Thank you, Mr. Chairman.

CHAIRMAN NILS DIAZ: I'm sure that you know that the Commission has a very strong interest in

closing some of these issues, especially all of those that could have or have had some safety impact.

But I think some time ago, we keep bringing to the forefront that steam generator tube failures are going to take place, that these programs are not going to eliminate them.

It's our interest to make sure that they are minimized and if they happen, all possible actions have been taken to prevent this tube failures to have any safety impact.

And would you comment on that, is this program, you know, doing both of those things as far as the industry is concerned?

CHUCK DUGGER: Well, I think the overall makeup of the tech spec addresses just exactly that.

It enhances the safety aspect of the steam generators as a primary boundary, pressure boundary.

It gives us the opportunity to do very comprehensive inspections and it allows us the flexibility as it exists right now to be able to go with improved technology as we go forward as an industry.

And, of course, the industry has tremendous interest in making sure that we have the right safety margin in the steam generators. That's the primary focus here.

CHAIRMAN NILS DIAZ: All right. We look at the tech spec work which I think is really going very well and I hope any differences will quickly converge to it.

Do you find any significant areas of disagreements between the plant specific and the generic tech spec? Is that going to be a problem for some of your licensees? Are 100% of the PWR's going to go for the new tech spec? Do you have any impressions on that issue?

ALEX MARION: Well, this is Alex Marion.

We are going to encourage all the PWR utilities to take advantage of the opportunity of a more effective -- effectively developed technical specification. And we have no indication at this particular point that any utility is unwilling to do that. But we intend to strongly encourage that type of action.

And we don't see any significant problems or difficulties between the plant specific application and the generic. But you must recognize that on a plant specific level, that you have different steam generators and you also have different degradation mechanisms.

So the plant specific approach has to take into account the difference in steam generator design and the actual experience with degradation at that particular plant.

CHAIRMAN NILS DIAZ: Of course. And that's precisely what I was saying, whether that in some cases might be an issue and whether that might require some special attention on our part.

You know, one of the things that I alluded to before, the fact that there has been steam generator tube failures, there have been potential times in which people have concern with integrity of the steam generator. And it appears from all the experiences that none of these actual occurrences have created any public health and safety concerns. There have been minimal releases of radiation. Most

of them not measurable outside. Of course, the concern is always created and we have emphasized a need for communicating those issues well.

But if you take the issue and consider the safety, and take it into a severe accident scenario, has the industry been looking at this area as part of your preventive programs?

Have these been taken into consideration as you progress in closing this issue, the issue of severe accident scenarios?

ALEX MARION: That has been addressed in the operability assessments that the utilities have been conducting in this program.

CHAIRMAN NILS DIAZ: And you are satisfied that those are --

ALEX MARION: No, I'm sorry. Okay. I stand corrected.

CHAIRMAN NILS DIAZ: All right.

CHUCK DUGGER: But I will tell you through the review process, that as we look at individual plants in the industry, experts go in and take a look at each plant and how they have implemented NEI

97-06. That's the baseline view that they take of the plant.

Now, the severe accident portion of that, we have a lot of recommendations that come out that enhance the capability of utilities to detect any tube leakage downstream.

It used to just be main steamline rad monitors that had the capability to detect something or further down stream, our off gas monitors.

But now we are putting in more sensitive monitors that are redundant downstream from the N-16 monitors so that we can pick up leaks as they occur in a smaller manner, so that we cannot approach the tech spec limit for leakage in a steam generator. We want to catch it long before that point.

CHAIRMAN NILS DIAZ: Yes, I was trying to point out, maybe I should have done it earlier, made it easier for you, whether you were using risk insights that would actually help you establish what your programs will need to deal with potential, you know, severe accidents and how does it tie to the performance-base approach that you are mixing with the

determinalistic approach in the tech spec and whether that is an issue that is progressing or not, you know, is one of my pet peeves.

And you should have expected that to come out.

CHUCK DUGGER: Yes, Chairman.

JAMES RILEY: Although the operational assessments do not consider severe accidents, they do in fact use a statistical kind of an approach to steam generator tube failures. So that I think it's kind of unique in the steam generator world that we make a prediction of how long our steam generators can operator safely without exceeding our performance criteria that we defined. And that prediction establishes a length of time to the next inspection interval, and it's based on the kinds of degradation that are there, kind of growth rates we have been experiencing, et cetera.

As you indicated, we don't have 100% guarantee that we will not have a tube leak. We, through these kinds of evaluations, try to minimize that by doing an evaluation of what we do know is

inside the steam generators and how fast things progress to make sure we schedule our outage before we get into serious situations.

CHAIRMAN NILS DIAZ: I'm sure that the staff will be looking at this question and see how we are doing in this area. But it's certainly an area that seems to me like it's the progression of this work as you actually have better inspection techniques, better tech specs, better controls.

This is an issue that should be handled in risk informed space and that could provide some very reasonable answers and I believe it's an area that should be looked at too.

Besides this and we look at the, you know, the other side of the tech specs, are there any issues in your review that have come out, because I'm sure you have a strong interest in solid, reliable steam generator performance that have come out that the Commission should be aware of?

Any other issues out there that are important enough from the reliability or safety point of view that are beyond the present scope of tech spec

changes?

JAMES RILEY: I can't think of any that I would classify that way, no.

CHAIRMAN NILS DIAZ: Thank you. Commissioner McGaffigan?

COMM. EDWARD MCGAFFIGAN: Thank you, Mr. Chairman. I have got the staff's paper in front of us. I want to get your perspective.

In 2000, which is probably the last time I spent a lot of time on this issue, you had submitted a generic license change package and the staff was going to review it for review and approval.

That's disappeared and now we're doing this tech spec approach with the lead plants and then the generic tech spec. And there is going to be a safety evaluation on the plant specific one and it isn't clear to me what there is on the generic one, whether there's going to be a safety evaluation or risk or how we convey our approval to you in the generic package. But what happened?

Presumably NEI must have withdrawn the generic GLCP, the generic license change package?

Why have we had these process hiccups?

JAMES RILEY: This has been a continuing evolution. In fact, it wasn't withdrawn. It was -- I guess the best way to put it, is revised.

The GLCP we used to call it which we initially submitted as you indicated February of 2000, was revised at the end of 2000 and resubmitted and then continued to be worked on over the intervening time to resolve issues as issues came up.

Last fall, we were looking at what was the best way to submit this. One of the options was to revise and resubmit the GLCP again and realize that in doing that, we kind of fell outside of the normal regulatory process, you know, what do you do with the GLCP?

So the best thing we could think of doing was using a lead plan approach that puts it on the docket and also submitting it as a TSTF, which is a recognized method of making technical specification improvements and it is what was set up to create the standard improved new tech specs. So that's what we did.

We took what was the GLCP at that time that

reflected all the discussions, meetings, issues that have come up, and created two parallel documents that both were basically the GLCP, one on a plant specific basis, one converted over into a TSTF format.

COMM. EDWARD MCGAFFIGAN: How is our approval -- I understand there is this tech spec change process, this 449th change, so it must be well tried.

But how is our approval of that conveyed? Is it conveyed in some detail, a la, a safety evaluation or risk? Or is it conveyed in a short letter saying it looks okay to us, good luck submitting them on a plant specific basis?

ALEX MARION: Safety evaluations will be issued on Catawba, but on the generic application, I believe a risk will be issued identifying a generic framework that the staff finds acceptable.

And then it will be folded into the line item improvement process. And that will be noticed and licensees will indicate their interest in taking advantage of that generically improved tech

spec. And then the licensees will submit a tech spec change to address the plant specific differences from the generic format. And if there is someone here from the Tech Spec Branch, they could probably --

BILL BECKER: I'm Bill Becker. Let me try to clarify. Very close, we probably won't issue a RIS. The staff after the Catawba review will prepare a draft generic safety evaluation process that we'll put out for comment in the Federal Register.

Once we finish that, we'll get a second Federal Register Notice. It will announce the availability for referencing along with any other plant specific items that have to come in.

COMM. EDWARD MCGAFFIGAN: So you're going to put out a draft sort of safety evaluation for comment and then you'll finalize it?

MR. BECKER: We'll finalize it and announce its availability for referencing after that.

COMM. EDWARD MCGAFFIGAN: And that's the normal process you use --

BILL BECKER: This is our Consolidated Line Item Improvement Program process.

COMM. EDWARD MCGAFFIGAN: -- the CLIIP program. I'm glad you told me what CLIIP was.

I'm surprised Commissioner Merrifield who is usually a beast on making people tell us what the acronyms are, let you get by with CLIIP without telling us. I now understand it is a consolidated line item improvement process. Thank you very much.

Let me go to a different line of questioning.

The staff has put out on a separate matter, but you know, it got to be front-page news in Energy Daily, on May 14th a Federal Register Notice with regard to a proposed generic letter that they are planning to issue, and according to the staff were quoted in the article, Paul Klein, the origin of this generic letter has to do with some license amendments submitted by TVA for Sequoyah 2 and Southern California Edison for San Onofre 2 and 3 and the staff basically discovered through these license amendments that their current view of the current tech specs were not being carried out potentially at some of the licensees.

