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**Title:** 336th ACRS Meeting

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**UNITED STATES NUCLEAR REGULATORY COMMISSION'S**

**ADVISORY COMMITTEE ON REACTOR SAFEGUARDS**

**DATE:** Thursday, October 4, 1990

The contents of this transcript of the proceedings of the United States Nuclear Regulatory Commission's Advisory Committee on Reactor Safeguards, (date) Thursday, October 4, 1990, as reported herein, are a record of the discussions recorded at the meeting held on the above date.

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

366th ACRS MEETING

Nuclear Regulatory Commission
Conference Room P-110
7920 Norfolk Avenue
Bethesda, Maryland
Thursday, October 4, 1990

The above-entitled proceedings commenced at 8:30 O'clock a.m., pursuant to notice, Carlyle Michelson, Committee Chairman, presiding.

ACRS MEMBERS PRESENT:

C. MICHELSON (Chairman)
C. WYLIE (Vice Chairman)
J. CARROLL

ACRS MEMBERS PRESENT (Continued):

I. CATTON
W. KERR
H. LEWIS
C. SIESS
D. WARD
J. WILKINS
R. FRALEY (Executive Director)

PROCEEDINGS

[8:30 a.m.]

MR. MICHELSON: The meeting will now come to order. This is the first day of the 366th meeting of the Advisory Committee on Reactor Safeguards. During today's meeting the Committee will discuss and/or hear reports on the following;

Severe accident risk assessment;

Advanced reactor review status;

Proposed license renewal standard review plan and associated Regulatory Guide;

ACRS procedures and practices regarding the use of part-time consultants.

Topics for tomorrow's discussion are listed on the schedule posted on the bulletin board at the rear of this meeting room.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act.

A portion of the meeting will be closed to discuss qualifications of candidates for appointment to the ACRS.

Mr. Raymond Fraley is the Designated Federal Official for the initial portion of the meeting.

We have received no written comments or requests for time to make oral statements from members of the public regarding today's sessions.

A transcript of portions of the meeting is being kept, and it is requested that each speaker use one of the microphones, identify himself or herself, and speak with sufficient clarity and volume so that he or she can be readily heard.

I have a few items of current interest before we go on to other matters.

The first item is the E.O. Lawrence Memorial Award nominations are coming up again, and they have to be in by October 15th. And this is an award, as you probably are well aware of, for especially meritorious contributions to the development, use, or control of atomic energy in areas of science related to atomic energy, including medicine and engineering.

The award involves a citation, a gold medal, and a monetary stipend.

The next item is the NRC Meritorious and Distinguished Service Awards are coming up for nomination by November 2nd this year. These are nominations for distinguished service and outstanding achievement or contributions of major significance that are clearly and demonstrably better than normally would be expected in performing assigned duties.

This award involves a citation, a gold or silver medal, and a monetary stipend.

So if there is an interest in either one of these processes for nomination, Ray Fraley has whatever materials you will need.

Another item of interest is that Duke Power is now the first utility to use the NUHOMS-24P dry storage facility.

This is the third utility to use dry storage, but the first utility to use this type of dry storage module. And I believe there is a handout to each member on that. If you have an interest in it there is a little newsclip of a portion of a page here, if you wish to read about it.

MR. SIESS: Carl, I can't recall, and I should know, I guess. But have we ever written a letter at all on an ISFSI?

MR. MICHELSON: I don't know. Ray, do you know?

MR. FRALEY: The Committee did write a letter to correlate, I forget, Part 60 or 61, with --

MR. SIESS: I'm talking about an actual review of an installation.

MR. FRALEY: No, I don't believe so.

MR. MICHELSON: Excuse me. Bill?

MR. KERR: I have received from Herman a rather thick document which we can decide to review if we want to, if we look at this, at the future actions section, we need to decide whether we want to review that.

This of course is a little late in the game.

MR. SIESS: That's a different thing. There's two ways they could store spent fuel on site. They could have an approved cask, and then they don't need anything, just do it under the plant license. Or they could have independent spent fuel installation, which may or may not use an approved cask, and some of it could go into concrete vaults.

Both of them presumably are under our jurisdiction now. And we looked for the ISFSI business fairly extensively, and I can't recall whether we ever wrote a letter on it or not.

Then we thought it went over to the other committee, and we stopped looking at it.

MR. MICHELSON: We can have Ray find out when was the last time we looked at it.

MR. SIESS: I still think under the rules, for an ISFSI that doesn't use an approved cask, it requires a license amendment or some kind of approval by the Staff. And I don't know whether we are even required to do anything. But it is under our jurisdiction now.

MR. MICHELSON: Yes, that's correct. Onsite.

Any other discussion on that?

Okay. A few other items, just in passing, which I would like to bring to the attention of the Committee.

You have in front of you somewhere a two-page

article out of "Inside NRC" which you may wish to take a look at, because I think it has some food for thought in it.

MR. FRALEY: I don't know if they all have copies.

MR. MICHELSON: Hand it out, then, Ray, in case they haven't already seen it.

We also have in front of them, I guess, Ray, your staff work product memo. Is that right?

MR. FRALEY: Yes. They do have that.

MR. MICHELSON: It's a memo of October 1st to ACRS Members from Ray Fraley concerning staff work product.

It describes the steps being taken to assure that we receive a more uniform quality work product than we have, since there were some complaints at the last meeting concerning that.

Another item of caution is that there have been little problems with petty theft in the Phillips Building. Perhaps this is occurring during the evening hours, and so forth. So it behooves you to keep the loose change under control and so forth.

MR. WARD: Does it occur only during the periods when ACRS is in session?

MR. MICHELSON: I don't know about that. I don't think that's the case. But I hadn't heard when all it occurs, except I understand it seems to be more of an evening phenomenon than a daytime phenomenon. But it does

behoove us to keep valuables under reasonable control. And the members do have lockers.

That lockerroom down here, Ray, do members have keys to the room so they can get to the lockers?

MR. FRALEY: Well, it's a combination. I believe it was provided to the members. But we can re-up that.

MR. MICHELSON: I don't have it. But I never use it anyway.

MR. FRALEY: We will provide you a note with the combination, which you should burn before reading.

MR. MICHELSON: Okay. I wasn't sure. And I realize that if we want to use it, at least we will have to be able to get into it. Okay.

I believe that --

MR. FRALEY: One more item, Mr. Chairman.

MR. MICHELSON: Yes.

MR. FRALEY: And that was Mr. Fitzgerald's memo about a meeting with GSA.

MR. MICHELSON: Well, didn't you want to discuss that later on, or do you want to discuss it now?

MR. FRALEY: Well, we could discuss it as a future agenda item, if you would like.

MR. MICHELSON: Or we can discuss it when we discuss consulting, and so forth. Which would appear to be a more appropriate time, since it is really the same

subject. And then I think we should discuss what kind of a memo we wish to write.

Are there any other items? Do any of the members have any items?

Seeing none, then we will proceed.

Excuse me. Yes.

MR. SIESS: Is Paul going to be here?

MR. MICHELSON: Is Paul coming to this meeting?

MR. FRALEY: We expect him. I have not been informed that he will not be here.

MR. MICHELSON: Larry is not available.

MR. SIESS: The reason I asked is that for the next item on the agenda, if Paul is not coming, I will just arrange to have lunch with Ernest.

MR. MICHELSON: We're down to one now.

MR. SIESS: Yes.

MR. WILKINS: Paul and I are the only ones who didn't attend the subcommittee meeting?

MR. MICHELSON: Yes. Let's see if he's coming in this morning at all. If he's not, then we can foreshorten it. Because the rest of the members were at the joint, it was a triplicate, three different subcommittees having a joint session yesterday. And therefore, almost everybody was there and it was open to the public. the full discussion occurred. So no need for a further discussion

here. We can get right to work on the letter.

Any other items or comments at this time?

We will proceed to the next agenda item and we will find out rather quickly, hopefully, whether Paul is here so we know which portions of it to duplicate. You're probably quite right that everybody else except Ernest, and we'll give him a special briefing of what was covered and give him all the briefing papers and all of that good stuff and that's all he needs.

Okay, gentlemen, let's proceed on with the first agenda item which is Severe Accident Risk Assessment which deals with NUREG 1150. I guess, Bill, you're going to take the lead on the discussion and turn it to other as needed?

MR. KERR: I will be glad to take whatever lead is required. As Carl has mentioned, there was a meeting yesterday at which we heard presentations from the Staff and our contractor concerning the treatment of external events for two of the plants that were analyzed in the course of preparing the report, NUREG 1150.

We had not previously reviewed that facet of the report in detail. We have extensively reviewed other parts of the report, both in its initial and current versions and have made some previous comments. I believe each of you has a copy of the extensive document that I have put together with the assistance of a number of people that can serve as

a discussion paper for arriving at a final report.

As I mentioned earlier, what you have, beginning on page 1 and going through the first partial paragraph on page 4. It's something of an historical of our previous activities, and the comments on the report itself begin with the designation of general comments on line 87 on page 4.

I can read the whole thing, or we can decide whether you think that historical section should be part of the letter, and if you decide it should not, we can discard it and go on with the rest of the letter, or we can proceed in some alternate matter.

What should I do, Mr. Chairman?

MR. MICHELSON: Well, my own preference is that -- I kind of like the introduction, myself. I thought it kind of got me settled into getting conditioned read a long letter, and I need a little more introduction, rather than jumping into the middle of it. I liked it.

Does anyone object to starting out with the full version?

[No response.]

MR. CARROLL: We haven't reached that summary.

MR. MICHELSON: It may be, but I don't think so. I considered this to be -- I just thought it was a nice introduction.

MR. KERR: It looks long only because it's double

spaced.

MR. MICHELSON: It's still long. It will come close to a record, maybe; I don't know.

MR. KERR: It is very long.

MR. MICHELSON: I would suggest, Bill, that we start out with it, and then if we get to labored down, we can start chopping out.

MR. KERR: Do you want me to read this?

MR. MICHELSON: I guess it would almost be necessary, yes.

MR. WILKINS: Is this one of the items that was discussed yesterday, this letter?

MR. MICHELSON: No, it wasn't discussed. I mean, the subjects were discussed, but not the letter, per se, at all.

MR. KERR: I shall begin reading on line 22.

[Executive Summary Report is read and discussed off the record.]

[Whereupon, at 8:53 a.m., the Committee was recessed, to reconvene this same date at 11:45 a.m.]

MR. MICHELSON: Okay, gentlemen, we're ready for our next agenda item which is advanced reactors and Dave Ward is the Cognizant Subcommittee Chairman and I will turn it over to him. David?

MR. WARD: Okay. Thank you, Mr. Chairman. We ask the staff to come in today just for an information briefing for the Committee on the status and schedule of planned reviews for the so-called group of so-called advanced reactors.

You have two pieces of paper, two separate handouts. One is just a copy of the viewgraphs that the staff will use; another is a --

MR. CARROLL: Pretty fancy, I might comment.

MR. WARD: Yes, it is nice.

Another is a draft SECY paper -- I guess it's a draft SRM, which is actually pre-decisional. I understand the staff will talk about parts of this; but since it is pre-decisional, perhaps not all of it -- and it should be -- you should treat it accordingly.

This is a program in which both NRR and the research office are involved, and I understand that Mr. Jerry Wilson, of the Research Office is going to lead the discussion today, so Jerry?

MR. MILLER: Dave, before Jerry starts, I'd like to make a couple of comments. This is Charlie Miller from

NRR.

First, I guess, the SRM that we handed out -- I'd like to clarify, is not a draft, it is a final SRM from the Commission. It isn't finalized, that is the staff guidance -- but we just received it and it's not going to be released publicly for 10 days. We stamped it that way so it will stay protected. I wanted to get that in your hands, so that you know the guidance that the staff has recently received from the commission is to the direction that we're heading.

Secondly, I'll ask to hand out a draft Commission Paper that we've prepared on the CE System 80 Plus LRB. That's not a topic of discussion today; but, it will be, in all likelihood in November. We wanted to get that paper in your hands in its current form. It's in its final stages, and it should be a final Commission Paper within the next several days. But, to the extent that it changes at all, I'll dialogue with the staff -- the ACRS staff, to get the final paper in your hands; but I wanted to get that in your hands, so that you have the maximum amount of time to look at before the November meetings.

MR. CARROLL: We'll be talking about that tomorrow morning on the session on CE System 80 Plus.

MR. MILLER: With that, I'd like to turn it over to Jerry.

MR. WILSON: Thank you, Charlie. My name is Jerry

Wilson, I'm a Section Leader in the Office of Research for Advanced Reactors and standardization. Participating with me today will be Mr. Miller from NRR and Mr. Ader from Research.

You asked us to talk about the status and schedules of a select number of plants. You'll see in the front page of your hand-out, I have a summary sheet there. I'll be using the time charts that are on the back page -- talking from that.

I'm going to start with the PRISM design. On the prism design, you've reviewed our SER and we've issued a draft SER last year. Since then, the Department of Energy and General Electric have looked at the Committee's letter and at the staff's open items and they have revised our design. Those revisions and how they address each of the open items in our previous SER are addressed in amendments 12 and 13 to their PSID.

Staff is currently reviewing that and we anticipate that in FY '81, we will finish that review, prepare a revised Safety Evaluation Report and bring that before the Committee. At that time, I would ask General Electric to brief the Committee on the design changes also.

In late '91-'92 time period, I anticipate the Department of Energy is going to ask us to review their IFR Program, and we'll start that work at that time. Then, as

you can see from the time chart, we anticipate they'll complete the next stage of their design in '93 and the Department of Energy, around this time period, in '94, will make a decision as to whether they're going to continue to proceed with this design.

MR. MICHELSON: Could you explain to me, just briefly, what a PSID is going to be?

MR. WILSON: Well, it's what you saw in PRISM and MHTGR. It's what I would call conceptual design phase.

MR. MICHELSON: It's like a PSAR?

MR. WILSON: Yes. PSAR -- preliminary design; whereas, a PSID is less detailed than you would see in a PSAR. In some cases, the details --

MR. MICHELSON: What does the acronym mean?

MR. WILSON: Preliminary Safety Information Document.

MR. WARD: Jerry, would you repeat when you expect to bring something to the ACRS?

MR. WILSON: I would think mid-'91 time period, maybe the spring of '91. It's a little hard to tell right now. Our resources are a little uncertain at this point in time.

If there are no further questions on PRISM, I will move on.

MR. MICHELSON: Now, what do you do with a PSID,

do you write an SER against it?

MR. WILSON: Yes, that's what we did.

MR. MICHELSON: Having written an SER with it, what happens next?

MR. WILSON: Well, as I said, what's going on on this application -- they're preparing themselves for a point in time when they would comment.

MR. MICHELSON: Maybe I should have asked the question differently. I'm sorry. What does the -- having written an SER, what kind of actions do you expect to be taken from it, or what kind of approvals are -- what's the process their after? Because I can see, later on, you talk about a conceptual design and so forth. What --

MR. WILSON: Let me take you back to our Advanced Reactor Policy Statement and the Commission's encouragement of designers to come in early and get early feedback from the staff. So, that's what we've done on PRISM and MHTGR and SAFR and will probably do on some of the other designs. It's not an official approval, it's just feedback from the staff and from the Committee.

MR. MICHELSON: No commitments?

MR. WILSON: Right. It's just telling them areas where we foresee problems in eventual licensing.

MR. CARROLL: What kind of legal document would go with this SER?

MR. WILSON: No legal document.

MR. CARROLL: Okay. So, its -- it would have a cover letter on it saying --

MR. WILSON: In the introduction to the SER, we address that point. As we just we reminded everyone, this is what you get out of an early interaction -- is feedback from the NRC. It has no legal standing, in terms of a design approval. Design approval is what they'd be seeking later on.

As I say, the Department of Energy is going to have to make that decision in this time period, as to whether they're going to continue to go forward to finalize the design and to seek that design approval. I anticipate that decision point will be --

MR. MICHELSON: There will be some kind of a formal NRC comment letter -- that will be the SER, I guess?

MR. WILSON: Right.

MR. MICHELSON: It will be an SER and not a comment letter?

MR. WILSON: Right.

MR. MICHELSON: That's the end of the game then until much later?

MR. WILSON: Unless they ask us for more. As I said, I anticipate they're going to ask us to also review the IFR program -- that whole fuel cycle from beginning to

end, that wraps around that PRISM design.

MR. CARROLL: PRISM now stands for --

MR. WILSON: Power Reactor Innovative -- no --

MR. ELZEFTAWY: Inherent Safety --

MR. CARROLL: No, nc no.

MR. WILSON: Right, I thank I gave the correct none.

MR. SIESS: It's like some of the corporations now; it doesn't mean anything -- it's just PRISM.

MR. CARROLL: This does.

MR. WARD: Say it again. I think everybody missed it.

MR. WILSON: Power Reactive Innovative Small Module.

MR. WARD: Maybe you're right, yes.

[Laughter.]

MR. CARROLL: But it definitely does not -- IS does not mean inherently safe anymore.

MR. SIESS: It's neither inherent nor safe.

MR. WILSON: I'll let General Electric speak to that when they see you next.

Another acronym, MHTGR. Also, in the MHTGR, we've issued a draft SER that the Committee has reviewed.

The situation here is a little bit different than PRISM. They have -- they're in the process of rethinking

their effort on the MHTGR. What's going on now is the Department of Energy is conducting what they call a cost reduction study. They're looking at all the key design features that are designed and seeing if they should make some changes to be -- make the design more cost competitive.

That work is going on right now. We're anticipating, in the near future, hearing the results of that. In the meantime, our progress on review is on hold, other than we're doing some continual research looking at certain key safety features. But, we're waiting to hear from GE as to what further work they're going to want us to do in this area.

They have some decision points out here. I should remind you that all of these charts you are going to see today are based on information I picked up from various meetings and I can't certify that all the dates are accurate. But, they're going to make key decision points in '92 and '94, based on how much industry interest there is in this design, as to whether they'll go forward. So, those are the key dates to be monitoring on this design.

MR. WARD: Okay. So, although this -- you said this is on hold -- this is actually a more -- a more definite schedule than the PRISM is?

MR. WILSON: This is their current projection. All I'm saying is that we, at the NRC, are waiting for the

results of this cost-reduction study to see if it makes any significant design changes in the design and then we'll talk with DOE to see if they want us to give them feedback on that like they requested on PRISM.

MR. WARD: But the difference between this and PRISM is that, apparently DOE has decided, you know, the schedule now calls for submitting license application in '95 or whenever that is.

MR. WILSON: Yes.

MR. WARD: There's no such spec c plan for the PRISM?

MR. WILSON: There's a plan to the same degree that his is a plan, it's just out off the end of my timeline there.

MR. WARD: Oh, you mean there is such a plan?

MR. WILSON: PRISM -- I would anticipate that if they would continue to go forward on PRISM, that application date would be later than the current date of submission of the MHTGR.

MR. CARROLL: How does all of this schedule relate to the gas-cooled new production reactor? Where does that fit into all of this?

MR. WILSON: The -- currently the research that's being done to develop the production reactor design in those areas where the design is the same as the commercial

version, the commercial people will rely on the research accomplished for the MPR. So, they're following a program, I think is the best way to put it. In those areas where it's different, then they will do it themselves.

MR. WARD: Jerry, I'm just trying to compare the two of them. You've got a lead plant decision on both PRISM and MHTGR sometime in 1994. Then you've got MHTGR license application in '95, just a year later, but the PRISM application isn't within even two years of that. I'm just trying to understand why those are so different.

MR. WILSON: I wouldn't attach that much significance to it. Once again, this is a draft schedule and that's pretty far out for planning purposes. I think that the decisions on that will be made later. My perception is that the Department of Energy feels that if they proceed on MHTGR that it would go faster than the PRISM design.

Like I said, it's just based on things that I've heard in meetings in the Department. Their schedules are dependent upon resources, like the rest of the Government.

Another design that you asked to hear about is CANDO-3. As you see in the time line, we received a request from Canadians in '89 to do a certification review. The Staff has had a lot of communication with the Commissioners on this subject. If you look at the status on the other

side of your handout there, you'll see that I've listed some SECY papers.

The Staff has discussed the possibility of doing this review. We met with them on Monday of this week, and their plans are to submit for review, a licensing review basis document at the end of this year and in '91, submit four technical exchange reports. The purpose of these reports is to allow the staff to get up to speed on these areas that are significantly different than what we're used to reviewing in LWR designs, and to get some early feedback from the staff as to whether we see some licensing concerns in these particular areas.

So, as Mr. Miller told you, we've just received the SRM from the Commission and we will have to be looking at that and deciding how we're going to do our review, so I can't really predict how the schedules will go. They've told us that they'll be ready to submit their final design in the '92 - '93 time period.

Don't attach significance to that arrow I have there. The actual date will depend upon what progress they make in making a sale of the CANDO-3 design to New Brunswick Electric, and that will determine the rate at which they finish the design work.

Also, they want to start their review work with the AECB before they come to the NRC, and so that will

affect the schedule also. Those two points are uncertain.

A third bit of information that we learned was that they told us that EPRI has agreed to produce a requirements document for a heavy water natural uranium reactor. They will be active in participating with EPRI on that. I'm not sure whether that will have an effect on their schedule also.

This actual submittal of the application is '92 or '93, perhaps even later, depending on those factors. As Mr. Miller said, the Staff doesn't have any detailed review plans established at this point in time.

MR. CARROLL: Now, is request for design certification a legal term? Is it embodied in Part 52, or is it just your characterization of what they did in some informal way?

MR. WILSON: Well, they sent in a letter declaring to the Commission that they were going to seek a design certification for this design and that's the terminology, I guess.

MR. CARROLL: Okay.

MR. WILSON: If you went to Part 52, what constitutes an official application is a document that met all the requirements in the rules.

MR. CARROLL: Further out.

MR. WILSON: Right, they don't have the design

complete yet, so they couldn't do that at this point in time.

MR. CARROLL: One alternative they would have under Part 52 would be to -- as an intermediate step, get a PDA; is that correct?

MR. WILSON: That's an option that's available to them.

MR. CARROLL: That wouldn't require the amount of detail that's in an application from an FDA and maybe would require --

MR. WILSON: ADCL has already made the decision that they're going to go right for an FDA, though. They decided not to go for that intermediate step.

MR. WARD: These technical exchange reports are going to be issued by AECL to NRC?

MR. WILSON: Right.

MR. WARD: The licensing review basis is a -- who writes that?

MR. WILSON: Well, I think they're going to make a proposal, but Mr. Miller's organization will be responsible for developing that.

MR. WARD: NRR will do that? You expect AECl to provide you with information to base that on; is that it?

MR. MILLER: Historically, the way we've developed the LRBs has been to ask the potential applicant or the

applicant to prepare what we call a draft LRB submitted to the staff for review. The process that the Commission has set in place would require that the Staff provide a review of that document, make recommendations to the Commission on our views of the LRB and what's in it and what we may think should be added to it.

We brief the ACRS so that the ACRS can make their recommendations to the Commission independently and then the Commission would give the Staff guidance as to what to do to finalize it. We would finalize the LRB, bring it back again to the ACRS and to the Commission and the Commission would be the formal approving body.

MR. SIESS: Why do we have an LRB now when we never had one before?

MR. MILLER: We have one for the ABWR.

MR. SIESS: No, I'm talking about the 116 plants that we've licensed in the past 30 years. They're all licensed without an LRB. What's different now? Why do we go through this?

MR. MILLER: The 116 plants that we licensed previously were licensed under a two-step process of a construction permit and an operating license under Part 50. At the time, General Electric sought to obtain a design certification of the ABWR, 10CFR Part 52 had not been promulgated yet.

Therefore, what they wanted to do was to try to get some basic ground rules laid out as to how we would proceed on some of the tougher issues in seeking a design certification. Design certification, as Part 52 has dictated, will not be a license as our previous CPOLS are, but will be a rulemaking.

The design certification culminates in an NRC rulemaking proceeding. That rule then can be referenced by any applicant of a CPOL further down the line.

MR. SIESS: Why do we need an LRB?

MR. MILLER: The reason that we needed the LRB, historically, was to try to set some ground rules so that we have a way to proceed on some of the tougher issues that turn out to be of a policy nature.

MR. SIESS: Do you mean we never had tough issues before?

MR. MILLER: Always, but it's a way to try to resolve some of those tough issues.

MR. SIESS: Would we have been better off if we'd have had an LRB on the GE Mark III? That was certainly a significant change in the way the plant was done and it certainly presented some new issues. Should we have had an LRB there? Would it have helped us?

MR. MILLER: I think GE would have said that it would have. Now, I should also say --

MR. SIESS: So this is a new approach to dealing with innovations?

MR. MILLER: It's an approach that was used by NRR and GE at a time that we were in a state of regulatory flux. The staff has now been asked -- I should note, Chet, that the staff has now been asked by the Commission to reexamine whether an LRB is a needed document, or whether it's going to be an overall impediment or an advantage to licensing.

We are doing that and will shortly have a Commission paper together which we will air with the ARCS for comments.

MR. SIESS: The LRB focused on issues and was there sort of a complimentary implication that those things that weren't in there were okay?

MR. MILLER: No. The LRB had no legal standing. That's a question that Chairman Michelson has asked many times.

MR. SIESS: Even what was in the LRB has no legal standing.

MR. MILLER: There's no legal standing. It's just a way that we know that we're going to try to proceed on something.

MR. SIESS: I'm not a lawyer, but it makes sense to decide at the beginning, what are going to be the real problems and the things that you're really going to look at.

What does this say about the things that aren't in it? Those, we'll treat like we did before, or those are okay because we've already reviewed that?

Is that an implication in there, too? I'm trying to look at it from the licensee's or the applicant's point of view. Is there an advantage in agreeing on what is new and has to be looked at, and what isn't new and you'll accept?

MR. MILLER: I think the implication is that the LRB primarily focuses, with regard to things we haven't looked at before, on features of the design that either the NRC may be looking at for the future, or the applicant is proposing that may be outside the scope of current regulations. That's the way the LRB was originally envisioned.

MR. SIESS: Do you really mean outside the scope of the regulations? Outside the GDCs, or just outside the standard of new plants?

MR. MILLER: Yes, the Severe Accident Policy Statement is a good example.

MR. SIESS: Not outside the GDCs?

MR. MILLER: We have no GDCs to cover that.

MR. SIESS: Okay.

MR. MILLER: That was the intent; to try to nail down how we were going to proceed on some of those things so

that we would try to smooth the --

MR. SIESS: Does this suggest that the Severe Accident Policy Statement is forever and ever after going to be outside the scope of the regulations, or is there some possibility that eventually it may be covered in the regulations?

MR. MILLER: Yes, there's a definite possibility that it will be covered.

MR. SIESS: Is anybody working on that?

MR. MILLER: Part 52 was promulgated last Spring. It speaks to some aspects of it.

MR. MICHELSON: It doesn't talk about LRBs.

MR. SIESS: I'm also on the severe accident policy --

MR. MILLER: Part 52 requires severe accidents to be addressed as part of the application, okay?

MR. KERR: Is that what you mean by putting -- is that what is meant by becoming part of the regulations; to just say it should be addressed?

MR. MILLER: It will ultimately be addressed in the regulations in one of two manners; design certification as a rulemaking proceedings, so that at the time that we certified any design, once that design was certified, any aspect of that design that we certify becomes a regulation. The other way that it can be done is as we air issues of

where we fall outside the regulations, the regulations can be updated in some generic sense to take care of that.

If we decide, for example, if certain severe accident features that we want to have in future plants, our body of regulations could be updated to incorporate that.

MR. WARD: There isn't LRB shown on the schedule for PRISM and BIAS, and why is that?

MR. WILSON: I think that when they get ready to seek a design approval and come in for design certification, we'll have discussions with NRR and at that time, decide if it's necessary.

MR. WARD: There is still such a thing as an LRB?

MR. WILSON: Yes, it's a question being asked right now.

MR. CARROLL: Going back to the CANDO slide for a moment, on the technical exchange reports, I guess I would have expected to see a couple more here; one on severe accidents and one on -- given their dependence on computer based control and protection systems, one on VNV of software.

MR. WILSON: This was their suggestion. The staff hasn't really interacted with them to go over that. I would agree with you on the subjects and we'll probably talk to them to see if we should do more in a technical exchange report area or some other matter, but those are also

important areas that we'll have to look at.

PIUS, they first came to us in '89 and asked for a preapplication review in the form of which we've done on MHTGR and PRISM.

As you probably are aware, ADB has purchased Combustion Engineering now, and it is my understanding that the actual licensing interaction will take place from the Combustion Engineering offices in the future.

They have already submitted a preliminary PSID. The staff hasn't started any review of it yet. We've been awaiting guidance from the Commission. And now that we have the SRM, we will have to decide how to proceed. They have told us that they will have their design complete and ready for an application for design certification in late 1993.

If we do proceed, I assume what we would do is look at some unique design features that they have, and give them some early feedback while they are finishing up their final design, and work out the actual schedule at that time.

And if there are no further questions, I'm finished with my presentation.

MR. WARD: Any other questions for Mr. Wilson or Mr. Miller?

[No response.]

MR. WARD: Thank you very much, gentlemen.

MR. CARROLL: I guess after complimenting them on

their fancy handout, I note they didn't put their phone numbers down.

[Laughter.]

MR. MICHELSON: That's the advantage of putting them down, because they have been changing so rapidly. That's why we asked that they be put down, because the old phone books aren't as good.

MR. MILLER: I don't object to giving you my phone number.

MR. WARD: Okay, Mr. Chairman, back to you.

MR. MICHELSON: Okay, gentlemen, we will take a break until 1:15 and come back for license renewal.

[Whereupon, at 12:15 p.m., the hearing was recessed for lunch, to reconvene the same day, Thursday, October 4, 1990, at 1:15 p.m.]

AFTERNOON SESSION

[1:15 p.m.]

MR. MICHELSON: Gentlemen, the next agenda item is license renewal, and that is David Ward as the Cognizant Subcommittee Chairman. So if you will, David.

MR. WARD: Thank you, Mr. Chairman.

Today we are going to review, really, two documents, which the staff will describe to us. These are related to the license renewal program.

Let me remind you of the status.

Back in the Spring, we reviewed and commented on a proposed rule, Part 54, which would provide for renewal of licenses for nuclear power plants. We wrote a letter on it and endorsed the staff's action sending the rule out for public comment.

And that public comment is currently not quite ended. I think the comments are to begin by October 15th. And we can expect, I think, to have the opportunity to interact further with the staff after they have a chance to review the comments and decide what they are going to do or what they are going to propose doing with the rule.

In the meantime, they have developed two important, what are called implementation documents for the rule. One is a Regulatory Guide and the other is a, what they call a Standard Review Plan for license renewal. It

actually kind of parallels the Standard Review Plan that is used for original reviews of license applications.

The Subcommittee on License Renewal met with the staff on Tuesday of this week and reviewed this at some length, and the staff has agreed to come in this afternoon and present to the full committee, review with the full committee, in somewhat more summary form, what we heard about on Tuesday.

Both of these documents, the Regulatory Guide and the Standard Review Plan, of course, are drafts, and it is proposed that they be sent out for public comment following our review and other reviews.