So this proposed generic letter asks licensees to tell us in some detail, how they're

inspecting, address the issue, provide a description of their steam generator tube inspections performed at their plants during the last inspection and in addition addressee should provide various other things.

If addressees conclude that full compliance with the tech specs in conjunction with criterion 9 of 10-CFR, part 50, Appendix B requires corrective action, they should tell us about it.

The plants where steam generator tube inspections have not been or are not being performed consistent with NRC's position on the requirements contained in the tech specs in conjunction with criterion 9 of 10 CFR Part 50, Appendix B, a licensee should submit a safety assessment, et cetera.

Has there been a reaction to this proposed generic letter?

I'm just interested partly in your -- if this change package you proposed to us, whether the new tech specs would relieve these folks or whether this is going to be a problem with the new tech specs as well.

So I'm just interested in any reaction you

have to this proposed initial reaction. I know it's only been out for a couple of weeks to this proposed generic letter. And as I say, part of my question is: Does the new tech spec package that you submitted for plant specific and generic approval resolve this issue, or is this still an issue under the revised tech spec package?

ALEX MARION: Well, it's an issue that needs to be resolved and part of that resolution process involves the public comment period which we are in the middle of now. Comments are due July 14th or 15th.

From an industry perspective, this is clearly an interpretation of the tech specs by the NRC staff. And it's a different interpretation than what's been the past practice. And so what we encourage the NRC to do is stake out their position, communicate that to the industry as part of this process; this generic letter is the appropriate mechanism to use, and then we'll provide comments.

The Energy Daily articles are kind of a misrepresentation of some of the specifics of this, in that it suggest the utilities are not in

compliance with tech specs and not in compliance with NRC expectations.

That may be true in light of the new NRC staff interpretation of tech specs. But prior to finalizing this interpretation, utilities are currently in compliance. Now, from the standpoint --

COMM. EDWARD MCGAFFIGAN: Well, I don't know. If I'm to defend -- who is it, George Lobsenz -- if I'm reading this Federal Register notice and then asking NRC staff for clarification, he's fairly interpreting the notice. And the notice has in it, a discussion that, you know, backfit discussion, which may be what you are getting to, this generic letter transmits information requests for the purpose of verifying the applicable existing requirements.

So the staff has determined, at least for purposes of putting this draft generic letter out, that this is and has been their position. And that it was news to them when they got these license amendment requests from Sequoyah and San Onofre, that people were not inspecting in these areas on the grounds that it was either too difficult or even if they were a problem

there, it was not safety significant.

ALEX MARION: I don't want to speak for the staff, but the issue came down to the point of whether or not the licensee had a technical basis to limit the inspection within the certain area of the steam generator. And the answer to the question is the licensee did.

Now, the next question is: Do you need NRC approval of that position? And that's this new interpretation we are talking about. Now, the question becomes one of whether or not this would be addressed by the new tech spec.

JAMES RILEY: Maybe an item of clarification on the first point just to make sure we understand it had to do with not whether or not we were inspecting the tubes, but with the method we used to inspect the tubes and as Alex indicated how far within the tube sheet we were inspecting, whether the NRC had to approve the depth within the tube sheet that we were inspecting or not.

And our program requires basically that we inspect those areas that we feel degradation is present or that those areas have a chance for

creating a risk to the public through any kind of tube leak and rupture and release and things of that nature.

So we were following our programs and using the appropriate methodologies to inspect as far as our programs were concerned. Again, the differences came because of interpretation, who needed to review what.

The second part of your question has to do with whether the new package is going to address this, and I think it will help clarify the matter.

The issue came down with what you mean by a tube sheet inspection earlier. Tech specs kind of defined it pretty straightforward, it was point of entry to some point on the cold leg. The new tech spec adds more information on what is intended by this inspection along the lines that we have been discussing here, that you will be using the technology capable of detecting degradation where it may exist.

So that helps clarify the issue of what is intended by inspection. So we do feel that the new tech specs that are being proposed will go a ways towards, hopefully resolving -- I shouldn't say go a

ways, we hope will resolve the issue so that it's clear that you have to be looking for what the technology will enable you to find, what's there, and that NRC's approval is required if you are going to be changing your depths, et cetera with inspection.

COMM. EDWARD MCGAFFIGAN: That would raise an issue. If the new tech specs solve the issue, it sort of raises the issue as to whether you want two processes going on simultaneously. But I'll wait to hear from the staff as to their view on that.

Do you really have to do the generic letter if you are all going to be submitting tech specs in the next year that's going to fix the problem anyway?

You know, do we give you enforcement discretion for a year or something and then, you know, once we have approved the new tech spec, then the issue goes away.

JAMES RILEY: I don't think the new tech spec would remove the issue as it exists. I think it clarifies the requirements with respect to the issue.

COMM. EDWARD MCGAFFIGAN: Okay. Well, thank you very much.

CHAIRMAN NILS DIAZ: All right. Thank you very much. We appreciate you coming and briefing us. It's a pleasure and we wish you well in your new position.

CHUCK DUGGER: Thank you very much, Chairman.

CHAIRMAN NILS DIAZ: Panel, do we need a break?

CHAIRMAN NILS DIAZ: Good morning, Mr. Travers and your entire team. We are gathered here to hear a lot of good news, we hope and how all of these issues are being closed one by one in a satisfactory matter. And if there is any bad news, well, please tell us also. Besides that, any comments? Mr. Travers?

WILLIAM TRAVERS: Good morning, Chairman and Commissioners. As you already pointed out, the staff and the industry for some time has focused considerable attention on steam generator tube and integrity issues. When we last briefed the Commission on steam generator activities in December 2001, we talked about the integrated steam generator action plan and our ongoing and scheduled staff activities to

implement that plan.

We think we have made a lot of progress in this dynamic area since then. And today, we will brief the Commission about the progress we have made, as well as our continuing efforts to improve our regulatory framework.

I should mention that we have also recently provided the Commission with an information paper SECY-03-0080 on this subject. And with me today is my deputy for Reactor Programs, Bill Kane, Dr. Brian Sheron, Richard Barrett and Ken Karwoski from the office of Nuclear Reactor Regulation and Mike Mayfield from the office of Nuclear Regulatory Research. And let me turn to Brian to begin the briefing.

BRIAN SHERON: Thank you. Good morning.

We have heard from the industry about their initiative and how it improved the safety of steam generator performance in the past few years.

Before I turn it over to Ken, I would like to kind of give you a little background and set the stage here.

As Bill mentioned, we have made a lot of

progress in the steam generator area. Regarding the action plan, the shorter-term activities to improve steam generator inspection and licensing programs which are mostly a follow-up from lessons learned task force from Indian Point 2 have been complete.

These efforts resulted in improvements in our steam generator review and oversight activities, making them more performance-based and risk-informed.

With the short-term actions completed, we are currently working on a longer term research activities in steam generator area and as well as the regulatory framework which you have heard a lot about already. And in today's briefing, we will discuss the progress we made in the regulatory framework.

I want to emphasize that although steam generator tube ruptures are analyzed events within our design base, as you know, they are postulated accidents and required to meet requirements for postulated accidents Part 100 dose guidelines limits and so forth.

We don't believe their occurrences is acceptable and I think our foremost objective in our

efforts in this area are to reduce the occurrence of these tube failures to as low as I think we could achieve.

Consistent with our primary performance goal of maintaining safety is really what is driving us. I have asked Ken, he is going to address how this effort relates to the four performance goals and he'll do that in his presentation.

Back in the 1970's, the steam generator tech specs and regulatory framework were developed assuming -- or not assuming, but actually based on tubal thining and wastage being the primary degradation mechanisms.

However, with improvements and secondary side water chemistry that took place to combat these forms of degradation, it became most prominent. And what we learned is that as these generators got older, stress corrosion cracking became one of the dominant mechanisms.

To address the challenges posed by the new degradation mechanisms, industry programs for addressing tube integrity started to evolve through the '80s and the '90s.

If you remember back in 1993, the staff considered several regulatory actions for revising the steam generator regulatory framework to reflect changes in these approaches needed to address the change in the degradation mechanisms.

First, we considered rulemaking and we did a regulatory study on that. And what the conclusion was is that we did not really need to impose any new regulation, new requirements over and above what was already in place. And specifically what we looked at was the risk, the steam generator risk part and we said is there an unacceptable risk that would prompt us to put in place a new rule or regulation, and we didn't see any.

And so going from there saying that our regulatory framework was sufficient in terms of our rules, we then looked at the need for a generic letter. And this would ask licensees to evaluate their programs to ensure they are maintaining and monitoring the tube integrity consistent with the regulatory requirements and the plant design base. But taking into account these new degradation

mechanisms.

The staff also developed the draft regulatory guide that described a method acceptable for the NRC staff for maintaining tube integrity. While the staff was working on the generic letter and this draft regulatory guide in December 1997, the industry adopted an initiative to improve steam generator programs. And you heard about that. That was basically 97-06.

Also, we had gotten guidance at that time through DSI, direction setting initiative 13, which authorized the staff to use industry initiatives in lieu of regulatory actions as appropriate.

And so the staff following up on that initiative, deferred the generic letter under regulatory guide and we did engage with the industry working on 97-06.