I think the staff hasn't specifically asked for ACRS to comment on these, but I'm sure they will welcome comments we might want to make. In fact, I have drafted a letter based on what we heard at the subcommittee meeting, and presuming that the full committee here today decides that we should comment in some way, perhaps with a letter.

The letter, well, we did have, I think the subcommittee had, I think we were in agreement that the staff has a pretty good program underway, that we had commented, with a couple caveats, favorably on the rule, at least, and its readiness to go out for public comment when it did last Spring.

I think the subcommittee was in general agreement

that the program is well-organized and proceeding in the right direction, and will eventually do the job that it needs to do.

However, we did have a few problems with some aspects of the program as described, and of the two documents as described.

And actually one of the problems that we had with it is probably more related to the rule than it is to the Reg. Guide or the Standard Review Plan. And I think our letter of last April kind of alluded to this.

But as the program kind of begins to get fleshed out a little bit with the Reg. Guide and the Standard Review Plan document, I think this particular, what at least I regard now as a deficiency in the rule, has become a little clearer. So although part of our discussion today will probably be, might be as much related to the rule as to the two implementation documents, I don't think that's at all unreasonable. The rule isn't approved. It's out for public comment. And all of these things have to be part of a consistent process to make things go effectively.

We do have some presentations from the staff. And Let's see, Mr. Igne has provided you with some of the key documents. There is a status report. There is a copy of the Reg. Guide draft, DG-1009. There is also a copy of the rule; the last pages of this package are the rule. And in

between is sandwiched in I think --

MR. IGNE: The letter is on Page 55 and 56 that we have commented on.

MR. WARD: Okay, the letter, our letter. Our letter is the very last thing. Okay. I guess you don't have any part of the Standard Review Plan document. It's a big, thick document.

MR. IGNE: If you want it, I've got it.

MR. WARD: Well, I have a copy of it here, if somebody wants to look at it.

MR. WILKINS: It's true, isn't it, that it was mailed?

MR. WARD: Yes. And I'm sure the staff will effectively describe it for you. So it might not be necessary for you to have a copy right now.

Do any of the other member, let's see, J. and Charlie and Carl were participating in the subcommittee. Do you have anything you would like to say at this point, or shall we go ahead?

Al will pass out the preliminary draft letter.

Let's go to the staff now. And let's see. This is a cooperative program between NRR and RES, RES referring to the Reg. Guide and the NRR the SRP.

And Mr. John Craig of the Office of Regulation will lead off.

MR. CARROLL: I just want to add to what you were describing. You were mentioning topical reports.

MR. WARD: Do you want to mention those?

MR. CARROLL: Industry is developing topical reports on many of the issues of plant -- which somehow or other fit into this grand scheme of things.

MR. WARD: I think Mr. Craig will describe those.

MR. CRAIG: Good afternoon. Indeed, we'll be happy to consider and will appreciate any comments you've made and some of the comments that were made on Tuesday, we've already initiated action to address some of them. We think they were beneficial. As Dr. Ward said, my name is John Craig and I'm the Director of the License Renewal Project Directorate in NRR.

It's a new branch which has been formed to focus the licensing and engineering reviews associated with license renewal activity. Each plant that comes in to request a license renewal application will get another project manager. In addition to the normal project manager in NRR, there will be a project manager for the license renewal application.

There are two sections in this project management and one in engineering. As mentioned, our purpose this afternoon is to present a discussion on regulatory guide on format and content, and to discuss the standard review plan

to be used during the review of a license renewal application. These documents -- the Reg Guide provides guidance to the utilities on the form and content of an application and the standard review plan as a guide to the staff that we'll use as we review the applications.

We've had extensive participation from all the national labs in the country in developing these documents, as well as with the engineering staff and the Division of Systems Engineering and Engineering Technology of NRR. We anticipate that both of these documents will be reviewed and greater detail added as we gain experience in reviewing the two lead plant applications.

License renewal rule and the staff's activities involve a number of integrated activities. In addition to the 10CFR Part 54 rulemaking and the development of the Reg Guide and the standard review plan, we're in the process of revising 10CFR Part 51 on environmental issues. There are a number of topical reports that have been prepared under the auspices of NUMARC and I'll give you a little more of a description of those in a minute, and the two lead plants, Yankee and Monticello.

We've had extensive interaction with the folks at Yankee, including system walkdowns in preparation for their renewal application and we expect that interaction to continue. We've gained significant insights into some of

the renewal issues associated with the screening methodology and application of the rule as a result of the interactions with Yankee.

Let's go to the topical report list. The industry has prepared 11 industry reports. They're really topical reports. One addresses screening methodology and really that's a guidance for the application that the utilities will use to identify the components that will be evaluated during their integrated plant assessment as required by the rule.

The other ten topical reports cover things such as PWR containment, BWR reactor vessel, BWR vessel internals, Class I structures, cables and containment, pressure boundaries -- all ten of those. We have received all but one of those. The PWR reactor coolant system has not been submitted and we anticipate that shortly.

We're in the process of reviewing and providing comments to NUMARC so that we can focus and clarify the age related mechanisms which affect these structures and components and the actions that we believe would be appropriate to define the extent or rate of degradation and to manage those degradations during the renewal term.

The schedule for development and issuance of the Reg Guide and Standard Review Plan includes meetings with CRGR, ACRS, and our plan is to submit those to the

Commission by November the 2nd, to issue them for public comment in mid December, to have a revised package back to ACRS and CRGR by November of '91 and then issue a revised package in April of 1992.

MR. WARD: Could you tell me how this schedule is coordinated with the review of the public comments that will come in from the Rule?

MR. CRAIG: The public comments from the Rule, as you mentioned earlier, are due on the 15th, the week after next. Any changes to the Rule will require or may require a revision to the Reg Guide and the Standard Review Plan. The documents; I think as you look through the Reg Guide and Standard review plan, are very consistent and track the Rule very closely. Any changes to the Rule will potentially result in changes to these documents.

MR. WARD: It looks -- that's the reason I asked the question. If there are significant changes to the Rule, you may end up with a different schedule here for these; is that right?

MR. CRAIG: It's possible. We've covered a great deal of territory since June of this year with the assistance of Pacific Northwest Lab, in particular. I'm optimistic that any revisions to the Rule, we could incorporate into the Standard Review Plan and the Regulatory Guide in pretty short order.

There are two key principles to license renewal, and it's really one with a subset. The principle is that the current licensing basis for a utility provides an adequate level of safety for the public and that it we maintain that level during the renewal term, then that will be an acceptable or adequate level of protection to the public health and safety.

The focus of the license renewal activities and reviews are those things which could degrade system performance as a result of aging. Any new actions or criteria that the staff will look for and evaluate that licensees will have to implement to manage age related degradation will be just that. The Standard Review Plan is a new Standard Review Plan.

We did not revise the existing Standard Review Plan and the very specific reason was that we did not want to give the appearance and, indeed, we will not review existing licensing basis as part of a renewal application. If a question is identified, we'll handle it the same way we will handle it today.

MR. MICHELSON: Just for clarification, the existing design basis for older plants was reviewed with something other than what we now call the Standard Review Plan.

MR. CRAIG: Yes, sir.

MR. MICHELSON: Now, were those original licensing bases re-reviewed when the Standard Review Plan came out?

MR. CRAIG: Well, there was a program called the SEP, Systematic Evaluation Program where the staff identified or raised questions concerning the delta between what would have been the licensing basis for the plants licensed before roughly 1975, and the ones licensed after. 1975 is when the Standard Review Plan was issued.

There were 51 plants approximately in that group. As part of the SEP program, the staff reviewed 10 specifically and addressed all the issues, so for those ten, we've reviewed them specifically and written safety evaluation reports. The remaining 41, as you may know, were identified as potentially participating in a program called ISAP.

The ISAP program was an evolution of SEP where 27 topics or issues were identified as a result of review of those earlier plants. The staff is in the process of looking at each one of the topics and making a determination as to how each should be evaluated. Those questions on seismic design or any of the other topics are questions with respect to the current licensing basis.

As I said, we're in the process of sorting those and recommending action.

MR. MICHELSON: You, in essence, are reviewing it

on a particular topic basis, a particular point that you're interested in, but there's no attempt to take the Standard Review Plan and match it against those plants; is there?

MR. CRAIG: No, sir. There's not a specific action to do that.

MR. MICHELSON: The current licensing basis may or may not be in conformance with the Standard Review Plan?

MR. CRAIG: That's correct.

MR. MICHELSON: Thank you.

MR. CRAIG: I'll try to give a brief overview of the rule, and I should point out that the 10 CFR Part 50 rule proceduralizes something that's already allowed under 10 CFR 51, which says that a license may be renewed when the current OL expires. So, this, we believe, provides detailed procedures on how, in fact, the staff should review and deal with a renewal application.

There are a number of definitions in the rule. I believe the key one is the current licensing basis and that concept, which is central to the rule and to the reviews. There is a discussion of systems, structures, and components important to license renewal. It describes the contents of applications, and we'll talk in subsequent presentations about the integrated plant assessment and staff's findings with respect to adequacy of the application or sufficiency.

Indeed, as in any new license, there will be a

report to the ACRS, the potential for hearings on the application and the standard for issuance of a renewed application is that the staff will reach a determination that appropriate actions have been identified and have been or will be taken with respect to age-related degradation of systems, structures, and components important to license renewal such that there is reasonable assurance that the activities will be conducted in accordance with the current licensing basis.

The period of issuance is a maximum of 20 years. A utility would have to request a renewal at least 3 years before the end of its current OL. That request may be made as early as 20 years prior to the expiration of the OL.

MR. CARROLL: John, you might explain that you can potentially get an extension of greater than 20 years if you apply early.

MR. CRAIG: If, say, a utility had an OL for 40 years and after 20 years of operation they applied for renewal, the staff would grant -- the renewal term could be up to 40 years. The maximum amount of additional time would be 20 years. Part 54 is a new license. So, the 50 license dies, and the Part 54 license takes effect.

MR. WILKINS: In view of that last fact, why would any organization want to do that? They've got a perfectly good license right now. Why throw it away?

MR. CRAIG: The utilities have made a strong appeal to NRR and Research that they need 10 to 15 years to plan for new construction and new generating capacity, for budgetary reasons and to determine what they're going to do. So, they would have to make those decisions pretty early, much greater than 3 years before the end of the OL, as they commit funds and resources.

MR. WILKINS: I understand that, but can't you give them a license that starts in 2010 if they apply for it 1995?

MR. CRAIG: Under the current rule, I don't know. Let's ask Gary Mizuno from OGC.

MR. MIZUNO: This is Gary Mizuno from the Office of General Counsel.

It is possible to have a decision to grant a license 20 years in the future, but it's been -- after discussion within the staff and in conjunction with the attorneys, we believe that the better approach from an administrative standpoint is to supercede the existing license and to grant them the new license, in part because of enforcement problems and, also, a question of administrative finality.

You raise all kinds of questions. Intervenors could come in and say, well, you haven't yet granted the -- you haven't yet issued the license, even though you have

made a decision. If we wanted to -- there is new information in that 20-year time period that has come up. What standard is going to be applied if we want to come in and challenge the issuance of the decision, despite the fact that you have a decision 20 years old that says a license can be issued.

There are the questions involving enforcement. For example, suppose the licensee's application showed that it was going to address aging degradation through activities that were going to be commenced at the current time; in other words, 20 years before that, they were going to take some anticipatory actions, and that was their choice. That was their way of choosing to address age degradation.

We would say that would be fine, but if they didn't take those actions, then the question would be, okay, 20 years down the line, what would we have to do from an administrative standpoint to determine whether to issue the license? And if we made a new determination internally as to whether they actually did what they did, would that again be subject to a hearing?

There are all kinds of questions.

MR. LEWIS: Do I understand that answer to mean it would be legal, but you think it's a bad idea?

MR. MIZUNO: That's correct.

MR. WARD: So, it seems to me it's in the

utility's interest to do this early, to help them with their long-range planning. On the other hand, the downside for a utility is that if there are some additional burdens to them to operating under the new license, they don't want to do it any sooner than necessary.

I'm bringing that up, because that's one particular point that the -- problem that the Subcommittee had with the -- well, with what the rule says or what the implementing documents say. It looks to us that there is the opportunity for the staff to impose some additional burdens on the utility for that period, which may or may not be justified, and I think we'll perhaps be talking about that a little bit more.

MR. MIZUNO: If I could just provide a little bit of perspective on that, the rule, as we tried to write it, was not a prescriptive rule in the sense that we told them that they would have to take these particular activities to address age-related degradation. The licensee could very well choose to say that based upon our analyses and our current activities, there is nothing that we need to do until the beginning of the additional time period beyond the original 40 years.

On the other hand, you could come in and say no, the way that we want to address it, for whatever reason, is we want to start handling aging -- age degradation now, in

this fashion.

From our perspective, we don't believe that we're imposing a requirement on the licensee if they choose to come in and address aging degradation through one set of activities that begins prior to the expiration of the original license versus saying these are -- addressing aging degradation to activities that begin once a renewed license takes effect, or the additional time period.

I don't see how you could say that that would be a backfit, because we're not telling them which approach to take.

MR. CRAIG: The one last point that I'd like to reemphasize, which is the last two lines on the slide, is that the existing licensing basis will be carried forward for the renewal term, and with respect to enforcement and stature of commitments and requirements, the utility has to meet all the requirements in the renewal term that it has to meet today, and anything additional that it might have to meet will be limited to age-related management degradation.

MR. CARROLL: Did you use the word "existing licensing basis" to make some distinction between that and current licensing basis?

MR. CRAIG: No. It's the same.

Indeed, I'll talk for a minute about what the current licensing basis is, and it's defined in the rule to

be plant-specific, and it's only the requirements and commitment which are on the docket. The staff has prepared a NUREG which discusses the adequacy of the current licensing basis, and that's in the Statements of Consideration.

The rule requires that the CLB be compiled by the licensee and, as part of its application, submit a list of those documents in the CLB which it believes are relevant to its integrated plant assessment, and that's the starting point for the screening process, and Mr. Vora will go over that a little bit more in a few minutes.

Again, the key principle is that the CLB is adequate for the renewal term, it's adequate today, the thought being that, initially, aging and degradation was part of the licensing design process, the operation of the plant, and as we go beyond the initial 40 years envisioned from any components that some evaluation needs to be made to determine whether or not aging will degrade the performance of a particular system, structure, or component.

MR. CARROLL: But given the outstanding maintenance programs that are present in the industry today, which really deal with -- with the management of aging, and there probably shouldn't be a problem, right?

MR. CRAIG: Let me answer that by giving two examples, and I'll let you draw your own conclusions. I

gave a discussion yesterday with the Westinghouse owners on license renewal and the same issue came up.

The example that I like to use is one of station batteries, which are governed by technical specifications, procedures and various tests.

As far as managing aging of the batteries, absent and increased failure rate, or performance degradation, the utility that has a program in place to manage the batteries today and keep them online, would have to do virtually nothing with respect to the renewal term; making sure that they go through and say the station batteries are important for fulfillment of safety functions during the renewal term, as they are in the current licensing basis. I've got programs in place today to address that and monitor it. If performance degrades, we'll know about it, and we'll fix it.

The rule defines an established effective program. As part of the application, the utility would be required to document that, so that there's some documentation associated with that, but little else, as far as new burdens on the operations staff in a plant. As an example, the bearings were brought up in the meeting on Tuesday, and I particularly liked it, having taken a few vibration analyses myself. I think it's a good example, because a utility that has a good program to monitor bearing performance -- right now has a program in place to identify aging and obviously

has programs in place that if the bearings are degrading to the point to affect the operation of the motor, pump, or whatever, they're going to correct it.

That meets the intent of managing age-related degradation today and, again, it's a matter of saying, these bearings are wearing and I've got a program to address it and it's okay, or if it degrades, we'll fix it.