As the industry discussed, there are two important elements to this initiative, a voluntary initiative implementation of the improved steam generator program that uses the EPRI prepared guidelines. And two, industry submittals to improve

the regulatory framework by changing the plant tech specs.

Approval of the tech specs will complete our review of 97-06. Earlier this year, the industry submitted a lead plant and a generic application to change the tech specs consistent with the philosophy in 97-06. This review is progressing in a timely manner with completion expected, I think within months now.

Ken Karwoski, I'm going to turn it over to Ken now and he'll provide you with more details.

KENNETH KARWOSKI: Thank you, Brian. Good morning. As Brian indicated, the focus of my presentation is on the progress that we have made with respect to changing the technical specification requirements related to steam generator tube inspections.

But before I got into that, I wanted to spend a few minutes laying some background of what the technical and regulatory issues that we have been trying to address over the past several years and our progress in addressing those issues.

As you know, the steam generator tubes make up the majority of the reactor coolant pressure boundary in pressurized water reactors and also serve as a containment boundary to isolate radiological fission products from the environment.

As a result of their importance, both the NRC and the industry place a high degree of priority on ensuring tube integrity.

And we have a framework for managing tube integrity. And that framework consists of three main elements. And those three elements are designed to ensure that we do maintain safety consistent with our performance goals.

Those three elements are: the regulations, industry programs, and NRC review and oversight. The regulations pertaining to steam generators are primarily located in two locations, in Part 50 to Title 10 of the Code of Federal Regulations and also the Technical Specifications.

In Part 50, Appendix A have the general design criteria to which the plants are built.

The general design criteria indicate in

part that the reactor coolant pressure boundary shall be designed so as to ensure an abnormally low probability of leakage or of gross rupture. And in addition, that it should be designed to permit the periodic inspection and testing for assessing the structural and leakage integrity.

And since the steam generator tubes are the majority of the reactor coolant pressure boundaries, these requirements would apply to them.

In addition to the general design criteria, 50.55A also refers to codes and standards and specifically to the ASME, oil and pressure vessel code and that also contains requirements related to the design of the steam generator.

The technical specifications also have surveillance requirements related to the inspection of steam generator tubes. These requirements include the periodic inspection of the tubes along with the repair and dispositioning of flaws that are detected in the steam generator.

In our current effort in modifying the regulatory framework involves changes to the

technical specifications as you heard earlier.

In addition to the regulations, the framework for addressing tube integrity also involves industry programs as you heard earlier.

These programs are to ensure that tube integrity is maintained consistent with the plant design and licensing basis and the applicable regulations.

The third element ensuring tube integrity are the NRC review and oversight activities.

These activities verify that the industry programs have been successful in ensuring compliance with the regulations.

Although these activities impose a burden on the licensees, we believe this burden is necessary for ensuring the safe operation of the plant consistent with our performance goal of maintaining safety.

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As Brian indicated, our current technical specification requirements were developed in the 1970's when wastage and wall thinning were the

dominant degradation mechanisms.

As the degradation mechanisms evolved over time as a result of changes in water chemistry practices, so did the industry programs for addressing the degradation mechanisms.

However, the technical specification requirements have remained the same. The current effort that we have underway is to reflect the improvements that the industry has made in addressing tube integrity into the technical specifications.

What you typically see is that licensees typically perform more than what is required in the current technical specifications. And so with adopting the new technical specifications, we will provide additional assurance that tube integrity will be maintained between inspections.

Since the existing technical specifications were developed in the 1970's based on our understanding of wastage and wall thinning and degradation mechanisms at that time, they do have some unnecessary prescriptive attributes in them.

The proposed technical specification

revision would take out some of those unnecessary prescriptive attributes.

Next slide, please.

To address the technical challenges posed by the changing degradation mechanisms, the industry programs were significantly enhanced in the 1990's and you heard some of that this morning.

I just like to point out that in looking at the industry programs, what occurred in the 1990's was that the guidance that was out there in the early 1990's was improved and in addition, the industry also developed new guidance to address things that had not been previously addressed in generic industry guidance.

For example, the industry developed guidelines on performing in-situ pressure testing, which is testing the specific condition of a steam generator tube.

They also developed guidelines related to primary and secondary leakage monitoring and also for performing degradation assessments.

As the industry programs improved, so did the NRC review and oversight activities. There have

been significant improvements in those activities since the early 1990's.

Those improvements have been in both the inspection program and in the licensing program.

In terms of the inspection program, we have improved the inspection procedures that the regional base inspectors used to inspect licensee steam generator inspection programs.

In addition, we have increased the level of effort that the inspectors are allowed to spend on this activity consistent with the safety significance of this issue. This inspection procedure is also performance-based.

In addition, in the inspection program, we have worked with our stakeholders to develop a significance determination process for addressing steam generator tube degradation.

With respect to the licensing activities, we have developed guidance for the performance of steam generator reviews to ensure the consistency of those reviews and to ensure that those reviews ensure safety.

We have also formalized our process for interacting with licensees during their steam generator outages and also formalized our review process for reviewing plant specific inspection summary reports which the industry provides following their inspection outages.

With respect to the regulatory framework, our primary focus at this point is modifying the technical specifications. And we currently, as you heard this morning, have two reviews in-house or two submittals in-house.

We have the Catawba submittal, which was submitted in February of 2003. And we have the generic changes to the standard technical specifications which we received in March 2003.

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Two submittals, both the plant specific submittal and the generic submittal are intended to be consistent and we are reviewing those together.

The intent is that the lead plant submittal would allow us to resolve the remaining technical issues that we had with the old generic licensing

change package in an established process.

The objective or goal of these proposed revisions to the technical specification is to provide additional assurance that tube integrity will be maintained during operation.

And tube integrity is defined in these proposed technical specifications. And tube integrity basically involves two main item, structural integrity and leakage integrity.

Structural integrity relates to the actual physical strength of the tubes.

Leakage integrity refers to the amount of leakage that is acceptable under both normal operating conditions and postulated accident conditions and there are limits associated with both of those consistent with the design and licensing basis of the plant.

Next slide, please.

The proposed revisions to the technical specifications have several noteworthy attributes. And you heard some of those attributes this morning, but I would like to reiterate some of those.

The proposed technical specifications are

largely performance-based. A lot of the unnecessary prescriptive elements are being removed from the technical specifications.

But basically what the technical specifications would accomplish is that basically it would set the criteria which the tubes need to meet between inspections.

Or in other words, it basically would require plants to ensure that tube integrity is maintained between inspections. It does not provide details of what inspection techniques to be used. It basically specifies what the goals of the inspection program are.

Now, with that said, the framework isn't totally performance-based. There are some prescriptive elements in it. Those prescriptive elements -- there's really two main areas.

Those prescriptive elements are the tube repair criteria and also the maximum inspection intervals, or maximum amount of time a plant can go between inspection of the steam generators. And we felt these prescriptive elements were necessary to

maintain risk.

With respect to our rulemaking effort, one of the lessons learned from that rulemaking effort is that tube repair criteria can have a significant impact on risk. And as a result of that, the tube repair criteria remain in the tech specs and with prescriptive limits.

In addition, inspection intervals can also have a significant contribution to risk, and in addition, the state-of-the-art in terms of modeling degradation in some of the newer materials limits the amount of time that should be permitted between inspections. And so there is the prescriptive limits on the maximum interval between inspection.

Another attribute of the proposed technical specifications is that it reflects the performance of steam generators with new materials.

As you may be aware, over half the plants in the country now have what would be considered second or third generation tube materials, which are much more corrosion resistant than the mill-annealed alloy 600 which was initially placed in service in the

'70s.

As a result of this, the prescriptive maximum inspection intervals that I just mentioned reflect the fact that the plants with the second generation tube material are more corrosion resistant than the plants with the early material, and similarly, for the third generation tube material.

Another attribute of the proposed technical specifications is that they are flexible. They will permit -- one of the challenges in the existing regulatory framework is that it was developed in the 1970's when wastage and wall thining were the dominant degradation mechanism and a lot of assumptions that went behind those prescriptive limits were based on our understanding at that time.

The current technical specifications are flexible in that they will accommodate changes in operating experience and technology, while giving incentives to improve the state-of-the-art for tube inspection and repair.

The last thing that I wanted to mention on this page is that our interaction with -- on the

regulatory framework have involved the public. We have had numerous public meetings on this issue. The public is encouraged to participate in those.

All of our documentation related to the improved regulatory framework is also publicly available.

So we continue to -- with the current proposed revisions to technical specifications we continue to encourage public involvement and we continue to operate in a public forum consistent with our performance goal.

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The proposed technical specifications require the development of a steam generator program. That program has certain elements, and you heard some of those elements alluded to in the industry presentation. I just wanted to spend a few minutes discussing what those critical elements are.

One of the critical elements are that the steam generator program must have procedures for assessing the potential degradation mechanisms that may occur at the plant.

What this would entail is assessing the operating experience, not only at that plant but other plants, both foreign and domestic, and incorporate those insights into their inspection program. And the inspection program is another critical element of the overall steam generator management philosophy.

In the inspection program, the licensees are supposed to determine what are the appropriate probes to be used in order to find the degradation that may be occurring in those tubes and to determine what the appropriate frequency of inspections are within those maximum inspection intervals.