MR. CARROLL: But the program that I would propose, in that case, would then become part of -- of my renewal requirements. We would be adding new requirements, that didn't exist.

MR. CRAIG: Well, it's similar to, if you will, fire protection, where there's a licensing condition that says the staff has reviewed the fire protection program and the utility can make changes to it, but they have to maintain an equivalent level of fire protection.

If the license condition says you have to maintain an equivalent program to ensure that aging degradation of the components is monitored, evaluated and corrected, then, I don't think that we're adding new requirements on all utilities. Some obviously have to do more things I think. But, by and large, I don't think that's the case.

MR. CARROLL: So, in the bearing example, I had a program. It wasn't part of my current licensing basis, I described it to you to get my licensed renewed. We would

agree that we have such a program, but I would have the flexibility of managing it the way I wanted to --

MR. CRAIG: Yes, sir.

MR. CARROLL: -- as long as it produced equivalent results? I wouldn't have to -- license amendment or anything else, if I wanted to -- wanted to measure vibration three times a week, instead of once a month, or whatever?

MR. CRAIG: That's correct. The number of procedural changes in a plant are just too great. It just doesn't make any sense to take that kind of operational flexibility out of the plant -- it has to stay there.

MR. CARROLL: Okay.

MR. CRAIG: I'll talk briefly about backfit. The backfit rule doesn't apply to license renewal, it's a new initiative and the types of monitoring or specific aspects that the plant will need to address as a result of a specific age-related degradation, will be something that we evaluate and discuss, either as part of the review of the industry reports, the topical reports, or review a specific application.

The -- the -- I think the -- there are two keys to this slide. Age-related requirements that go beyond the CLB would be subject to cost-benefit analysis and justification. That is, any changes that we might think are necessary -- fourth auxiliary feedwater pump, or another valve, will be a

question, with respect to the current licensing basis, it's outside age-related degradation and it goes into a cost-benefit, just as it would if it were asked today or tomorrow.

Once the renewal license has been issued, and the licensing basis, if you will, revised to reflect the current licensing basis and the delta, with respect to age-related degradation, any other changes that the staff might desire or want would be subject to the backfit procedures that are in place today.

If there are no other questions, I'll introduce Mr. Robert Bosnak, from the Office of Research.

MR. BOSNAK: Good afternoon. I'm Bob Bosnak, and I'm the Deputy Director, Division of Engineering in the Office of Research.

As John has commented, I'd like to freely comment on the fact that we've had a -- an excellent cooperative program between the two office -- NRR and Research.

If you recall, the Committee asked us to come here, this is the Office of Research, on what we were doing in the whole area of aging research. That was back in May, about five months ago. We described our NPAR program -- the Nuclear Plant Aging Research Program, which is in one branch, and then the other branches -- the materials engineering -- and -- that -- work in that organization goes

back to 1965 -- the HSST program at Oakridge. We also discussed our structural engineering research.

So, all of that composite amount of information, really was the basis -- the technical basis for the rule and for the regulatory guide, I want to describe here for you.

We had -- in the whole of the aging research area, we have five of the national labs, and those people were able, once we decided that we had to develop both the Reg Guide and the Standard Review Plan to assist. That was one of the reasons that I think that we were able to turn the project around, with respect to meeting schedules; and I think we can do the same thing, even if we get significant public comments on the rule.

Back in the 1987-89 period, we talked about what types of documents might we need to have in the way of guidance, with respect to either regulatory guides or even with respect to the Standard Review Plans; so we looked at different ways of structuring our guidance. We could structure them with respect to major components and structures. Basically,these are the long-lived kinds of things: The reactor pressure vessel, the containment, Class I structures and electrical cables. That was one way to try to do it.

Another way would be to try to use the aging mechanisms. Fatigue is something that cuts across many

components. Radiation embrittlement, thermal embrittlement, those are all ways of possibly structuring regulatory guidance.

Now, with the industry reports, they've decided to use the -- the first method there -- the major components in structures. Since mechanisms -- aging degradation mechanisms, such as fatigue, stress, corrosion, cracking are common to the components, they would cover them that way in each and every document, rather than have a single document.

Now we -- the other thing that we looked at was the selection of components and structures for aging degradation. In other words, which ones do you need to look at and which ones can you omit. This was the -- the screening.

Lastly, of course, we needed the format and contents, something similar to Reg Guide 1.70, that has been around for a number of years, and is the parallel to NUREG 0800, the current standard review plan.

Well, we reached the decision jointly, between the two offices in '89 to develop a single guide. We were going to, obviously, have to follow what was in the proposed rule. That was fairly difficult because, in the drafting of the proposed rule, things changed fairly frequently, so we had to keep -- keep up with the thoughts that were going on and to structure our Reg Guide along the paths that were in the

rule.

So, what we were going to include -- we were going to, generically address the content -- format and content of the technical information to be included in an application for license renewal.

The second thing that we were going to do was to try to cover the criteria for the selection of structures, systems and components important to license renewal, as defined in the rule. That is fairly specific, and later on, Jit Vora will get to a slide that was taken from the Reg Guide, it's figure 1-B from the Reg Guide that covers that particular thing.

Then, lastly, we were going to cover, from the structure, systems and components important to license renewal, those for which aging degradation should be evaluated.

Then we were also going to cover the elements of an effective program to assess and manage aging. So, that, I think, in a brief introductory form, is the -- what went into the Reg Guide, and this goes back a number of years. Of course, at that time, we weren't considering license renewal, but the -- the aging research information was the basis for what we have here.

With that I'll introduce Jit Vora, who is on our Plant Aging Research Program.

Jit?

MR. VORA: Good afternoon. I am Mr. Vora, V-o-r-a.

Good afternoon, Mr. Chairman, and ladies and gentlemen. As a part of my presentation this afternoon I would like to review with you and obtain your inputs and guidance on the draft Regulatory Guide DG-1009, DG-1009 on the standard format and content of technical information for application to renew nuclear power plant operating licenses.

This regulatory guide when issued will provide an important link between the license renewal rule and the standard review plan for license renewal.

This draft reg guide is based upon the proposed license renewal rule, the requirement for renewal of operating licenses for nuclear power plants defined in 10 CFR 54.

The future modifications if any to the proposed rule will be reflected in commensurate changes in the draft Regulatory Guide. The draft Regulatory Guide merely expands upon what is in the proposed rule. It fills in many intermediary steps and provides the details from the perspective of addressing age-related degradation in component systems and structures important to license renewal during the renewal license period.

MR. WARD: Just a simple-minded question -- DG,

that just means a draft guide?

MR. VORA: This is correct, yes.

MR. WARD: So eventually it will become RG-1009, correct?

MR. VORA: Correct. This is working document at this point in time.

MR. WARD: Thank you.

MR. VORA: The reg guide consists primarily of four sections which are typical of any technical standard regulatory guides. The introduction, the discussion, the regulatory position, and implementation -- these four major sections of the regulatory guide are supported by a number of tables and appendices and importantly a flow chart process for the selection of structures and components important to license renewal and provide the guidelines to address age-related degradation as a part of the integrated plant assessment during the renewal license period.

I would like to present to you and review with you the purpose of the reg guide, it's overall scope, the key elements of format for technical information, and the type of technical information content that includes the selection of structures, systems and components important to license renewal and the structures and components requiring evaluation of age-related degradation as a part of integrated plant assessment.

The sub-elements of this effort for the structures and components requiring evaluation of age-related degradation include the understanding aging and aging mechanisms of issues, of concerns, of interest which may include the fatigue, the erosion, corrosion, erosion/corrosion, thermal embrittlement, radiation embrittlement, wear, chemical effects or the age degradations which could creep up due to the operating conditions and service environment.

The managing aging aspect for any structure or component of interest for the extended life consideration may involve the elements of inspection, surveillance, conditioned monitoring, record-keeping, trending, maintenance, refurbishment, replacement or even the adjustments in the designs and operating conditions in service environment are some of the elements which are described could be useful for managing aging in that structure and component of interest during extended life.

MR. KERR: Why does one only have to start managing aging at the time when the license is renewed?

MR. VORA: I think that is a good point.

We address as part of the aging research program that age-related degradation is an issue which should be addressed for the extended life but also that the more we know about aging degradation mechanisms today and the ways

to manage age-related degradation are also important elements for extended life, so I think it is a good question that it should be technically, to maintain the components and to actually have the operability and reliability of these components. The more we know about managing aging even today would be useful.

MR. WARD: Does that answer your question?

MR. KERR: I thought it was a rather skillful and crafted answer but it appears to me that aging, the aging process begins when the plant starts operating and I don't see why one should suddenly start worrying about it when the license renewal occurs at 40 years.

MR. VORA: I think you are absolutely right, but what is happening, there are many ongoing programs which are indirectly addressing age-related degradation.

You have programs and qualifications in the maintenance program, the inspection program. They do address the aging related issues even now but the question is, do we have a structured program if you can call it that will address the whole age-related degradation mechanisms.

MR. KERR: Then it seems to me the question is do you need a structured program?

Is aging now being taken into account by operating plants?

MR. VORA: Yes, in most cases they are, but there

are certain issues. What we are saying, if go through a structured approach and a systematic approach to understand age-related degradation mechanisms, to identify where they might be operative, that would help us to take the proper steps to manage aging.

MR. KERR: And you are convinced that you don't know enough to do it at this point? Or you already do know enough and you just have to organize the program?

MR. VORA: And confirm it and also there's some elements we do not know exactly about where the synergistic influence or where the hot spots are or where certain degradation sites are within major component and structures.

[Pause.]

MR. KERR: Please continue.

MR. CARROLL: While you are on the subject of aging mechanisms, something I meant to bring up at the subcommittee meeting which is kind of an aside is that on page A-12 of Appendix whatever, Appendix A that describes age-related mechanisms you have a definition of hydrogen damage as an aging mechanism and you make the statement that above about 400 degrees F. seals are not affected by hydrogen embrittlemert.

In my experience that is not true. I have dealt with hydrogen embrittlement at low temperatures and I have also dealt with it at elevated temperatures in fossil

boilers so I think one of your metallurgists ought to look at that definition of hydrogen embrittlement on page A-12.

MR. VORA: That's a good point. I think we'll revisit that.

Another point of the draft Regulatory Guide is that good recordkeeping and trending of condition indicators or performance indicators are considered important elements and good practices for managing aging during extended life.

The purpose of the Reg. Guide DG-1009 is to provide Regulatory Guidelines for a uniform format and content for technical information to be submitted as part of license renewal application. And its overall scope includes the format and content of technical information, the criteria for selection of systems, structures, and components important to license renewal, and guidelines for understanding and managing aging in structures and components important to license renewal.

The two key elements of format for technical information are the formal application and FSAR supplemental information.

The subelements of formal applications are summary of findings providing justification for to support conclusions that appropriate actions have been or will be taken to manage aging in structures, systems, and components important to license renewal, and an implementation plan,

which should include summary of commitments, description of administrative controls, and task and schedule.

The FSAR supplemental information should include the information specific to systems, subsystems, and structures and components important to license renewal, the information pertaining to components important to license renewal for which aging also can be addressed generically, and the supporting documentation, that is the facility-specific technical information, as part of integrated plant assessment.

MR. KERR: So aging is the principal problem in this information to be provided for license renewal.

MR. VORA: From the technical perspective, the time-dependent degradation called the aging-related degradation.

MR. WARD: Yes, Bill, that's what it's all about. I see what you're struggling with. But I think --

MR. KERR: But why has it suddenly become an issue only at the end of the operating plant? Aging is a problem throughout the life of the plant. But why at this point?

MR. WARD: But what is sort of hidden, I mean, there is a fundamental assumption here that, although it was an imprecise activity, the plants were designed, most of the components were selected, and with a 40-year life in mind.

MR. KERR: Oh, come on.

MR. WARD: No, don't argue with me yet, because this isn't my proposal; but this is the underlying philosophy that they have.

MR. KERR: Who has?

MR. WARD: That the staff had.

MR. KERR: Oh.

MR. WARD: That's the underlying philosophy for this rule and for the implementing documents, and that therefore, although aging is always important, it becomes particularly important, and needs some extra added attention when you get beyond that original target design age. And they won't say it exactly like that, but that's what it amounts to.

MR. KERR: But there must be thousands of components in the plant that have to be replaced every two or three years, every five years, every seven years.

MR. WARD: Yes, but see, the assumption is that sure, and the plant people knew about that from the beginning, and have programs in place to take care of those. But they don't have, they may not have programs in place that take care of those things they expected to last for the lifetime.

MR. KERR: So presumably this Reg. Guide is going to pick out those few components that --

MR. WARD: You got it.

MR. KERR: -- will have lasted. Well, it sure doesn't sound like that. But maybe I'm coming in at a time where --

MR. LEWIS: Didn't we write a letter that made this --

MR. WARD: Yes, but it just sort of made it a little, I don't know --

MR. LEWIS: You mean we didn't hammer it in.

MR. WARD: Exactly. It was sort of said in the middle of this paragraph.

MR. WYLIE: But we also said that we thought that the staff was on the right course, in that letter. We accepted it, and it is spelled out in the rule. And all this discussion today is about is how you implement the rule.

MR. VORA: I think, also, Mr. Kerr, that that is the real purpose of the screening process, is to narrow down and focus in on the key components and structures.

MR. KERR: So we'll have only about five or six; is that right? Or will it be five or six hundred?

MR. VORA: Or it could be somewhere in between, depending. Really, one of the issues is about as the operating nuclear power plant advances in age to 40 years, and we talk about extended life, the possibility of common-mode failures, or multiple component interactions due to the

degraded conditions of structures and components. And we really do not have all the answers to answer that question, of which components and structures are going to be important, critical, from the aging perspective, during extended life.

And if you go through a systematic approach, hopefully you will have identified some of the key components and structures which are important.

MR. BOSNAK: Dr. Kerr, a real good example, of course, again we are talking about long-lived components. But the reactor vessel, it is designed for 40 years. And that doesn't mean it can't go beyond 40 years, but it is designed, the initial design was for a 40-year period.

Fatigue, embrittlement, all these properties are affected by the passage of time. And what we are really asking the licensee to do is to determine the status at the point at which he wants to go beyond the 40 years and say that you can do that, that you have the physical properties that you need to go for another 20 years. That's what the Reg. Guide and that's what the basic rule -- The short-lived components, the ones that we talked about, the batteries, the bearings and those things, are handled, and we are not trying to create a whole new layer of activities for those kinds of things.

But for the vessel, the containment vessel,

structures, cable, they are there for 40 years. And they may or may not be able to go on for another 20 years beyond that.

MR. KERR: This would be mostly an analytical treatment of the problem?

MR. BOSNAK: It could be. But you can use testing. In many cases, we're going to depend on the specimens for what is the rate of embrittlement for the vessel. The key component is obviously the reactor vessel, here.

MR. VORA: It could be in a hybrid approach with analysis with some verification to test, if necessary, or as appropriate.

MR. KERR: At least we don't have to worry about common-mode failure of the reactor vessel.

MR. VORA: Section 2.0 of Reg Guide on technical information content provides guidelines for selection of SSC important to license renewal and this is very much in the rule, but it actually provides an intermediate step form the SSC important to license renewal to determine and identify those structures and components for which age related degradation should be managed as a part of the integrated plant assessment during extended life.

Again, the key element are the understanding of aging and managing aging. Aging can be managed and to a

large extent, is being managed with ongoing established effective programs. If they are not, then actions may be taken to manage age related degradation during the renewed license period. That's the approach.

We recognize it and we realize that we held ongoing programs and most of them are very effective as a part of established programs. I apologize for the complexity of this flow chart in Figure 1.B, but the flowchart in Figure 1.A of the Reg Guide describes a process for selecting structures and components important to license renewal for which age related degradation should be evaluated.