Another critical element in the tube integrity program is the integrity assessment, that's assessing the condition of the tubing to determine whether or not you are meeting the performance criteria.

Another critical element is that the licensees should have a provision for maintenance, plugging, and repair of degraded or defective steam generator tubes.

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The steam generator program also has to have provisions for leakage monitoring. As I indicated earlier, the industry has developed EPRI guidelines related to monitoring primary to secondary operating leakage.

In addition, the program has to have provisions for secondary side integrity inform material exclusion. And this recognizes the fact that degradation on the secondary side of the steam generators, for example a support plate, may impact tube integrity.

And as a result, plants need to have provisions for monitoring that.

And a question came up earlier this morning about assessing foreign operating experience and how we use that.

One of the principal examples of the use of foreign operating experience is specifically in this case, in which steam generators in a foreign country experience degradation of some secondary side support structures. That raised concerns with respect to

what the potential impact would be on tube integrity. And as a result of that experience, we issued a generic letter to the industry back in 1997. So the staff does consider both foreign and domestic operating experience and takes the appropriate action when it is necessary.

Another provision of a steam generator program is that it has to have reports and self-assessments. And you heard the industry mention this morning that one of the self-assessments that they typically do, they have INPO audits which fulfill some of these self-assessment requirements.

And the last critical element of the steam generator program is the water chemistry program which must be implemented to control the corrosion or degradation of the steam generator tubes.

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I would now like to spend a few minutes discussing where we are with respect to the Catawba review and what we have accomplished to date.

There have been a number of significant changes in our approach for modifying the technical

specifications since the last Commission meeting. And you heard some of the reasons for those, but I thought I would go through them briefly again.

As you are aware, back in 2001 we were reviewing something termed a "generic license change package" which was basically a generic proposal for changing the standard technical specifications which would have served as a template for plants to come in with plant specific amendments. Since that time, as you are aware, we are currently reviewing two types of submittals, both the plant specific or lead plant submittal and also a generic submittal. Both of those are being reviewed and defined processes which are familiar with our stakeholders. And these processes have defined goals and expectations.

For example, the lead plant submittal is being are reviewed in accordance with our processes for license amendments. The generic submittal is being reviewed in accordance with our CLIIP, Consolidated Line Item Improvement Process.

Another significant change since the last Commission meeting is the structure of the proposed tech specs

and what needs to be inserted into the technical specifications.

With respect to the content, basically early in 2002, we identified an issue where the initial -- the generic license change package may have established a change process outside our normal establish processes for making changes to the facility, which are the license amendment process and the 50.59 process. As a result of that and as a result of a concern that this process may not allow the public the opportunity for a hearing under certain circumstances, we engaged the industry in June of last year and indicated that there were potential problems with their submittal. As a result of that, the industry made significant changes back in around September of last year. And right now we are in agreement with what needs to be in the tech specs.

Another significant accomplishment is that the NRC and the industry agree on what the goals and the critical elements of a steam generator program should be. And I briefly discussed what those goals

and critical elements are.

Another significant accomplishment since the last meeting in December of 2001 is that we have reached agreement on what the appropriate maximum inspection intervals should be. These maximum inspection intervals reflect our current state of the art knowledge with respect to the performance of the newer steam generator materials. It will reduce the burden on the industry and also increase our effectiveness sufficiency, because currently we are reviewing numerous requests for plants that have these improved materials to extend their operating interval based on the operating experience and the knowledge we have to date with respect to the performance of these materials.

So adoption of these proposed technical specifications and these maximum inspection intervals should not only decrease the burden on the industry but should also increase our effectiveness and efficiency.

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We are also in agreement with the industry

on what the appropriate leakage performance criteria are. And these leakage performance criteria apply not only to the amount of leakage that may occur during normal operation but also the amount of leakage that would be tolerated during a design basis accident. And these criteria are consistent with the plant's safety analysis for assessing the radiological dose consequences associated with leakage.

The staff and the industry are also in agreement on the appropriate tube repair criteria and methods that should be incorporated into the technical specifications.

As I discussed before, the prepared criteria are prescriptive, consistent with our understanding that those repair criteria can have a significant contribution to risk.

The last bullet on this page just indicates that the staff and industry are also in agreement on the requirements to monitor the "as found" condition of the steam generator tubes. Since this is a performance-based approach, this is a critical

element in the steam generator program. It basically would require the licensees, during inspection and maintenance outages, to assess what they have found to make sure that they are meeting the applicable performance criteria.

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As you heard this morning, we are nearing completion, but we are not done yet. There are still some remaining items. We have made significant progress since the receipt of the Catawba submittal on February 25th of this year. We had a public meeting which we discussed some of the issues that had been raised with the generic license change package and with the Catawba submittal. And we reached an understanding on many of those issues as I just discussed. We also issued an RAI which reflected some of the issues we raised during that meeting and also reflected additional issues that we identified following that meeting.

The most significant issue that is outstanding is the structural integrity performance criteria and what the appropriate safety factors

should be against failure under design basis accident conditions. And as the industry indicated, we are on a near-term schedule for completing that review.

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Although we have reached agreement conceptually on a lot of issues, there are still some terminology concerns that we have. And these are administrative. We don't see these as major issues, and we think we are on the same page with the industry. But there are some concerns with the original Catawba submittal with respect to how things are stated and whether or not they are clear and concise.

In addition, we also need to clear up some potential inconsistencies in the proposal. And once again, we don't see these as significant issues and we believe that when Catawba provides their response to the RAI's that these will be cleared up.

As Brian indicated and I just wanted to reiterate is that approval of these technical specifications would essentially complete our review of the industry initiative in NEI 97-06. Basically,

we have taken all of the critical parts out of NEI 97-06, and it would be incorporating those essential elements into the technical specifications.

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With respect to schedule, I think you heard some of the industry's -- the industry portion of the schedule and their expectations. I think we are in agreement with those. We expect a Duke Power response in early June. I think they are shooting for June 9th.

We would expect to have the Safety Evaluation Report completed on that within three months of the final RAI response. At this point, it's not clear whether or not the June 9th response would actually fully address the structural integrity performance criteria, but we will continue to work that to resolve that in the near term.

With respect to the generic safety evaluation, which we would issue on the Technical Specification Task Force changes, we would expect to have that complete six months after receipt of the final submittal. As I indicated, that submittal will

have to be changed to reflect what we agreed to with respect to Catawba. So we would expect that generic safety evaluation to be completed six months after receipt of that submittal.

>> COMM. EDWARD MCGAFFIGAN: Mr. Chairman, could I clarify just on that point?

>> CHAIRMAN NILS DIAZ: Sure.

>> COMM. EDWARD MCGAFFIGAN: There will be a final SER on Catawba, say September of this year. At that point, you expect the industry to provide a revision to TSTF 449.

At that point, you're going to take six months from when they do that to get to the final SER? Or earlier there was a mention of a draft SER that will go out and then there will be comments on it.

>> KENNETH KARWOSKI: Our intention is that six months would be the final SER. So that would reflect developing the draft. I don't recall the exact public comment period, but sixty or ninety days, and then addressing the public comments, and then republishing the final SER.

So the six months basically has a month to six weeks to prepare the draft safety evaluation report, sixty, ninety days. We do not expect extensive public comments on this. And that schedule reflects that fact.

>> COMM. EDWARD MCGAFFIGAN: So some time in the spring of next year there would be a final SER on the -- assuming NEI can get their generic change package changed fairly quickly. At that point, spring of next year, there is a basis for everybody else over the following year to submit -- everybody else on the pressurized water reactor sector to submit tech spec changes.

>> KENNETH KARWOSKI: That would be our expectations.

>> COMM. JEFFREY MERRIFIELD: I was going to say with no ill respect to Mr. Karwoski, I have seen various folks in the audience, both our staff and NEI have been shaking their heads at various points in terms of some of the timing issues. And although the record reflects his comments, there may be some additional need for clarification. I don't know if either staff or NEI

wants to -- or we can clarify that for the record later on.

COMM. EDWARD MCGAFFIGAN: I wasn't watching. I was really looking at Mr. Karwoski.

COMM. JEFFREY MERRIFIELD: I was watching the body language of other folks in the audience. I apologize.

COMM. EDWARD MCGAFFIGAN: Were they twisting and turning and moaning?

COMM. JEFFREY MERRIFIELD: Well, just for the record, there was a great degree of specificity. And I don't mean to put Mr. Karwoski on the spot. But there may be some clarification that needs to be made about the timing and expectations of the staff vis-a-vis --

CHAIRMAN NILS DIAZ: And that would be fine. We hope we'll get it.

JAMES RILEY: Hi, this is Jim Riley, NEI. This is pretty simple. I just wanted to clarify the TSTF schedule. We intend to submit that very shortly after the Catawba submittal, probably within a matter of weeks. So you should have the TSTF also in June.

COMM. EDWARD MCGAFFIGAN: You can do that without having the final SER? You don't get the

final SER until September.

JAMES RILEY: Right. We would make the TSTF look like -- well, the Catawba submittal and TSTF look very similar. The TSTF then would go in the review process for the NRC. And if there are other RAI's that come out of the Catawba submittal, that would have to be reflected in the TSTF, too.

COMM. JEFFREY MERRIFIELD: You're going to dual track it?

JAMES RILEY: Yes. We're working them in parallel. We would have the TSTF in about the same time as the final Catawba submittal.

CHAIRMAN NILS DIAZ: All right. Thank you.

KENNETH KARWOSKI: I guess if I could just clarify. The assumptions on the schedule is that we would reach resolution of the structural integrity performance criteria some time in the June time frame.

Just to summarize slide 15, we believe that the current framework which I outlined earlier, which basically consists of the regulations, the industry

programs and the NRC review and oversights provides reasonable assurance of tube integrity at this time. With that said, we do believe that there is a need to modify the technical specifications to basically incorporate or to reflect what the industry is currently doing to ensure tube integrity.

We are on a near-term schedule for improving the regulatory framework. We believe this regulatory framework will maintain safety. We believe it will reduce burden on the licensee and also improve the staff effectiveness and efficiency. And we also believe that it will increase public confidence in this area.

The new framework, as was pointed out this morning, will not correct all the issues. Issues will still come up, plants may still have a tube rupture. Although our goal would be to minimize those. But the possibility of that exists. But as Brian indicated, a steam generator tube rupture is an analyzed event. We will continue to monitor operating experience, both domestic and foreign operating experience, and evaluate that to determine

what additional actions if any need to be taken. And that concludes my presentation.

WILLIAM TRAVERS: Thanks, Ken.

Mr. Chairman, that completes the staff's presentation on updating on the issues of steam generator tube integrity.

CHAIRMAN NILS DIAZ: Thank you Dr. Travers. I believe we'll go back to Commissioner Merrifield.

COMM. JEFFREY MERRIFIELD: Thank you, Mr. Chairman. I mentioned in my earlier round, but since the mid 90s, the staff and industry have been working diligently on steam generator integrity issues. It now being 2003, according to the director's quarterly status report that I took a look at, we have logged some 43,000 hours to get to the point that we are today, albeit, there's been some changes along the way. My take from the meeting this morning is that we are on the way toward resolving many of these issues and being where we need to be in a path forward. And I think everyone should be commended for that effort.

That having been said, we are, we would

like to stay, a learned and learning organization. And my question is how is it that it has taken so long and so much time to get to where we are today?

BRIAN SHERON: I think there are a lot of contentious issues that we had to really kind of work through with the industry. There was a number of them, I think, where we started out miles apart in terms of what we believed was necessary versus what the industry did. And it just took time to have meetings, work through the issues, lay out everybody's side of the argument, you might say. And plus when we're dealing with industry -- and this is not said in any pejorative way -- but it takes time for them as well. Because, for example, NEI comes in, and I don't believe they can just unilaterally commit for the industry. They need to take proposals back and the like, and they need to hash it around with their licensees and so forth, and then come back and either say, what the staff proposed was acceptable and whether they propose an alternative and the like. And it's a time consuming process just in terms of that.

Ken, I don't know if you want to add on a little bit, because you were more involved than I was

KENNETH KARWOSKI: Right. The focus has changed over time. As Brian indicated, our initial effort was evaluating the need for a rule. We determined that a rule was not the appropriate vehicle, that we should modify the technical specifications. At that point in time, we started developing a draft generic letter and an associated draft regulatory guide. At about that time, DSI-13 on the role of industry initiatives came into play. And we basically put our effort with respect to the draft generic letter and the draft regulatory guide on hold in order to work with the industry to address these issues. That's from the regulatory framework standpoint.

But in addition, we were addressing a number of technical issues. And the focus of those technical issues during that time period has changed. Back in the early '90s, a lot of the plants had the older tube material or the alloy 600 mill-annealed. As a result, the focus of the industry at that point in time was a

steam generator degradation specific management program, which they were looking at alternate tube repair criteria. As plants replaced their steam generators throughout the '90s, the focus became relaxation of the inspection intervals currently in the technical specifications.

So when you look at it from a perspective of what was happening in the '90s to what is happening today, the focus has changed. And in addition we evaluated various regulatory options for addressing the issue. And those have evolved with time.

COMM. JEFFREY MERRIFIELD: Well, I appreciate that, recognizing that times have changed and our focus on the sub-issues can change. I do hope, after having gone through this, the staff looks back at it to see if there are any changes in our processes or methodologies that can be used to either try to seek some resolution earlier on of what the focus needs to be and additionally to make sure that the process that we have to elevate and resolve issues where there are technical differences can be

made more efficient.

I mean, obviously, we need to take the time we need to do as an agency to be satisfied that we have a technical basis for making the regulatory changes we are making. I'm not going to belittle that at all. But frequently I think we have found as a Commission that there are times when the staff is -- and I'm not saying that you have to elevate issues to us, I'm saying when there is an issue in the staff that takes an awful lot of time, it might be something that the Commission, if given that issue, could resolve relatively quickly. And by analogy it would seem to me that sometimes there are issues that higher level management might be able to focus on with a little greater degree of repeatability than the staff might be able to do on their own.

But this is just saying 43,000 hours is a lot, and is there a better way to do it going forward so we don't repeat this kind of thing and resolve these things more efficiently?

RICHARD BARRETT: Commissioner, I would just like to add a word to round out our answer. There is a third component to this, and that is steam

generator action plan, which is a fairly extensive body of work that has been done and that is still in progress, both in NRR and in Research, that came out of lessons learned from our experience with the Indian Point tube failure as well as the resolution of a rather extensive differing professional opinion, which resulted in quite an extensive list of recommendations from the ACRS. And I'm not sure where you got the 43,000 hour estimate, though it doesn't surprise me at all. But I imagine it also includes a lot of effort on the part of NRR and Research to resolve those issues.

COMM. JEFFREY MERRIFIELD: My guess is that it probably is inclusive of those efforts as well. I think my comment is still valid.

RICHARD BARRETT: I agree.

COMM. JEFFREY MERRIFIELD: On slides 12 and 13, you discuss the issues that remain for closure. The second bullet on slide 12 is one I've also previously mentioned regarding the resolution of the structural integrity performance criterion. And I'm wondering if you can give me some greater degree

of specificity as to how you intend on resolving the issues.

KENNETH KARWOSKI: What we are trying to do there is basically make the factor of safety against failure consistent with what the code would require. The code doesn't specify factors of safety, it specifies stress limits. So basically we need to evaluate what the intent of the code was with those stress limits. We need to look at failure theory and historical precedence in this area to make sure that we maintain a margin of safety consistent with the code.

And basically, what the issue boils down to, although I refer to it as the structure integrity performance criteria it's only one aspect of that, and that's what the appropriate safety factor should be on a certain type of loads, primarily bending loads during postulated accidents.

COMM. JEFFREY MERRIFIELD: Assuming that all goes well with the Catawba and generic submittal of reviews, our resources obviously are going to have to shift toward processing of individual requests

to adopt new tech specs.

On slide 15 of NEI's presentation, they say that they are encouraging PWR's to submit tech spec changes within 12 months after the staff approves a generic submittal. Do we have any sense at this point of the resources that are going to be necessary to conduct these reviews and whether we have available resources to conduct those reviews?

KENNETH KARWOSKI: The resources to conduct those reviews have been budgeted. The actual reviews should be minimal. That is the whole process. That's the whole reason for processing the generic submittal, is to basically make the process more effective and efficient.

We believe that a lot of these reviews will be able to be done by our project managers because they basically should be very consistent from plant to plant. The difficulty that will become is if licensees want to deviate from that generic template that we will put out.

COMM. JEFFREY MERRIFIELD: So the staff is committed, and I take your comments as optimistic

about its ability to effectively and efficiently deal with those reviews as long as NEI is disciplined in following the generic guidance.

COMM. EDWARD MCGAFFIGAN: You mean NEI's members?

COMM. JEFFREY MERRIFIELD: NEI's members. I mean, the more people want specialization, the less sufficient we can be?

KENNETH KARWOSKI: Absolutely.

COMM. JEFFREY MERRIFIELD: My final question. It seems to me that a lot of the effort -- and I'm not belittling it. I think it's a very positive effort that's been undertaken to deal with the steam generator issues. It obviously focuses a lot of after the horse is out of the barn. And by that I mean how we resolve inspection and oversight of the steam generators as they are installed in reactors. We have a significant effort underway in which a lot of the plants are installing these steam generators for a whole variety of different reasons.

Unlike years passed, we no longer manufacture any of those steam generators in the

United States. All of them are manufactured abroad. Although we may have the capability, that just doesn't happen here.

What are we doing related to our inspections and oversight of the generators as they are manufactured at these foreign facilities?

BRIAN SHERON: I think you had raised that issue actually a couple of months ago.

COMM. JEFFREY MERRIFIELD: I've raised those kind of issues repeatedly.