The starting point for this flowchart process is starting out with exactly what's in the Rule itself. The current licensing basis provides the input to the four key blocks on the upper side of the viewgraph that are elements of SSCs important to license renewal and requiring evaluation of age related degradation. The input to this process, again, is provided by the four types included in the definition of important to license renewal and 10CFR 54.3.

Then SSCs important to license renewal are subdivided into structures and components. Then, based on the contribution to the performance of the safety function, the structures and components requiring evaluation of age

related degradations are identified.

This is exactly -- we followed what's in the rule and developed the intermediate steps to determine the important to license renewal components to the structures and components for which age related degradation should be managed.

MR. KERR: What does important to safety mean in this context?

MR. VORA: Important to license renewal.

MR. KERR: Well, I thought you were going to look particularly at components and systems important to safety, but maybe I misunderstood.

MR. VORA: These are the components systems important to license renewal. They include those which are safety related, but there are also other groups of components that all form a part of the importance to license renewal.

MR. KERR: So you are going to look at those that are important to safety and some that are not?

MR. VORA: That's correct. But this is how it starts out, the whole formal process. We start with the current licensing basis and then include those components which are defined in the rule, those four blocks, and then narrow it down to the selection of components and structures.

MR. BOSNAK: If I could just interrupt here; we've really tried to avoid the words, important to safety, because there's been an ongoing discussion for a number of years as to what's the difference between important to safety and safety related; safety related being a subset of important to safety and all that. So, we've -- if you could just remove important to safety from your minds and just think about important to license renewal --

MR. KERR: Mr. Bosnak, I happen to have grown up speaking the English language and I don't know any other one very well. I don't know how else to express importance without using the term.

I'm not using it in the sense in which you have to use it in the NRC. What I'm asking is, for example, are you going to use insights that you obtain from PRAs to assist people to concentrate on some components that play an important part in decreasing risk; if that's a better way of putting it.

How do you suggest that people choose these?

MR. VORA: I think this was discussed at length during the rule itself and the rule does not actually provide for using PRAs as one of the methods for screening processes. However, in the Regulatory Guide, we have recognized the contribution which can be made by PRA and the licensee, at his own option, could use it to supplement the

primarily deterministic approach for selection of components, systems and structures.

MR. KERR: What is the deterministic approach?

MR. VORA: Well, I think this is what we normally -- from the operating experience, from the design experience, from the plant configurations and looking through the hardware aspects and experience aspects to determine which components fell into which categories, so this is actually the deterministic approach, the way it's written in the rule, as well as presented in this flow chart.

MR. KERP: Since I can't read the flow chart --

MR. WARD: I think this is a real key point and it's one on which the Subcommittee -- at least some members of the Subcommittee had a lot of problems with the process. The way I see it, it centers on Block Five up here. I know you can't see which one is Block Five, but it's the third one from the left and the second row from the top.

I mean, I guess my concern is that this, the activity in Block 5 is going to sort of permit -- I don't want to be to pejorative about it -- but sort of unfettered expansion of regulatory activity in the parts of the plant that haven't been subjected to regulatory activity before, granted, only in terms of aging management, but it will be up to the reviewer of a particular license renewal

application to have -- to make a decision to accept or not accept what the licensee proposes as to what systems to include or what SSCs, what structures and components to include in that block as being important to license renewal.

MR. KERR: How is the reviewer going to decide on those components?

MR. WARD: Let me just finish.

MR. KERR: Excuse me.

MR. WARD: I want to point out that if a reviewer of the NRC staff are attempting to -- the performance of that sort on the licensee before the renewal activity, it would be subject to the backfit rule analysis, but with this Part 54 being separate from that, my understand is that as a part of this activity, it would not be subject to backfit analysis, and that's the unfettered part.

There doesn't seem to be the discipline of a backfit analysis applied to this activity.

MR. KERR: Maybe I misunderstood the process then, because I thought we started out with Block 1 which, first of all, must be your current licensing basis. If a particular component is in your current licensing basis, even though it might be a non-safety related component --and there can be some to take care of special way out accidents where you say I'll go turn this or that valve, but it has to be in your current licensing basis before you can start

talking about the aging effect on it, I thought.

Therefore, I don't sense this is a little expansion, but not a very great expansion of requirements.

MR. VORA: You are absolutely right, sir. It has to be within the Block 1 of the current licensing basis.

MR. BOSNAK: These are Blocks 3, 4, 5, and 6 and Block 5 is what you're really talking about, the non-safety related structures, systems and components whose failure could prevent accomplishment of required safety functions. That is basically in the current definitions that we have for safety related.

Anything that can prevent me from shutting down the reactor and ensuring the integrity of the reactor coolant pressure boundary or that can act to prevent or mitigate the consequences of accidents; they're there now.

MR. KERR: But you are not going to use insights from PRAs to decide which are the key components? I'm talking now about how the Staff reviews these things, not what the licensee does.

MR. BOSNAK: As Mr. Vora said, we're not requiring PRAs.

MR. KERR: Excuse me. I'm not talking about what you are asking the licensee to do. I'm asking how your reviewers, the people within NRC or the contractor, decides what components and systems should be in there. In that

decision process, are you going to use insights from PRAs?

MR. BOSNAK: These are the reviewers themselves?

MR. KERR: Yes, sir.

MR. BOSNAK: If they have PRAs available; in other words, if they are available --

MR. KERR: They have plenty of PRAs available. We have literally 10's of PRAs, so there's no question about PRAs being available.

MR. BOSNAK: I don't thin the staff will use, on their own, that sort of information. If a licensee wishes to come in and identify a particular component as --

MR. KERR: Will you please tell me why, when PRAs are designed to assist risk and you want to pick out those components that contribute to risk, that the NRC wouldn't make use of that information?

MR. BOSNAK: That's a good question. Obviously, if, from some other exercise -- what I am trying to indicate here is that there are other things that have taken place, Commission regulations, resolution of USIs and GSIs. They're apart from license renewal -- bulletins, Generic Letters --

MR. KERR: Mr. Bosnak --

MR. BOSNAK: That information would be available from those exercise.

MR. KERR: Surely, what is being hoped here, I

think, is that one is enhancing or at least ensuring the safety of reactor systems.

MR. BOSNAK: That's correct.

MR. KERR: All these regulations may contribute to that, but certainly, PRAs ought to provide some insight. I mean, the staff is just now completing a very elaborate set of --

MR. BOSNAK: If the staff has available the results of a PRA that indicate that this is a significant -- item of significant risk, I would think it would be included, certainly.

MR. KERR: Okay.

MR. MICHELSON: That doesn't seem to be your process though, if I understand it literally, but maybe there's more to the process than you have in all those boxes.

MR. WILKINS: We've got a communications problem here. This gentleman is talking to us about the Regulatory Guide, and the questions we are asking are pertinent to the Standard Review Plan, not to the Regulatory Guide.

I don't think -- I don't know whether he is going to give the presentation on the Standard Review Plan or not.

MR. VORA: Yes.

MR. WILKINS: Somebody else is going to give that presentation and that person, it seems to me that remarks

ought to be addresed about what's in the Standard Review Plan.

MR. KERR: I assume that the Regulatory Guide, if it's like most Regulatory Guides, tells how the staff is going to review information that they get from this -- in order to comply with the regulation; that's fairly typical of regulatory guides. My question was aimed at what sorts of criteria are going to be used by the staff when they review this stuff that comes in?

MR. WILKINS: Let's answer that question. Is that the purpose of the Regulatory Guide? I thought the Regulatory Guide was to tell the applicant what he had to do.

MR. KERR: That's right.

MR. WILKINS: It doesn't tell what the staff is going to do. That's the Standard Review Plan.

MR. WARD: It doesn't really tell the applicant what he has to do. It tells the applicant what the staff will find acceptable if he doesn't. That's really what a guide is. Maybe there's not a great distinction in there.

MR. VORA: If I may, please allow me to respond to the question. It's a very good question. We can learn lessons from our ongoing activities on the PRA, but one thing is that the current PRA technology has not advanced enough to include the time dependent degradation and failure

rate of the components and structures. We are in the process -- as a part of our research program, we have started now developing a program that it would be useful when completed, to account for time dependent degradation and using PRA, determine where in time safety systems and support systems aging is significant to risk.

We do not have at this point in time, enough information to account for time dependent failure rates.

MR. KERR: Even if you don't have that -- and I didn't think you did, you do have in PRA, insights which permit you to pick out those components and systems, be the safety grade or not, that contribute to risk control. It seems to me if a component or system is unimportant, you don't care whether it ages or not.

MR. VORA: You're absolutely right. We still also have a research program to look into it and prioritize components and structures based on these. The other question which is very important for license renewal is the treatment of passing structures in PRAs.

Again, there we have to go into mechanistic analyses and models and so we are bring those inside into our learning process.

MR. MICHELSON: I'm a little puzzled because maybe I don't know enough about PRA, but recollect that reactor vessel failure showing up in PRAs, yet, it's extremely

important from the viewpoint of aging.

MR. KERR: I'm sorry, but reactor vessel failures do show up in PRAs.

MR. MICHELSON: As a contributor?

MR. KERR: Very low probability, but they do not show up as zero probability.

MR. MICHELSON: But they don't show up as any significant contributor to risk.

MR. KERR: No, they don't, because their aging is managed so well.

MR. MICHELSON: I would say, gee, I don't need to worry about reactor vessels. But I do.

MR. KERR: I am not suggesting that PRA be used as the only guide. I'm simply saying it would appear to me that one would make use of insights that are available from PRAs.

MR. MICHELSON: Okay. That's right.

MR. VORA: I visualize that to be a hybrid approach, that we have the -- approach and then bring in the insight from the PRAs.

MR. WYLIE: As I said earlier, we're really arguing about the rule here, most of this argument that's been going on, because the rule spells it out, and we considered that 3 months ago or 2 months ago.

What you were showing, basically, defines the

scope of this program within those blocks, and I was wrestling with this earlier in the context of Yankee Rowe, for example, which was built before the GDCs and the SRPs and everything. It was reviewed under the SEP, but I doubt seriously that it was reviewed to the detail that it would have been if it fell underneath the SRP, for example. And I think what I was really looking at was your SRP that you had here, and you have the switch yard covered in here, and I doubt seriously that that -- it may be in the current licensing basis only by reference to the fact that it shows a diagram of a switch yard, probably, in the hazards report, I guess you'd call them back in those days. But the switch yard does serve the function that normally provides the power to shut down the plant and to provide the first line of defense for safety features when they are needed. So, by virtue of that, I guess they fall under this program.

MR. VORA: You mentioned, Mr. Wylie, about Yankee-Rowe. We did have an opportunity to visit them, and we looked into the screening program and process. They started out with the current licensing basis, but instead of dividing those four blocks as we have put in, they found it in the electrical component, the I&C component, the fluid mechanical component and structures, and then they started out with that process, and the switch yard and elements of power transformers and cables and double generators were

included in that part of the process.

MR. WYLIE: By virtue of the fact that it supports the function.

MR. VORA: That is correct.

MR. WYLIE: That's where I had a little bit of problem.

MR. VORA: I think they actually walked through this process with the CLB and identified various components and identified what are the effective programs they have to manage aging and where they feel that they would recommend for action to be taken for extended life considerations. So, the process is feasible and practical, at least in one case we visited.

MR. WYLIE: In effect, we're sort of backfitting these plants with a Standard Review Plan, in a way.

MR. VORA: I don't know if you'd consider that a backfit.

MR. WYLIE: Well, it is by virtue of --

MR. VORA: I think it's a good practice to understand aging and managing. There are certain steps which are --

MR. WARD: Some people think that good practices are beginning to wear the nuclear industry out.

Let's take the example -- Mr. Wylie's example of a switch yard. Let's say that you get some evidence today, at

a given plant, that's 10 years old, that there is some component in that switch yard which is failing due to some sort of degradation, which must be related to aging, and what if the staff proposed that the licensee at that plant should put into place some program for regular replacement of that component and some elaborate program to monitor the performance of that? And let's say it was a program that was going to cost the licensee quite a bit of money.

So, the licensee balks at that. He says no, we're not going to do it. We think we've handled this satisfactorily by less formal means. And they say to the NRC staff, we're not going to do that voluntarily, and we think this should be considered under the provisions of the backfit rule, and the NRC staff looks at it or they have somebody look at it, and they come to the conclusion that it really does -- won't qualify. They can't impose it, because although there is perhaps some benefit in doing this, it's small relative to the cost, and so, they'd end up dropping the matter or at least accepting the licensee's proposal for some less formal fix for it. That's for a 10-year-old plant.

Now, what if that same situation came up when that plant was 35 years old and was seeking a license renewal, and what if you got the same response from the licensee? What if the licensee didn't have this component on his list

of SC ITRs or whatever they are, and the staff's reviewer said we think you ought to put that component in this sort of program on that list, and the licensee would say, no, we don't think it's necessary. We invoke the backfit rule. And the NRC staff would say, uh-oh, the backfit rule doesn't apply.

MR. VORA: It's a very good scenario. I used to design large electrical-power transformers in the switch yard outside, a multimillion dollar unit, and they are very, very significant for the power transmissions and distributions within the plant and outside the plant.

They do age with time. The winding insulations degrade with time, with age. A catastrophic failure of a large power transformer in a switch yard could have some impact on it, or it could have an impact due to -- now, they're talking about if magnetic storms affect it. But the question is, Mr. Ward, what we are saying is that that component has to stay within the bounds of the CLB. This is what we are looking into.

MR. MIZUNO: This is Mr. Mizuno. If I can address that, I'll try to answer your question directly.

If the staff did not impose the backfit at the 10-year period, it must have found, first of all, that it was not a matter necessary for adequate protection, because if it was, it would have had to impose it, regardless of

whether there was a cost benefit, and it did not fall into the compliance exception, and we won't talk about what that is, but it didn't fall into that exception, and it was not a cost-justified enhancement. Okay?

Now, at the time of renewal, the staff would have to determine that first it would not be necessary for adequate protection or compliance, and if you look at the -- if you looked at the slide where we talked about the backfit, we didn't say that the backfit rule didn't apply. Rather, we said that the backfit rule would be applied in this fashion. And in that fashion, it would say that if it could not be justified as a cost -- a cost-justified enhancement necessary to assure that age-related degradation would be addressed and it would not be imposed, presumably if -- I am assuming that exactly the same circumstances existed at the 10-year time as at the 35-year time.

In other words, there has been no change in information; the circumstances with regards to the cost and the impact remained the same. If that were the case, then the staff still could not impose that new program for license renewal, because it wouldn't meet the cost-justified enhancement standard of the backfit rule.

Does that answer your question?

MR. WARD: Yes. But I am not -- I don't -- it's not clear to me where what you said is embodied in the rule.

MR. MIZUNO: First of all, I am just taking it out of page 9 here, and under "Backfit rule will apply," there is a second bullet under there. It says "Age-related requirements," and this is what we're dealing with here, "that go beyond the CLB," and this is what you're suggesting, this goes beyond the CLB, "would be subject to the cost-benefit analysis and justification provisions of the backfit rule," and I read that as saying that not only do you have to meet the cost-justification part of the rule, but you also have to meet the substantial-improvement test that's a part of the 50.109 analysis.

Now, you're saying, well, these are just words in some handout that the staff gave you. Where do you actually find that in the rule? And the answer to that is I would probably agree with you that you are not going to find it in the words of the rule per se, but if you look in the Statement of Considerations that discussed how the backfit rule is going to apply, you will find those words, which were, basically, the Commission's words, and we put those words, adopted those words, and put them into the SOC at the direction of the Commission. And basically, the reason why is explained in the SOC, and I'm sorry, I don't have the page number in the SOC in the Federal Register notice, but it's basically saying this is our interpretation of how the existing backfit rule would apply in the context of license

renewal, and basically, what you have there is simply a determination that we felt that there was -- no change to rule was necessary in order to come out with this kind of interpretation as to how it would apply in the context of license renewal.

It might be a valid comment, a comment that the ACRS could give that says, perhaps something more explicit in the rule is necessary. I don't think it's necessary, given the comment in the SOC.

MR. CARROLL: It's a little different situation though, than the typical back-fit situation. If some staff guy comes to me and says "hey, I want you to do this." I say I'm not going to do it, the burden's on you to show that it meets the back-fit rule. Okay, now when you come to license renewal, I want to get my license renewed.

MR. MINNERS: Warren, members of the staff, we have a timely submittal rule, okay. So, if we don't act on your license, the plant can continue to operate. The staff does not have opportunity to hold the plant hostage as it did in the OLCP review.

MR. CARROLL: Did they ever do that, Warren?

MR. MINNERS: Did they ever do what? I don't know.

[Laughter.]

MR. MINNERS: It was after my time.

MR. VAGINS: There is another issue. This is Milt Vagins, Research. There is another issue. The emphasis we've placed on the collection and the accumulation and documentation of the CLB.

Your answer to NRC is show me where it's in the CLB. You don't -- no arbiter, no NRC individual can come up and say, do this because I want you to do it. The rule specifically says the maintenance of the CLB, and anything above that is enhancement. So therefore, when we insist upon the fact that the utilities collect, and store, and have available, a CLB would be the answer to those questions exactly.

I want to say one more thing. A question was kept raising about why are we doing this on aging, why is aging 41 years? All these questions can be resolved by looking at the FSARs. What are the FSARs? I used to do a lot of these things, when I was a contractor outside.

What we started with was EOL. EOL -- famous three letters -- end of life. What was end of life? By God, it was 32 effective full power years, 40 calendar years. What was the condition? We postulated; we fed back-fit to loads, postulated. Then we looked at things like the Miners Rule and fatigue. We want a usage factor of 1, because I want to save in my pressure vessels. I want to save weight and wall figures in my piping. I want to build my nuclear plant

safely, but cost effectively. I don't have to live one day past 40 years.

MR. KERR: Well, you've just convinced me that we shouldn't be extending the lives of these vessels.

MR. VAGINS: But, because I'm using stock issues like standard pipe sections and pressure vessel sections, I have a lot of excess into it. Also, the codes were designed with safety values and, what I would call for the code, not necessarily safety factors, but ignorance factors.

MR. KERR: All right, so you're going to eliminate those safety factors now?

MR. VAGINS: No, no, if we again, cannot justify, and this is the thing, on like piping, if we cannot justify more than 40 years, replacement --

MR. KERR: You tell me that when you were designing these things, you were a good designer, and you weren't going to spend more than you had to spend to go beyond 40 years.

MR. VAGINS: Well, in some cases, we will have to replace, yes sir. You will have to do that.

MR. KERR: But not on reactor vessels?

MR. VAGINS: No. Reactor vessels were designed for other characteristics, and generally, the driving force for fatigue and brittlement, fatigue is very low.

MR. MICHELSON: I think I'm suffering from

information overload. I have to go back and ask a question, because I've heard so much now, that I think I've become confused for sure.

The licensing basis that we talk about in our chart, the current licensing basis, if that licensing basis did not, for instance, include say, some insulators out in the switch yard, then we don't even think about those for this process or, if the staff wants to think about them, they can, but if they decide they should be a part of the current licensing basis, they have to justify it through back-fit, even if the only reason is because of their aging beyond the 40 years. Is that right?

MR. VORA: Yes, sir.

MR. CARROLL: I'm not sure. I'm not sure of that, wait a minute.

MR. MICHELSON: I'm trying to sort this out, and maybe that's not right.

MR. CARROLL: No, I don't think so. I think that if --

MR. LEWIS: One at a time.

MR. KERR: Excuse me, Mr. Chairman, is this being recorded?

MR. MICHELSON: Yes, it is. If that gentlemen over there could record five simultaneous conversations, he's pretty remarkable.

MR. LEWIS: He's just good. Go ahead.

MR. CARROLL: If I got a drawing in the FSAR that shows the switch yard and, you know, shows some insulators or something, does that automatically mean that that's in the current licensing basis. I mean, I've said nothing about it other than --

MR. WYLIE: You probably did though. You probably said that somewhere in the FSAR, you said I'm providing two circuits, and here's where they come from, and there's a drawing here that shows it.

Now, to me, I interpret that as that's in your current licensing basis. Now, as to whether or not the insulators are in there, they have to be in there. They're a part of that circuit.

MR. MICHELSON: But not the other circuits are in the switch yard that aren't mentioned as being the essential --

MR. WYLIE: No, just the path necessary to provide the power --

MR. MICHELSON: I'm talking about the other insulators on the non-related transformers out there, or non-related transmission lines. Those are not a part of the current licensing basis, even though you'll show a picture in the FSAR of all the power lines coming into the plant, but if you take credit for one in some way, then it becomes

a part of your current licensing basis, and you must protect -- to make that credit valid throughout the life of the plant.

MR. CARROLL: I guess Charlie and I are asking do you even have to take credit for just by virtue of the fact that that line is shown on a drawing. Does that mean that it's part of the current licensing basis?

MR. WARD: Let's let the staff answer that. These are the people who will be interpreting this.

MR. CRAIG: My interpretation would be that if it was just included in a drawing, and it was cut, had no relevance to safety, and wasn't described, then it would not be something the staff would consider as being in current licensing basis.

However, if it was included in a drawing and it was relevant to safety, even absent a description, then we would consider it to be in, and that's the best answer I can give, an OGC answer now too.

MR. CARROLL: Well, let's just follow-up on that. I described this transmission line as being a source of feedback power into my plant, but I haven't said a word about the insulators on it. There's a line that comes from someplace off-site into my switch. Could you interpret that to mean that the insulators are part of the current licensing basis?

MR. MIZUNO: If you relying upon that transmission line to provide something that is relied upon, that you rely upon in a safety analysis that's necessary to satisfy one or more of the requirements in Part 50 or some other part in 10CFR, then yes, it's part of your current licensing basis. Remember, the current licensing basis is just the beginning of the route of going down the screening criteria.

Let us take the example of the insulator, okay. Let's assume that this transmission line, in fact, provides essential power for some function -- safety plant function -- okay, and is in fact referenced in the FSAR, but there is no description of that insulator, okay. Nothing about how it's procured, how it's inspected and maintained.

It might be in the CLB in terms of a general description of this transmission line, but you have no CLB provision with respect to the maintenance of that insulator, so therefore the staff has nothing to hold -- even currently -- the staff has nothing to hold that licensee to how it procured that insulator, or how it currently maintained that insulator.

The point of going through this screening criteria here is to determine whether that insulator provides a sufficient safety function of sufficient importance that the licensee has to then go and start determining, okay, is it subject to aging degradation, a mechanism, and if so, is

there a currently existing program that addresses that, or do we need to do something else.

That's all part of the screening criteria. At some point, it may very well be that the insulator falls out, and we're not concerned about it anymore. So just saying that something is in the CLB does not say that the staff is automatically going to have to deal with that from an aging standpoint.

MR. WARD: Thank you. We better move on to cover the standard review plan. We just have 20 minutes left, total.

MR. VORA: This is the last slide of my presentation.

MR. LEWIS: Incidentally, could I just say something? Viewgraphs like that aren't all that hard on us because we have the hard copy in front of us, but they are certainly unfair to our audience. I think, in the future, one should bear that in mind.

MR. VORA: That's a good comment.

The flow chart in Figure 1B of the handout provides guidelines for the evaluation of age-related degradation and part of integrated plant assessment. Metal has been provided for evaluation of structures and components which are routinely replaced or refurbished at defined intervals. These are normally identified as the

short-lived components, such as relays, etcetera.

While a second metal is applicable to those structures and components which are not routinely replaced or refurbished, they are normally referred to as long-lived components such as reactor pressure vessel, the steam generator, the cables inside containment, or it could be a bearing which is well maintained for long life without replacement. So we are going to redefine this block based on the comments we received day before yesterday; that, yes, indeed, I think that's a very good point that those components which are normally and routinely maintained and achieve a long-live status, they should be also included as part of this consideration and credit should be given to the ongoing programs which are effective to address age-related degradation in that component.

For structures and components which are routinely replaced or refurbished, recommendations are made to evaluate the operational experience and replacement/ refurbishment program, and, as appropriate, design and manufacture information, known aging mechanisms, and other available information.

Then we asked the question: Can it be demonstrated -- Block 17 -- can it be demonstrated that the replacement and refurbishment program for the structures and components is adequate for timely mitigation of aging

directed degradation to ensure that the current licensing basis will be maintained through the renewed license period? We said we are going to replace this component every ten years, and our operating experience indicates that yes, it's an effective program, and it is conservative enough that it can be demonstrated that that will maintain during the extended life. So the guideline provides that flexibility to the licensee.

MR. CARROLL: But you are going to put the words into Box 17 that you put into 12?

MR. VORA: On Block No. 13, we are going to put --

MR. CARROLL: Twelve. The inspect and monitor words.

MR. VORA: Yes. It will be on Block 13 because on Block 12, it will automatically go through Block 13, where we say "long-live components," such as bedding, it should have --

MR. CARROLL: Now, you can't get to Block 13 unless you change Block 12.

MR. VORA: The bearing example which you mentioned -- I suppose, if I have a good maintenance program, I change the lubrication, I do know the aging mechanism and degradation properties, and I have a problem such that it becomes almost a long-lived component, like 30 years, then it will fall in Block No. 13, and we'll give the credit --

MR. CARROLL: But I can't get to Block 13 unless I replace or refurbish it at intervals.

MR. VORA: We say no.

MR. BOSNAK: What we talked about -- the problem we had with Block No. 12, we don't want a long-lived component like the reactor vessel to go down the righthand side; we want it to continue to stay to go down the lefthand side. So perhaps we could -- we know what the point is, and we're going to try to fix it.

MR. CARROLL: And in fixing it, you ought to fix 17, too.

MR. BOSNAK: Right.

MR. CARROLL: That's all I have on that.

MR. VORA: We will fix it by adding the words "evaluate operating experience and ongoing programs that address age-related degradation, and then, as appropriate, perform the detailed mechanistic analyses to do that."

Then both of these then go through the Block No. 18, where we want to see and evaluate does the licensee have an established effective program to manage age-related degradation. If not, then go to Block No. 21. If not, then the licensee should describe and provide the basis for actions taken or ought to be taken to manage age-related degradation in the structural component during the new license period. So, the flow chart provides the

flexibility, but, as I say, we want to go through the process for evaluation.

I think this concludes my presentation if there are no other questions.

MR. WARD: Okay. Thank you very much.

MR. VORA: I would like to introduce John Thoma, the License Renewal Director, who will talk about the standard review plan for license renewal.

MR. WARD: John, do you think you can cover this in 15 minutes?

MR. THOMA: Yes, I believe I can.

Good afternoon, gentlemen. My name is John Thoma. I'm the Senior Project Manager with the License Project Renewal Directorate. I've been working since June on developing the Standard Review Plan for license renewal, draft NUREG 1299.

Basically, I will cover a few elements of the purpose and scope, organization and structure of the NUREG, how we plan on implementing it and how we plan on doing future revisions.

The point I want to make from the first is when NUREG 0800 was developed, it was done after we had done some 40-plus reviews, so we had something under our belt to work with when we developed it.

This NUREG 1299, or SRPLR, as I'll call it, we've

written before we reviewed our first plant, before we finished or even started on many of our topicals that are going to support this review.

We think our current document forms a framework in which we can do our reviews and we can do a review of an application if it came in the door. However, we are going to have to revise it. Right now, it's a living document. We're going to have to revise it after we do the pilot plant reviews and after we look at the topicals in some detail, and as a result of public comments.

Slide 2, please.

As far as the purpose of the Standard Review Plan, basically it is to provide staff guidance. It provides staff guidance on how to do a review in three areas.

How to do a review for the sufficiency of an application, and that is to determine if the initial application, when it comes in the door, is sufficient for us to even start our review.

The second part is the applicant methodology. And this is the question that was asked earlier, is how do we determine that they came up with their list of structures, systems, and components that are important to license renewal? That's the end result of the screening methodology.

Then it goes in . discussing an evaluation of

potential age-related degradation mechanisms from both the systems' and components' perspectives.

The scope is limited by the license renewal rule. It is limited to structures, systems, and components important to license renewal and age-related degradation.

We recognize that questions will be raised about the current licensing basis as a result of this review. After all, they're going back and looking at some of these systems that they haven't look at in detail in many years.

However, such questions, if they arise, are outside the scope of this Standard Review Plan. They really fall under the scope of the Standard Review Plan NUREG 0800.

This document, as I said earlier, we've done our best effort in putting it together. We think we have the breadth of the problem surrounded right now. But it needs some more specifics. So we need some more depth. So we refer to this document as a living document to be revised as a result of experience gained.

Slide 3, please.

To give you a little bit about the history of how we developed it. When we first started off, we just said why don't we just take NUREG 0800 and add a section at the end of each chapter, to talk about age-related degradation?

We looked at that, and that was feasible. However, we felt it would be very difficult to keep the

review focused on age-related degradation. It would invariably get into the current licensing basis, which is what we did not want to do.

So we decided okay, we'll have a separate Standard Review Plan for license renewal; we will ask the applicant, when they come in with their FSAR supplement, to put their information in a separate chapter so we could go to that chapter to do our review.

We then looked at the two pilot plants, Yankee Rowe and Monticello, and said, what are you doing? And we saw that they were organizing their structures, their review along the lines of how they were physically structured at the plant, organizationally. They had a mechanical department, an electrical, instrumentation, and structural.

Based on that input, we put together our first hybrid of the Standard Review Plan, and that version was a little over 1,000 pages long. It contained a lot of generic words. It was fairly difficult to manage, so we pulled out all the generic words, put them into standard chapters, and we have the version which is in front of you. It's about, oh, 300-plus pages in length.

This is a Standard Review Plan in which the chapters do not stand alone. It is a heavily cross-referenced Standard Review Plan. You have to have the entire document with you when you are trying to use it.

It has three major sections: a Part A, which is general information and discussion; a Part B, which goes into systems; and a Part C, which is generic components and structures.

Parts B and C are organized very similar to NUREG 0800 in that you have review procedures, review criteria, those things.

However, there is one element that is in our Standard Review Plan that is not found in NUREG 0800. It is called general information. And the reason we put that there was to give the reviewers some background on age-related degradation for a specific system or component. It's to give them some history that they may not normally do, or may not know about in their present-day work where they are doing design basis reviews.

Information found in the general information is not to be interpreted as new requirements, or any requirements whatsoever. It is just information to bring the reviewer up to speed.

Slide 4, please.

Let me go into a little bit of detail, into Part A.

The first section of Part A provides the standard purpose, scope, and organization of the Standard Review Plan. It also contains a standard disclaimer, which says

the Standard Review Plan is not a requirement but it is the way the staff is going to do its review, and the licensee is going to have to justify what they are going to do if they are going to do something different.

It does have a section which describes in generalities the Part 54 Rule. We don't quote the rule. The purpose of that section is to set the tone that it is limited to age-related degradation as to certain components.

Then we provide a detailed checklist, this is unique to the Standard Review Plan, on what is a sufficient application when it comes in the door. And that comes in with the sufficiency provisions that you talked about earlier, timeliness provisions of 10 CFR 2.109, which is being modified to say if a licensee submits a sufficient application, then his current license will remain in effect while we review the license. It's not envisioned that we'll go beyond 40 years when we do that review, but it is certainly possible, with the number of reviews that we have to do.

Now, this sufficiency is listed as a checklist. It's not a simple yes, no, checklist. It's going to require some subjective thought to answer some of those questions.