BRIAN SHERON: And I'm going to have to turn to the staff because I understand that our leadership team did address that issue. I don't know if, Richard, you're prepared or --

RICHARD BARRETT: I think it would be optimistic to say that we did address the issue. Our leadership team which consists of our division director level management have been considering the question of whether it's appropriate at this time for the staff to propose to reinstate a vendor-type of inspection program. We had a rather extensive vendor inspection program in the past. That's something

that we don't, at this time, spend a great deal of effort on. And so we are considering the question of whether some of these large programs such as replacements of steam generators, replacements of reactor vessel heads which are being fabricated overseas, whether that's something that we want to begin to expend significant resources on or whether that's something that we want to continue to leave to the control programs that licensees themselves are required to have. And I don't have an answer for that at this time. It's a question we have under advisement.

We have only done a limited amount of inspection and oversight of foreign vendors. We have had, for instance, some of our staff visit facilities where these components are fabricated, Canada and France. We have the specific example of the reactor head that was fabricated for North Anna 2 last year where we had a rather extensive review. But that review was done because that head had been fabricated to a different set of codes and standards and had been fabricated to a different quality assurance set

of requirements. And we wanted to get a sense of comfort that there was an equivalence.

So we are aware of these facilities. We know that the work that's done there is quality work. We have had visits by our competent technical staff. I would not characterize those as inspections however.

CHAIRMAN NILS DIAZ: I'm sorry. But it seems, seeing some of this, they do have the code standards, the requirements and quality assurance that are used in this country. And I think Commissioner Merrifield's question is, you know, sometimes we need to be assured that there are following -- I know they have them and I know they are supposed to follow them. It's just this comfort level of, are all of those things being used.

COMM. JEFFREY MERRIFIELD: I agree with that. In no way am I suggesting that we create some new staff travel program to go abroad and do a whole lot of new inspections. But I think we do need to have the confidence that these are in fact being manufactured according to the specifications that we

think are appropriate. I would say as a bi-way -- and this is another topic that I have raised before -- it also, I think, raises the possibility of revisiting whether there are other methodologies for conducting inspections that may be more effective and efficient, i.e. the ISO-9000 program which many foreign vendors are also intimately involved with and some of our foreign counterparts, including the Swiss, have actively engaged in.

So I think as the staff reviews this -- and I appreciate the Chairman jumping in, although I was about to go that way as well -- as the staff reviews this, I'm not suggesting that no one single Commissioner should tell you guys what to be doing. I don't want you to take from my comments that you have to have this massive inspection program using the old standards and we just go out in a half-handed way and conduct those inspections. I think I'm in agreement with the Chairman, that it's got to be sort of a narrow look, but one that is inclusive of perhaps some new ideas and different ways of doing things to make sure that the components that are

coming into the United States and that are going into the reactors that we regulate have the quality and meet the needs that we think are appropriate.

WILLIAM KANE: If I could add to that a little bit, perhaps it will help. Certainly we expect the licensees to have the first responsibility for having a quality assurance program that we can have confidence in and that will address the issues. Wherever they happen to be manufactured, that's their responsibility. And we look at that. But if in fact there are issues or information that comes to us, then we would have to react to that as appropriate. And we will.

COMM. JEFFREY MERRIFIELD: And you raise an excellent point as well. The licensees have significant responsibility in that area. And again, raising a point for their part, NEI as I'm aware and EPRI are both looking also at the ISO-9,000 as a possible arrangement for conducting the same or greater level of quality assurance but in perhaps a more effective and efficient manner. I certainly would not instruct but encourage the staff to be

engaged with those discussions as well.

Thank you, Mr. Chairman.

BRIAN SHERON: Actually, we have not had a lot of difficulty or problems with the components that have been replaced from the standpoint of quality. And I do want to point out that the regions do spend a fair amount of time during the inspection process when new components come on site. I know that, for example Region II has been very concerned because they have seven vessel heads that are going to be replaced in the near term. And I know they spent a lot of time looking at the components as they come in and making sure that they meet all NRC requirements.

CHAIRMAN NILS DIAZ: All right. Thank you. Well, let me pick up on something that Commissioner Merrifield started. You know, this has been a long rulemaking effort, about 10 years. I think I was a young man then, and not young anymore. Fundamentally, it's being a very steady progress. We look forward to closure as Ken has been saying, and we look forward to closure on those schedules. I know

they're tight, but it will certainly be a good thing to do.

I agree with you, Ken, that this doesn't close -- there's always new information that is going to come out. There are new issues, and that's precisely why the performance based rules make a lot of sense, because it actually focuses on the outcomes rather than in something that might be obsolete.

I need to go back and focus a little bit on the first comments of Brian Sheron and the last comments of Ken because of something that I keep stressing for years. We know this is going on the record, and there might be an audience. It's the fact that, you know, the Commission works on a very good charter of reasonable assurance of protection of public health and safety. And when we tackle something as sensitive as steam generators, which has had many problems, we have tried and keep trying and will keep trying to minimize the potential for the degradation of this important barrier. And we will do this within the bounds of our charter.

However, I don't know whether I read you

wrong, Brian, but I sensed that your expectation as could be projected will be higher than what mine would be. I don't think anybody should expect a great surprise if you put a brand new steam generator in 15 years from now and you got either a tube leak or you got a tube rupture, because the probability of that is not zero. There's no zero defects, there's no zero deficiencies. Our job is to minimize that probability and to also minimize the potential health impacts from any such rupture. And those are very reasonable bounds of some things that are achievable, things that we can work to. But I don't know whether there was a discrepancy between my concluding statements and your first statements regarding how we were driving this. Did I notice --

BRIAN SHERON: No. I may have sent the wrong message or so when I said that tube ruptures were not acceptable --

CHAIRMAN NILS DIAZ: My hair stood up in the back and my ears got red, but besides that --

BRIAN SHERON: I mean, obviously you can't foresee and prevent all tube ruptures and

that's why they are considered design base. But I think my point was that we should be doing and making sure the industry is doing everything that is reasonable to prevent these tube ruptures or tube failures from occurring, which means, you know, taking all reasonable steps toward doing the right inspections, using the right inspection techniques, et cetera.

WILLIAM KANE: Out test has been and will remain reasonable assurance.

CHAIRMAN NILS DIAZ: You know, I don't want it to happen that when we get one of these we can and say oh, my gosh, how can this happen. No. It is time that we look at these things as manageable incidents, and that's what we want to do. We want to put them within a frame work where they can be managed. Because you know once it happens, we should not be rushing out saying, oh, how did this happen. It happens because things happen. As long as there's no impact on public health and safety, we have done our job and the licensees have done their jobs. And I just want to make sure that we agreed on that.

BRIAN SHERON: If when we take a look

and we find out why, for example a tube failure happened and it was because of some inadequacy in a licensee's program, had a poor inspection -- that's my point.

CHAIRMAN NILS DIAZ: That's a different issue.

BRIAN SHERON: And we want to make sure that they do it right the first time.

CHAIRMAN NILS DIAZ: This great effort is trying to make sure that everybody understands that these things need to be done right and I totally agree with that.

Very good. Let me just put that aside and go forward. I asked a question on the NEI about how we are introducing risk insights which are performance based as we look at severe accidents. I'm sure we have a more in depth look at the present time of those issues, if you care to comment on it.

RICHARD BARRETT: Yes, we have, Chairman. We have been looking at the risk implications of this issue going back into 1997 and perhaps before that. And we have looked at it from a broad

perspective, not only from the perspective of a steam generator tube rupture which has a finite, albeit small, probability of leading to core damage. We have also looked at it from the risk associated with induced steam generator tube ruptures and the potential that a degraded tube could fail during a severe accident that was caused by some other means, some other type of accident, perhaps a station blackout, and turn a core damage accident into a large early release.

We've done a lot of analytical work, and we think we understand the relationships between the performance criteria that we are putting into this tech spec and risk as it goes across the board. And we have actually used risk in a couple of regulatory applications. We have looked at two risk informed license amendments where we applied this methodology. One we accepted, one we rejected.

We also used this risk methodology in analyzing the steam generator tube failure event at Indian Point from the perspective of the reactor oversight process and came up with a red finding

which went into the record.

There are still a lot of uncertainties associated with this. And some of those uncertainties are being addressed in the steam generator action plan. Some of the thermal hydraulic questions about how hot the steam is, for instance, that comes up in the steam generator in a high / dry accident sequencing. And we continue to try to make progress on those areas. And we deal with those as large uncertainties when we try to apply risk.

CHAIRMAN NILS DIAZ: Well, I think that's a good story. Again, I would like to see some reasonable closure of this issue because, you know, we can keep looking for things and never end. We want to realize which ones are really the important ones.

MICHAEL MAYFIELD: Coming out of the Calloway evaluation, this issue became a driving matter. Mr. Thadoni set us on a path to deal with some of the uncertainties that Rich mentioned. And Mr. Collins in his office subsequently provided a user need request to deal with exactly the same

issue. We are focused both through some experimental work and a fair bit of analytical work ongoing to address the uncertainties to try to bring this issue to closure, and to do so so that we never get into another Calloway situation, at least not the same one. So we're sensitive to your issue.

BRIAN SHERON: I would point out though that Calloway was a unique situation because the licensee came in and proposed to use a material in a steam generator which we had never contemplated before. And it posed new questions, which our regulations, for example, didn't cover. So I can't say that the industry might not come up with some new or different technique in the future for say repairing generator tubes that we would have to look at and also take a risk perspective on.