We are trying to limit ourselves to the order of magnitude of doing that review 60 days after it comes in the door. So it is also not a detailed review of what the

licensee has submitted, it is a review where we have to determine if they made a reasonable effort to justify their submittal.

Appendix A is where we go into detail as to how we review the methodology for determining the structures, systems, and components important to license renewal.

A question was asked earlier, how do we hope the licensees do it, and are we going to use PRAs, things of that nature.

In reality, we are working with NUMARC. It is one of their topicals that they have submitted to us that we hope to eventually one day have approved, and the licensees could reference it and show how they are bounded by that topical. And that would certainly bound our analysis.

If that doesn't come about, or even if it does, and the licenses chooses to use his own methodology, then Appendix A would tell you how we plan on reviewing it.

The end result of Appendix A should be a list of structures, systems, and components which you can enter the next two parts with.

Part B is systems. We feel systems are important, because they form an integration function for our review. Safety functions are really determined on a systems level.

You are looking at is cooling water delivered to the right place at the right time, the whole system has to

work to do that.

Also, aging degradation is very much a function of the environment which is a function of the system design. Is it hot water, cold water, acidic, things of that nature.

So to determine if an established program is in fact effective, you have to look at it from a systems perspective, and that's what we attempt to do in Part B. It's like an overview. We look at, for that system, are all the structures and components properly identified, and have they been handled from an age-related degradation concern?

Slide 6, please.

But we did not include every system that we thought would be in a licensee's application. We included the major ones but the reason we didn't is because we had many systems which were in the gray area that may for one licensee fall into one of the blocks and for another licensee it may not.

Also, we had a lot of systems for which we had nothing more than the generic words to say this is how you do the review, so the way we are handling that is we have a chapter B.0.1 which is a generic systems chapter. If a licensee makes a submittal that is not one of the ones we have listed then we will use B.0.1 to do that review.

When it gets down to actual individual components those are covered in Part C.

Part C is broken down into the mechanical electrical instrumentation and structural sections. Its organization very much parallels that of Part B and then it also has a generic component or structure chapter, C.0.1.

We expect in the long run that Part C will contain the dominant technical input that will go into the review because it is down to a particular valve or a particular component.

Slide 8, please.

[Slide.]

MR. THOMAS: You will find throughout the standard review plan right now in about 30 percent of the chapter specific criteria related to a component or a system. Sometimes these are new criteria. Generally they are additional inspections or analysis that may or may not be currently required but they are used to determine the current status of that particular component or structure from an aging perspective.

MR. MICHELSON: Let me make sure I understand that one.

Does that mean it's prescribed in the current licensing basis? If it isn't in my current licensing basis, do I have to do that?

MR. THOMAS: Okay, the system and structure of component will be in your current licensing basis.

MR. MICHELSON: Well, there's a lot of other things in your current licensing basis too.

MR. THOMAS: Right, but you may not have for this particular system --

MR. MICHELSON: Maybe it is an inspection. Maybe it's not described in my present licensing basis. How do I then treat this item?

MR. THOMAS: Take a specific example. Say it's a diesel generator and we are asking for a specific measurement of the shaft somewhere.

MR. MICHELSON: Yes, for instance, how is that justified then?

MR. THOMAS: The diesel generator is included as a system important or structure or component important to license renewal. That's how it got into your current licensing basis.

MR. MICHELSON: That is there, it's there.

MR. THOMAS: We are making a determination and particularly I am using the diesel generator because a lot of research has been done on those, but you need to have that measurement to make a determination of how long that diesel is going to last.

MR. MICHELSON: But you don't presently have to have it. It's not in my current licensing basis to make that measurement every five years or whatever.

MR. THOMAS: That's correct.

MR. MICHELSON: Okay.

MR. THOMAS: And what they are saying is that's changing because we do have a generic issue on the diesel generator, but right now -- let's say that generic issue doesn't get issued, then as a result of this program that could be a new inspection that you have to do.

MR. MICHELSON: And it would not have to be justified by any cost benefit -- but the generic issue if it is resolved that way would have to be justified or some form of cost benefit or immediate imposition or whatever but it has to be justified.

How do you do that here? Do you just suppose it.

MR. THOMAS: Just suppose that if that happened you could wind up, however you have to meet a criteria.

MR. MICHELSON: The Staff can add a lot of these kind of goodies without going through any particular justification processes, or why not?

MR. CARROLL: Because the licensee can say it's a backfit.

MR. MICHELSON: No, no, no. He said it is not in my current licensing basis and he says he can add it anyway.

MR. CRAIG: I would like to make two points.

The first one is the Staff isn't arbitrarily identifying new requirements. Rather there is an age-

related degradation mechanism that might have been identified as a result of diesel or performance or pipe erosion or whatever and the criteria that John is addressing in the standard review plan would be that conducting this type of inspection or walkdown is a method that the Staff feels that a utility should initiate.

If the utility feels that that measure is -- you know, you quote the rule -- is in excess of what would be required to ensure adequate protection then they can claim backfit.

MR. MICHELSON: Even for these inspections?

MR. CRAIG: That's correct. They can make that argument and one of the reasons that LRPD was created in NRR was to provide a focal point for those types of discussions and there is some latitude, some give and take that I am sure will take place there.

MR. MICHELSON: So you are saying there is an appeal process.

MR. CRAIG: Yes, sir, and that is one of the real benefits that I see from issuing this for public comment. The industry is waiting with baited breath to take a look at this and --

MR. MICHELSON: Yes. If the component had not been in the licensing basis but you wanted for some reason to have this inspection performed on it for this life

extension you would have to first of all go through and get that component into the licensing basis before you could do it, is that right?

MR. CRAIG: Yes, sir.

MR. MICHELSON: And that would come under whatever considerations of backfit there would be.

MR. CRAIG: Yes, sir.

MR. MICHELSON: Now once you get it into your licensing basis, which is the first step, then the second step you can impose this test.

MR. CRAIG: Yes.

MR. MICHELSON: Okay. I think I understand it.

MR. MIZUNO: If I could just modify Mr. Craig's answer a little bit, we could impose the additional requirement either if it is required for adequate protection or if the current licensing basis, that additional activity was necessary to assure compliance with their current licensing basis. If you can understand, there might be some cases where they have a requirement in their licensing basis and the Staff found that at least for the first 40 years there was nothing more that had to be done to assure the compliance with that licensing basis requirement but for the additional 20 years things are getting to the point where they better start inspecting this particular thing or doing something in addition or preparing an analysis to show that

there is not going to be a problem.

That would not necessarily be an adequate protection thing but it would be a compliance requirement to maintain your licensing basis during the additional renewed term of operation.

MR. MICHELSON: But that component had to be in the licensing basis to impose that?

MR. MIZUNO: Yes, absolutely.

MR. MICHELSON: Okay.

MR. THOMAS: Stepping on, I mentioned that it occurs in about 30 percent of the chapters we have right now. We expect as we do more reviews of the pilot plants that it will occur in more chapters.

Now you asked where they were derived from. They were derived from the NPAR program plan, experience and engineering judgment. Engineering judgment was very heavily dependent on the national labs. PNL was my principal contractor in developing the standard review plan. EG&G of Idaho wrote the electrical portion.

We also when they got done sent it out to all the nal labs and asked them to comment on their area of ertise and we had to set down as license renewal project ector and say how much of this is bounded by the currently licensing basis and age-related degradation because when you go out to an audience like that the scope

can be expanded very easily.

As I mentioned earlier, these criteria will evolve.

Slide 9,.

[Slide.]

MR. THOMAS: How do we intend to implement the standard review plan?

Basically we'll get an application in the door. First thing we'll do is the sufficiency review. As I mentioned earlier, we'll hope to do that in the first 30 days. That is a goal, not an absolute requirement.

The next step will be to review the screening methodology because that gives you your total list of systems, structures or components which is very important to proceed with the rest of the review, to conduct the systems level and then the component and structure review.

Then the whole thing will have to be integrated into a final safety evaluation.

Slide 10, please.

[Slide.]

MR. THOMAS: Future revisions, as I mentioned earlier will be based upon public comments, experience gained from the industry technical reports and we find them very beneficial although we have some problems. They still are very good at pointing out age-related degradation

mechanisms.

Experience gained from the review of the pilot plants and experience gained from the NPAR program -- this at this point includes the formal presentations on both the standard review plan and the reg guide and we open the floor up to general discussion.

MR. WARD: Are there any further questions for Mr. Thomas?

[No response.]

MR. WARD: Thank you very much, gentlemen.

Mr. Chairman, the committee will want to decide whether it wants to comment in a letter at this time and what the letter should say and I propose that we do that at the next -- tomorrow or whenever we have a letter-writing session.

MR. MICHELSON: Yes. We have one yet -- right now we are out of time.

We do have time later today, you know, starting at 5:30 for preparation of reports.

We will go on to the next agenda item now, which is.

MR. MINNERS: May I make a comment?

MR. MICHELSON: Yes.

MR. MINNERS: The subcommittee chairman made a comment that there may be some deficiencies in the rule. We

would appreciate the committee identifying those deficiencies at this time so that we could address them, rather than waiting until the final rule comes back for its second review.

That would be my only appeal.

MR. MICHELSON: I think that would be fair, yes.

I think there will be some form of letter, as near as I can see.

Thank you, gentlemen. The next agenda item is item at 3:15, which is "break," so we'll start in again at 3:35 p.m.

[Whereupon, at 3:19 p.m., the reporting session for this day was concluded, the meeting to reconvene Friday, October 5, 1990.]

# REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

in the matter of:

NAME OF PROCEEDING: 366th ACRS Meeting

DOCKET NUMBER:

PLACE OF PROCEEDING: Bethesda, Maryland

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Official Reporter
Ann Riley & Associates, Ltd.

# Draft Regulatory Guide DG-1009

and

# Standard Review Plan for License Renewal (SRP-LR)

# Presentation to ACRS
# October 4, 1990

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## Purpose

* To discuss the draft R.G. on Format and Content.

* To discuss the draft Standard Review Plan for License Renewal.

## Introductory Remarks

License Renewal Involves Many Integrated Activities :

* 10 CFR Part 54 Rulemaking
  - Regulatory Guide Development
  - Standard Review Plan for License Renewal Development
* 10 CFR Part 51 Rulemaking
* Industry Report Development and Review
* Lead Plant Reviews

## Schedule for RG and SRP-LR

* Met with CRGR on September 14, 1990.
  - Comments have been incorporated.
* Meet with the ACRS in October 1990.
* SRP-LR and R.G. to EDO by October 19, 1990.
* SRP-LR and R.G. to Commission by November 2, 1990.
* Publish for public comment by mid-December 1990.
* Revised package to ACRS/CRGR by November 1991.
* Revised package published by April 1992.

## TWO PRINCIPLES OF 10 CFR PART 54

* CURRENT LICENSING BASIS (CLB)
  - ADEQUATE FOR RENEWAL TERM, EXCEPT AGING
  - CARRIED FORWARD
  - NO NEW FINDINGS, NOT IN SCOPE OF PROCEEDINGS
* AGE-RELATED DEGRADATION MANAGEMENT
  - FOR SYSTEMS, STRUCTURES, & COMPONENTS (SSCs) IMPORTANT TO LICENSE RENEWAL
  - FINDING BECOMES BASIS FOR LICENSE RENEWAL
  - PROCEEDINGS LIMITED TO THIS ISSUE

## Overview of Rule

* Definitions

  - Aging Mechanism
  - Age-related Degradation
  - CLB
  - Established Effective Program
  - SSCs Important to License Renewal

* Content of applications:

  - The FSAR Supplement includes the following:
    + Integrated Plant Assessment (Screening and Aging Assessment)
    + Exemptions
    + Plant Modifications
  - Environmental Report

## Overview of Rule (Continued)

* Report of the ACRS
* Hearing
* Standard for issuance of a renewed license
* Appropriate actions have been identified and have been or will be taken with respect to age-related degradation of SSCs
* Issuance of a renewed license
  - 20 maximum extension
* Conditions of renewed license
  - Existing licensing basis shall be carried forward with the renewed license

## CURRENT LICENSING BASIS (CLB)

* CLB Defined in 10 CFR Part 54 Rule

  - Plant specific.
  - Includes NRC requirements and licensee commitments on the Docket.
  - Foundation for adequacy found in SOC for 10 CFR 54.

* CLB Compiled by Licensee

  - Submit list of documents concerning those portions of CLB relevant to integrated plant assessment.
  - Available for audit.

* CLB Principles

  - CLB adequate for renewal term, except for aging.
  - CLB carried forward
  - No new findings on CLB, not in scope of proceeding.

# BACKFIT CONSIDERATIONS

* BACKFIT RULE DOES NOT APPLY TO LICENSE RENEWAL RULEMAKING.

* BACKFIT RULE WILL APPLY TO REVIEW OF THE LICENSE RENEWAL APPLICATION AND WILL BE INTERPRETED AS FOLLOWS:

  - AGE-RELATED REQUIREMENTS NECESSARY TO ENSURE "ADEQUATE PROTECTION" REQUIRED WITHOUT RESPECT TO COST.

  - AGE-RELATED REQUIREMENTS THAT GO BEYOND CLB WOULD BE SUBJECT TO COST/BENEFIT ANALYSIS AND JUSTIFICATION PROVISIONS OF THE BACKFIT RULE.

* BACKFIT RULE IS OPERATIVE AFTER THE RENEWAL LICENSE HAS BEEN ISSUED.

## INTRODUCTORY REMARKS ON BACKGROUND OF REGULATORY GUIDE DEVELOPMENT

DISCUSSION OF NEEDED REGULATORY DOCUMENTS TO SUPPORT LICENSE RENEWAL RULE USING NPAR PROGRAM RESULTS (1987-89)

POSSIBLE REGULATORY GUIDE CANDIDATES (SECY-89-275)

- o MAJOR COMPONENTS AND STRUCTURES
- o SIGNIFICANT AGING MECHANISMS
- o SELECTION OF COMPONENTS AND STRUCTURES
- o FORMAT AND CONTENT OF TECHNICAL INFORMATION

DECISION REACHED (RES & NRR) IN 1989 TO DEVELOP SINGLE GUIDE ON FORMAT AND CONTENT OF TECHNICAL INFORMATION INCLUDING GUIDANCE ON AGING MANAGEMENT AND SCREENING (SECY-90-021)

# DRAFT R.G. DG-1009

- STANDARD FORMAT AND CONTENT OF TECHNICAL INFORMATION FOR

APPLICATION TO RENEW NUCLEAR POWER PLANT OPERATING LICENSES

# OUTLINE OF PRESENTATION

- PURPOSE
- SCOPE
- FORMAT FOR TECHNICAL INFORMATION
- TECHNICAL INFORMATION CONTENT

SSC IMPORTANT TO LICENSE RENEWAL

SC REQUIRING EVALUATION OF AGE RELATED DEGRADATIONS

UNDERSTANDING AGING

- AGING MECHANISMS

MANAGING AGING

RECORDKEEPING AND TRENDING

# PURPOSE OF R.G. DG-1009

PROVIDE REGULATORY GUIDELINES FOR A UNIFORM FORMAT AND CONTENT FOR TECHNICAL INFORMATION TO BE SUBMITTED AS PART OF LICENSE RENEWAL APPLICATION

# SCOPE

INCLUDES:

- FORMAT AND CONTENT OF TECHNICAL INFORMATION
- CRITERIA FOR SELECTION OF SYSTEMS, STRUCTURES, AND COMPONENTS (SSC) IMPORTANT TO LICENSE RENEWAL
- GUIDELINES FOR
  - UNDERSTANDING AGING
  - MANAGING AGING

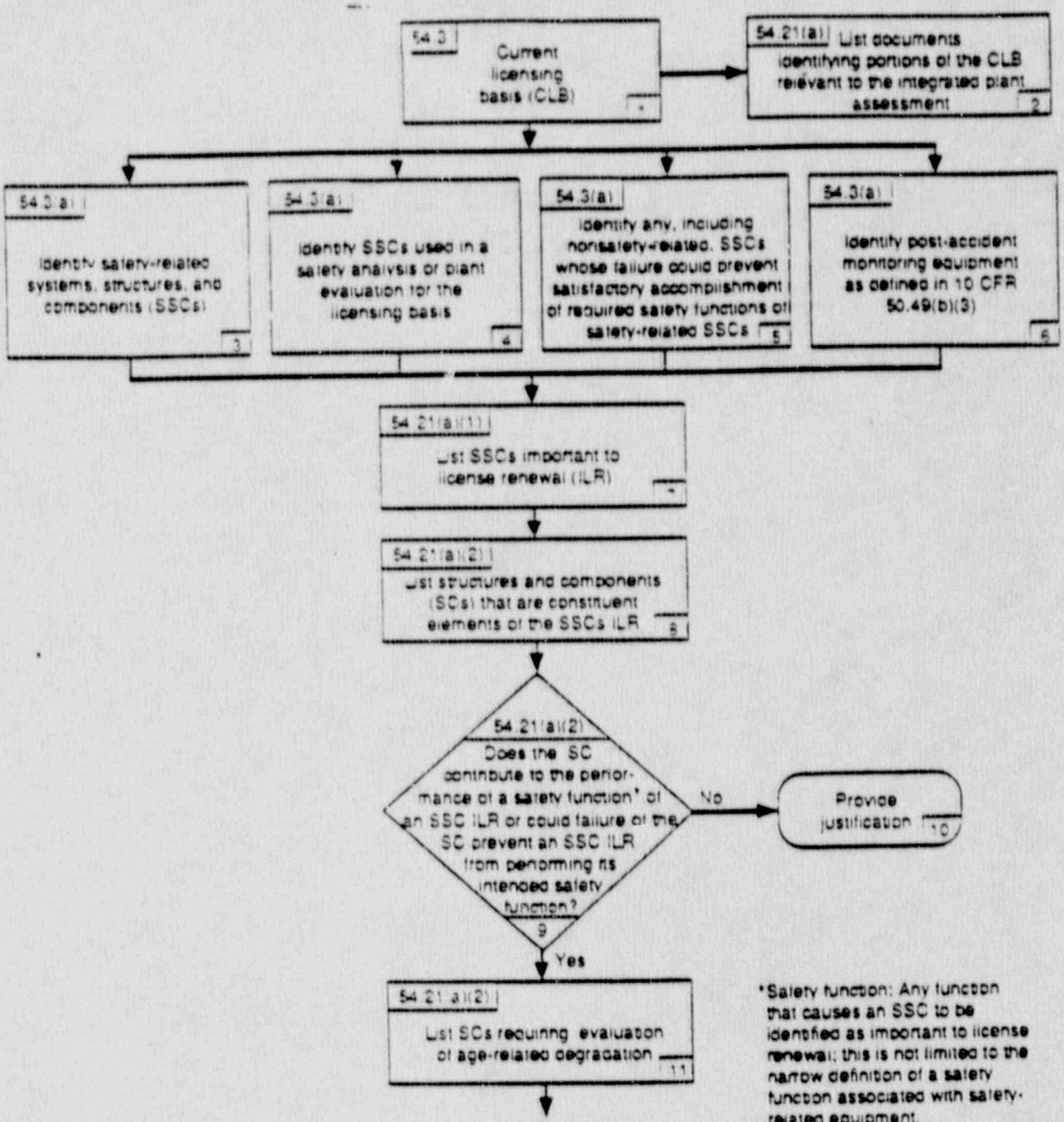
# FORMAT FOR TECHNICAL INFORMATION

- FORMAL APPLICATION
  - SUMMARY OF FINDINGS
  - IMPLEMENTATION PLAN
- FSAR SUPPLEMENTAL INFORMATION
  - SYSTEMS
  - COMPONENTS
  - SUPPORTING DOCUMENTATION

## TECHNICAL INFORMATION CONTENT

PROVIDES GUIDELINES FOR:

- SELECTION OF SSC IMPORTANT TO LICENSE RENEWAL (ITLR)
- INTEGRATED PLANT ASSESSMENT
  - UNDERSTANDING AGING
  - MANAGING AGING
    - ESTABLISHED EFFECTIVE PROGRAMS
    - ACTIONS TO BE TAKEN




*Safety function: Any function that causes an SSC to be identified as important to license renewal; this is not limited to the narrow definition of a safety function associated with safety-related equipment.

Figure 1B

FIGURE 1A
Integrated Plant Assessment -- Identification of Important-To-License-Renewal SSCs and SCs Requiring Evaluation of Age-Related Degradation

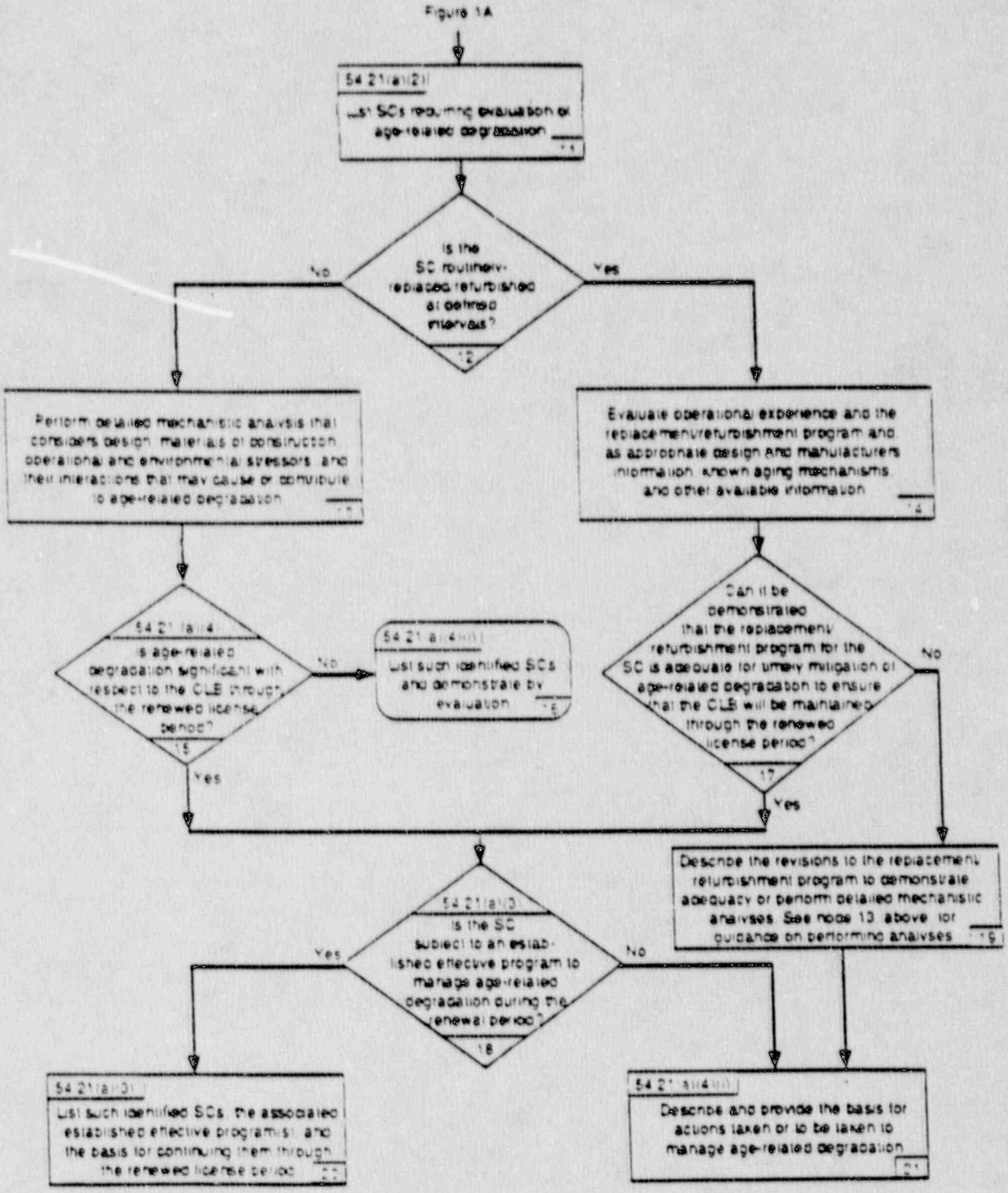



FIGURE 1B
Integrated Plant Assessment -- Evaluation of Age-Related Degradation

- SELECTION OF SSC IMPORTANT TO LICENSE RENEWAL
  - 10CFR54 REQUIREMENTS
  - DETERMINISTIC APPROACH
  - RISK-BASED SUPPLEMENTAL APPROACH

- UNDERSTANDING AGING

  10CFR54 REQUIREMENTS

  MATERIALS

  STRESSORS

  ENVIRONMENT

  SERVICE CONDITION

  MECHANISMS

  DEGRADATION SITES

  ROOT CAUSE(S)

- AGING MECHANISMS

  FATIGUE

  EROSION

  EROSION/CORROSION

  RADIATION EMBRITTLEMENT

  THERMAL EMBRITTLEMENT

  CORROSION

  WEAR

  SHRINKAGE/CREEP

  CHEMICAL EFFECTS/CONTAMINATION

- MANAGING AGING

10CFR54 REQUIREMENTS

INSPECTION

SURVEILLANCE

CONDITION MONITORING

NONDESTRUCTIVE EXAMINATION

ROOT CAUSE ANALYSIS

REPAIR, REFURBISHMENT

REPLACEMENT/CORRECTIVE MAINTENANCE

PREVENTIVE MAINTENANCE

PREDICTIVE MAINTENANCE

ADJUSTMENTS IN DESIGNS,

OPERATIONAL ENVIRONMENT

SERVICE CONDITIONS RG-BU-4

# Standard Review Plan For License Renewal (SRP-LR)

## DRAFT NUREG 1299

* Purpose and Scope
* Organization
* Review Criteria
* Implementation
* Future Revisions

A DOCUMENT WHICH PROVIDES A FRAMEWORK FOR REVIEW AND WHICH WILL BE REVISED AS A RESULT OF PUBLIC COMMENTS AND AS EXPERIENCE IS GAINED FROM INDUSTRY TECHNICAL REPORTS, PILOT PLANT APPLICATION REVIEWS, AND ONGOING RESEARCH.

# PURPOSE AND SCOPE OF SRP-LR

* PROVIDE STAFF GUIDANCE FOR REVIEW OF THE:
  - SUFFICIENCY OF AN APPLICATION
  - APPLICANT'S SCREENING METHODOLOGY
  - POTENTIAL AGE-RELATED DEGRADATION MECHANISMS FROM A:
    + SYSTEM PERSPECTIVE
    + COMPONENT PERSPECTIVE

* REVIEW DEFINED BY 10 CFR PART 54 AND LIMITED TO:
  - SSCs IMPORTANT TO LICENSE RENEWAL
  - AGE-RELATED DEGRADATION CONCERNS

* CONCERNS ARISING FROM CLB ISSUES ARE OUTSIDE THE SCOPE.

* "LIVING DOCUMENT" WHICH WILL BE REVISED AS EXPERIENCE IS GAINED FROM INDUSTRY TECHNICAL REPORTS, PILOT PLANT APPLICATION REVIEWS, AND ONGOING RESEARCH AND AS A RESULT OF PUBLIC COMMENTS.

# ORGANIZATION OF SRP-LR

* DEVELOPMENT OF SRP-LR

* THREE MAJOR SECTIONS:

  - PART A - GENERAL INFORMATION AND DISCUSSION

  - PART B - SYSTEMS

  - PART C - GENERIC COMPONENTS AND STRUCTURES

* GENERAL STRUCTURE FOR SRP-LR PART B AND C SECTIONS

  - REVIEW RESPONSIBILITIES
  - AREAS OF REVIEW
  - ACCEPTANCE CRITERIA
  - REVIEW PROCEDURES
  - FINDINGS
  - IMPLEMENTATION
  - GENERAL INFORMATION
  - REFERENCES

## SRP-LR PART A - GENERAL INFORMATION AND DISCUSSION

* DESCRIBES THE PURPOSE, SCOPE, AND ORGANIZATION OF SRP-LR.
* DESCRIBES THE GENERAL REQUIREMENTS OF THE LICENSE RENEWAL RULE.
* PROVIDES A DETAILED CHECKLIST TO BE USED WHEN EVALUATING THE SUFFICIENCY OF A LICENSE RENEWAL APPLICATION.

## APPENDIX A

* PROVIDES GUIDANCE FOR THE STAFF REVIEW OF THE APPLICANT'S SCREENING METHODOLOGY FOR IDENTIFYING SSCs IMPORTANT TO LICENSE RENEWAL.

## SRP-LR Part B - Systems

* Provides guidance for the staff system level review to determine if renewal applicants have:

  - Identified aging mechanisms for SCs of concern and

  - Described established effective programs, program modifications, or new programs which address aging degradation concerns or

  - Provided analysis of age-related degradation which establish that degradation for the renewal term is not significant.

## SRP-LR Part B (cont.)

* Organized on a system basis
  - Not all systems expected in a renewal application are specifically included in SRP-LR Part B.
  - A generic system chapter provides staff guidance for systems not specifically addressed.
* For individual components or structures within a given system, the appropriate sections of SRP-LR Part C are referred.

## SRP-LR Part C - Generic Components and Structures

* Provides review criteria for specific groups of components and structures.

* SRP-LR Part C expected to be the dominate part of SRP-LR from a technical view point.

## Review Criteria

* SRP-LR contains specific criteria related to managing aging degradation concerns for individual SSCs.

* In general, these new criteria:

  - Are additional inspections or analysis which may or may not be currently required but which will be used to determine the actual status of SCs from an aging perspective.

  - Are derived from the NPAR Program, plant experience, and engineering judgement.

* These criteria will evolve as a result of public comments, Industry Technical Reports, and pilot plant reviews.

## Implementation of SRP-LR

* License renewal application received.
* Application sufficient to commence detailed review.
* Review of screening methodology.
* Review from a systems, component, and structure perspective.
* Integration into a composite safety evaluation report.

## Future Revisions

* Future revisions will be based upon:

  - Public comments.

  - Experienced gained from the review of Industry Technical Reports.

  - Experienced gained from the review of the pilot plants.

  - Experienced gained from the NPAR Program.

## INDUSTRY REPORTS

| | TITLE | DATE ISSUED | DATE OF STAFF COMMENTS |
|---|---|---|---|
| 1. | PWR CONTAINMENT | 8/30/89 | 6/4/90 |
| 2. | BWR REACTOR VESSEL | 10/16/89 | 4/2/90 |
| 3. | BWR VESSEL INTERNALS | 2/23/90 | 7/6/90 |
| 4. | PWR REACTOR VESSEL | 5/25/90 | 9/14/90 |
| 5. | PWR VESSEL INTERNALS | 9/21/90 | 12/2/90 |
| 6. | CLASS I STRUCTURES | 6/11/90 | 10/15/90 |
| 7. | PWR REACTOR COOLANT SYSTEM | TO BE SUBMITTED | |
| 8. | CABLE IN CONTAINMENT | 7/31/90 | 10/22/90 |
| 9. | BWR PRESSURE BOUNDARY | 9/18/90 | 12/2/90 |
| 10. | BWR CONTAINMENT | 7/25/90 | 10/15/90 |
| 11. | SCREENING METHODOLOGY | 10/6/89 | 5/31/90 |