CHAIRMAN NILS DIAZ: I've been very satisfied in following the interaction with the public on this issue. And I think you have had a very open process. We're getting to closure on those things. And of course there's going to be an issue, how we document the resolution of public comments

when this issue of the plant specific versus generic issue comes out. And I'm sure you have been concerned whether the issue that the design basis is going to come in between these things. Do you care to comment on that if somebody were to raise the issue of the design basis as it applies to plant specific versus the generic?

KENNETH KARWOSKI: I don't think the proposed changes that we are reviewing for Catawba or the generic submittal would raise any questions with respect to the design basis. Basically, the performance criteria that we are establishing are supposed to be consistent with the design and licensing basis of the plant. And that's why we are taking a close look at the structural integrity of performance criteria. So I do not believe that we are introducing anything that would question the design basis.

CHAIRMAN NILS DIAZ: I believe somebody would probably, you know, like my comment on the issue and I'm saying are you prepared to provide the right answer. And that's the issue. Because I'm sure the design basis is coming back out of the woodwork, you

know, every time we do something, and rightly so. But we need to be prepared. You said you don't see that's going to be a major problem.

The scope of the review of the licensee steam generator inspections, you know, when we get the summary reports that are submitted after the plant outage, just a question, is this review done by inspectors as part of an inspection? And does headquarters participate on this? How is this put together?

KENNETH KARWOSKI: The specific review of the inspection summary reports are done by headquarters personnel. Headquarters personnel participates in phone calls with licensees during their outages to assess what they are doing and the adequacy of what they are doing to ensure that they are meeting the regulations. We coordinate those discussions with the regions to make sure that they're aware so that they can factor those into their inspections. But with respect to the review of the inspection summary reports, those reviews are done in headquarters.

CHAIRMAN NILS DIAZ: And again an issue documentation. So the issue is this -- the documentation is up today then goes up the ladder and all of those things that the Commission gets concerned with.

KENNETH KARWOSKI: The answer is yes.

CHAIRMAN NILS DIAZ: You are putting it on the record. That's all we want to know.

KENNETH KARWOSKI: They are publicly available.

CHAIRMAN NILS DIAZ: I asked the industry -- and of course there is no real answer. But I'm sure you have been thinking about the possibility that one of these plants might not go with the generic tech specs. Is there a fallback plan on how we are going to deal with that issue?

KENNETH KARWOSKI: We anticipate that utilities would come in with the proposed revisions to the technical specifications. In the event that a utility did not, we would have to evaluate whether or not there is need to take some other action with that utility. But at this point we foresee that most plants would come in there as benefit to licensees,

not only plants with the newer materials but also with the older materials. There are advantages.

CHAIRMAN NILS DIAZ: And besides the tech specs, what could the Commission expect in the future regarding additional closure of steam generator issues? Is there anything out there, be it NRR, Research, or a combination of both, that the Commission should be hearing about in the future, in the near future? Is there anything else?

I knows there is the steam generator action plan, but besides that is there an emerging issue that you guys are talking about?

WILLIAM KANE: I believe it all would be encompassed in the steam generator action plan, which we will provide, as I recall, semiannual reports to the Commission.

WILLIAM TRAVERS: Of course you recognize anything else that comes up we would factor into that plan and keep you informed.

CHAIRMAN NILS DIAZ: All right. Commissioner McGaffigan?

COMM. EDWARD MCGAFFIGAN: Thank you,

Mr. Chairman. I just want to explore again a couple of differences between what you said and what is in SECY-03-0080.

One of the sentences I'll just read you from page 5 of the paper. It says, " The staff has raised concerns with respect to the industry's proposed changes to the maximum inspection intervals currently specified in the tech specs". Nowhere in here does it say that the main issue remaining is the structural integrity performance criterion. And I thought the paper implied that the main issue was the maximum inspection interval. So is the maximum inspection interval now resolved.

KENNETH KARWOSKI: The answer is yes in structural integrity performance criteria. You have something more recent than what was in the SECY paper just simply because of timing of when that was prepared.

COMM. EDWARD MCGAFFIGAN: How long did the concurrence process last -- one of my favorite topics.

KENNETH KARWOSKI: So the resolution of maximum inspection intervals is a recent development. And so that is resolved. And the structural integrity performance criteria is a result of -- basically, we didn't recognize the significance of the change that they were making at the time we received the Catawba

submittal. Certainly we noticed there was a difference, but we thought we would be able to reach resolution quickly and we are not there yet.

COMM. EDWARD MCGAFFIGAN: I have not poured over these tech spec documents. But just to enlighten me, maximum inspection interval, does it change for somebody with the old materials, with the alloy 600? Does it get tighter or does it get looser for somebody who has, you know, the material that we're most worried about.

KENNETH KARWOSKI: It's intended to stay the same. And let me clarify that. The existing technical specifications would indicate that a plant with a degraded steam generator such as with mill-annealed alloy 600 would inspect over 24 calendar months. In the proposed revision, we would say 24 effective full power months, which basically reflects the fact that corrosion normally occurs when the plant is hot or operating rather than when the plant is shut down.

In terms of effectiveness and efficiency, we frequently get technical specification amendments which plants indicate we've been shut down for an

extended period of time, our technical specifications would require us to do an inspection after 24 calendar months, and would you please extend it. So they are essentially identical.

COMM. EDWARD MCGAFFIGAN: The leakage performance criterion, what is that now going to be compared to what it was before?

KENNETH KARWOSKI: Okay. There are two criteria. There's the normal operating and accident induced. I assume you're referring to the normal operating.

The new normal operating leakage limit will be 158 gallons per day.

COMM. EDWARD MCGAFFIGAN: Down from 450 or something like that?

KENNETH KARWOSKI: Plants ranged from 500 gallons per day to 720 gallons per day, but the standard technical specifications would indicate 500 to 720.

COMM. EDWARD MCGAFFIGAN: My recollection in the Indian Point case was that they were down at fractions of a gallon per day and then

flipped to two gallons a day or something like that. Our resident inspector was all over it and the region all over it, before the event saying, make sure you're monitoring this stuff. And we're trying to understand this Delta. But we are still very, very far away from, and I think it's appropriate, were very far away from any sort of criterion that would be at all relevant to the Indian Point event, right?

KENNETH KARWOSKI: You're correct in your characterization of the amount of leakage that occurred at Indian Point 2 and at other plants that have had ruptures. I think the key point to make is that there is no leakage limit that can provide you assurance of tube integrity.

COMM. EDWARD MCGAFFIGAN: You see the Chairman nodding vigorously.

BRIAN SHERON: About half the tube ruptures we have seen had no precursor leakage. And if you look at the leakage that was occurring in Indian Point 2 and the accuracy at which you could measure that -- you know, if you've ever seen a plot, it looks like a shotgun hit it. It changes daily, it goes up and it goes down.

We have seen this in a number of plants where we have monitored leakage, it will rise up and then we start getting worried and then the next day it's down again and we don't get worried.

COMM. EDWARD MCGAFFIGAN: I'm going to stay on Indian Point for a second because it comes up -- you know, you mentioned the red finding in the SDP process. But my understanding is that the accident sequence precursor process is having a hell of a time finding any risk significance to that event. And I'm not sure whether Research is finished with that.

Obviously, Region I was interacting with Research on that. But, you know, in retrospect, was Indian Point 2 a red event? If we were risk based, it would not be a red event. It was other things that drove that to a red, right, other than risk?

RICHARD BARRETT: No, I think it was a red event based on the risk analysis. And we could have an entire briefing on this question of how the reactor oversight process calculations are done versus how the accident sequence precursor calculations are done. But I think the key

difference here is the fact that the accident sequence precursor program analyzes the event, they look at the actual failure of the tube and they ask the question, what's the conditional core damage probability should this happen again in the same way. What we do on the reactor oversight process is we analyze the performance deficiency which was the failure of an inspection which occurred two years earlier or something like two years earlier and which puts the plant in a position where that actual event could happen or some worse event could happen. And what you do then is you calculate a Delta CDF and a Delta LERF. So you're analyzing a condition rather than an event and you are using a Delta CDF and a Delta LERF, rather than a --

COMM. EDWARD MCGAFFIGAN: You're speculating about a lot of parameters too in the SDP process. I mean, you are saying this might have and this might have and this might have. And you know, it can lead to piling on of conservatism.

RICHARD BARRETT: It can. But in the case of the Indian Point analysis -- and I noticed

that Steve Long who did the analysis is at the podium. Perhaps he could give you a better answer.

STEVE LONG: The ASP program looks at Delta core damage frequency, but it does not look at Delta LERF. The SDP Program looks at both. And it was a Delta LERF issue that was the red finding for Indian Point 2. I'll add that you were asking about speculation. The Indian Point 2 was intended to be best effort calculator or best guess calculation. Guest being, if you really don't know a parameter in certain areas, you have to use the best knowledge you have at the time, recognizing the uncertainty. Sometimes they're high, especially in the severe accident part of it.

We had to take numbers that we get out of our current computer codes and apply those whenever the event occurs and requires us to make a judgment. I don't think much of that has changed yet.

COMM. EDWARD MCGAFFIGAN: Could I ask just my original question? Is the ASP program arriving at a much smaller -- I mean, that this is essentially not -- it's certainly not a significant precursor. It isn't even a next precursor. I mean,

this is in one of the low bins. I may be a precursor, but maybe it fits the 10 to the minus six, or something. But my recollection is that that's where the ASP Program was headed. Now, I know there was a vigorous staff debate about that apparently taking place behind the scenes.

STEVE LONG: Okay. Well, I'm not involved in the vigorous staff debate if it's occurring. The last time I looked at it, I didn't think that was the case. And I can go back and look at it again and get back to you.

COMM. EDWARD MCGAFFIGAN: Okay. Let me go to the issue of this generic letter. And it's Mr. Beckner and company who are signing it. But the proposed generic letter, does this process in any way duplicate what's going to be happening in the process that you have underway with regard to changing the tech specs? Do the revised tech specs potentially resolve this issue or is this something that we really have to pursue? And San Onofre and Sequoyah have raised this issue to us, that all criterion may or may not be being met in this particular place, may or may not be

significant. What is the relationship between the generic -- proposed generic letter and your process?

KENNETH KARWOSKI: The revised technical specifications that we are currently reviewing would specifically address the issue, but it would still require the licensee to come in for an amendment, to basically reflect that they're essentially changing the pressure boundary of the tube.

COMM. EDWARD MCGAFFIGAN: Every time they discover, or every time they decide they don't have to inspect this area?

KENNETH KARWOSKI: Right. So essentially what the revised technical specifications would say is that inspection shall be performed for the entire length of the tube which is capable of detecting all forms of degradation that are potentially present. So by that it would require licensees who have degradation in the lower portion of the tube sheet to do qualified inspections consistent -- you know, they would have to do qualified inspections. So the revised process does address that issue.

If a licensee were then to determine that they don't want to do those qualified inspections in the lower part, they would need an amendment to change their technical specifications.

COMM. EDWARD MCGAFFIGAN: But it strikes me that -- and this is not my area of expertise. But if people are going to be asking for that relief and at the same time they are submitting the generic package that you will approve later this year or early next year, then a possible additional element that you earlier in your response to Commissioner Merrifield said additional elements will slow you down, a possible additional element that a lot of these folks may include in their package is, by the way, let's also resolve this proposed generic letter issue. And so if it's almost going to be a generic issue, should it be in the generic package? That's the only question I'm asking.

KENNETH KARWOSKI: I would like to address it this way. The number of plants that we believe would be affected by this specific issue is a small subset of the PWR's. I mean, the reason I say

that is the plants with the newer tube materials would not expect cracking and so would probably not be performing specialized probe inspections in the lower portion of the tube sheets. So the number of plants that would potentially be affected are small.

With respect to a generic resolution to the problem, a lot of these analyses are plant specific analyses. And although plant specific in some respects, because it depends on the pressure and temperature conditions in the steam generator and the design basis accidents, there are some generic aspects. And we have been reviewing the generic submittals and raised a number of issues. So we would not see a generic resolution. We don't foresee one in the time frame of reviewing the Catawba submittal.

COMM. EDWARD MCGAFFIGAN: I might just conclude with a comment. I got here in 1996, about the same as Commissioner Diaz or a few days later. And I remember one of the first briefings I had -- not briefings -- it was industry visits -- was somebody coming in with a whole group of folks to express grave concern about the steam generator rule, the proposed steam

generator rule. And I think the process, as Brian said, some time in the late '96, early '97 time frame, CRGR and the staff decided that it wouldn't pass backfit and whatever rule the staff had in mind. And then I think one reason we churned up lots of hours at the point is you set up a complex negotiation between the staff and industry. The industry still wants some relief. The staff still has some issues. And, you know, there's sort of give and take.

When the rulemaking, when the backfit rule sort of gets in the way of rulemaking, which maybe it appropriately did here, you set up a very complex negotiation that churns -- that can burn hours on both sides probably to a large extent. And I think that's a lot of what happened here.

BRIAN SHERON: Because I came -- actually, I was in the Office of Research from 1987 to 1994. So in '94 when I came back, I kind of inherited this program where we were looking at a rule. And what was driving it was the fact that -- and I think Ken eluded to this before -- and that is at the time licensees were not really thinking about

replacing generators, okay. Their plan was, okay, we are getting this degradation, we want to fix it. But we find different kind of degradation, so we want degradation specific management.

And the thought was that when they went into an outage and looked in the steam generator and found this kind of degradation, then there would be some guidance, some regulation somewhere that would tell them exactly how to deal with it. Because what was happening, as I was saying this morning, is we get the call on a Friday night, some plant went in, they were doing their general form of degradation. They had some proposed either repair technique that we had never seen before or they had some criteria that would allow them to leave it in service. And they wanted approval because they were going to start up on it on Monday morning. And we were going crazy here. And we said, we can't function this way, we are on a critical path for these plants that want to start up.

And so the whole thought was is there a rule we can put in place that will solve this

problem? And when we looked at it, what we found out is that we really didn't need to put any new requirements in place. In other words, we looked at it from a risk standpoint, we said no, there is nothing we need to do to protect from severe accidents and the like.

COMM. EDWARD MCGAFFIGAN: That's a fancy way to say backfit rule 51.09. I first heard the word "backfit rule" in that meeting I had. You know, industry was playing that card.

BRIAN SHERON: I don't even think this came up as a backfit concern. We just concluded that we didn't see a need for a rule because we already had regulations in place that we could rely on. Okay, we could cite.

CHAIRMAN NILS DIAZ: Brian, I believe that Sam wants to add something.

SAM COLLINS: I have been here long enough that I'm starting to live with some of my earlier decisions.

COMM. JEFFREY MERRIFIELD: As we all are.

SAM COLLINS: So my tenure is a little long in the tooth. One of the first decisions and dilemmas that we had when I came to this position in late 1997 was a proposal for this rule. And I believe, as has been

depicted here --

COMM. EDWARD MCGAFFIGAN: Isn't it late 1996 that you came to this position? I think it is.

BRIAN SHERON: February 1997 --

COMM. EDWARD MCGAFFIGAN: He arrived. But he was chosen in the fall of '96, right. He's been here so long, he's forgotten when he arrived.

SAM COLLINS: Some of it is a blur. Some of it I blanked out.

CHAIRMAN NILS DIAZ: Brian is keeping track of the day you arrived.

SAM COLLINS: I'm losing my train of thought in this conversation. We decided to go with the alternative to the rule for the reasons that Brian depicted. In that period we were also pursuing industry initiatives, although that has less of an emphasis today. Our primary purpose was to, in concert with industry, pursue an initiative which ended up with many exchanges, a lot of public involvement, and a lot of back and forth that has been described in coming together with a concept that all of the stakeholders can agree to that's performance-based based on industry experience.

Rich mentioned that DPO, that we had a

number of reviews which was not an easy process. ACRS was involved. We still have some Research work going on, I believe, as a result of that DPO that's in the action plan. And it has been a protracted process, as well as the events. Indian Point, for example, helped to refocus us in some priority. And I think Ken has done a good job at depicting the the reviews that fell out of some of the lessons learned on Indian Point.

So as the leader of NRR, I did want to acknowledge my role in the accumulation of the efforts and the shifts of course based on lessons learned. The rulemaking that went forward prior to the decision to pursue the industry initiative was quite extensive, quite extensive. And it was almost fully baked at the point where we decided to take the alternative course. So there was quite an accumulation of effort before that decision.

COMM. EDWARD MCGAFFIGAN: Can I ask just one last question to Mr. Mayfield? Mr. Hopenfeld's DPO, basically the big issue was propagation of tube ruptures. And he had a theory that ACRS did not embrace. But it said

you all should by no means embrace, but they said that you all should do further research. When is that going to be resolved to the point that you can say definitively what the probability of propagating rupture might be?

MICHAEL MAYFIELD: That particular piece, I believe, has been adequately resolved. We did some calculations looking at the potential for escaping high pressure steamer, just the water to cut into another tube, and we found that that wasn't a practical matter.

We then did some experimental work looking at the potential for some of the materials that would come out during the core damage accident and could escape from one tube and then impinge on another one. We did experimental work to look at that potential for steam cutting, and that also just wasn't viable.

COMM. EDWARD MCGAFFIGAN: Has that been documented thus far?

MICHAEL MAYFIELD: I believe those reports have been published.

COMM. EDWARD MCGAFFIGAN: They have been published, okay. Thank you.

CHAIRMAN NILS DIAZ: Thank you,

Commissioner McGaffigan. I believe, before we adjourn, I sense that the Commission has a concern for the tremendous amount of effort that was put into this and whether we have some good lessons learned to accelerate or make this process converging at an earlier time.

We believe that the results are good. I think we have now a sound product. I think that obviously is the result of all of these efforts. Whether these interactions should be as protracted as this has been, I think we have a question in our mind whether there is something else that can be done. And maybe that's a two-street question because it, of course, involves the industry.

Besides that, I want to thank the staff for a very good meeting, and the NEI. We really had a very fruitful morning. We are looking forward to the implementation of this very good effort. And unless my fellow Commissioners have any additional comment, we are adjourned.

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(Whereupon, the briefing concluded at 12:00)