UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON STATUS OF IMPLEMENTATION OF THE SEVERE ACCIDENT MASTER INTEGRATION PLAN AND STATUS OF LICENSEE PROGRESS ON IPE

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BRIEFING ON STATUS OF IMPLEMENTATION OF THE SEVERE ACCIDENT MASTER INTEGRATION PLAN AND STATUS OF LICENSEE PROGRESS ON IPE

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PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Thursday, December 14, 1989

The Commission met in open session, pursuant to notice, at 10:00 a.m., Kenneth M. Carr, Chairman, presiding.

COMMISSIONERS PRESENT:

KENNETH M. CARR, Chairman of the Commission
THOMAS M. ROBERTS, Commissioner
KENNETH C. ROGERS, Commissioner
JAMES R. CURTISS, Commissioner
FORREST J. REMICK, Commissioner

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STAFF SEATED AT THE COMMISSION TABLE:

WILLIAM C. PARLER, General Counsel

JACK GUTTMANN, Office of the Secretary

JAMES TAYLOR, Executive Director for Operations

ERIC BECKJORD, Director, Office of Research

THOMAS MURLEY, Director, Office of Nuclear Reactor Regulation

THEMIS SPEIS, Office of Research

BILL BECKNER, Office of Research

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

10:00 a.m.

CHAIRMAN CARR: Good morning, ladies and gentlemen.

This morning the Commission will be briefed by the NRC Office of Research and the Office of Nuclear Reactor Regulation on the status of implementation of the severe accident master integration plan and the status of the licensee progress on individual plant examinations, an element of the plan.

The Commission was first briefed by the staff on the plan in June of 1988. Following that meeting, the Commission requested to be kept informed of the status of implementation. This is the purpose of today's meeting. The Commission was last briefed on this subject in April of 1989.

In preparation for this meeting, the staff has provided the Commission with SECY-89-308, Status of Implementation of Integration Plan for Closure of Severe Accident Issues. The plan is a description of all severe accident programs currently being undertaken by the Commission. It describes how the Agency will reach closure on these programs and the interrelationships among the various programs in order

to assure consistency between programs and consistency with Commission policy and strategic goals.

This is an information briefing this morning and no Commission vote is planned on this issue today. It is my understanding that copies of the staff slide presentation and staff's paper, SECY-89-308, are available at the entrance to the meeting room.

I might welcome our new EDO, Mr. Taylor, and also our new Commissioner, Doctor Remick.

Do any of my fellow Commissioners have any comments they wish to make before we begin?

If not, Mr. Taylor, you may proceed.

MR. TAYLOR: Thank you, sir. With me at the table to my left are Bill Beckner and Themis Speis from the Office of Research, and the Director of the office, Eric Beckjord, immediately to my right, and Tom Murley, Director of NRR.

The staff, as you indicated, sir, in its briefing, will indicate the progress that has been made and quickly I'll mention that numbers of things have been happening in the staff's plan for severe accident integration and the work associated with it. For example, the Mark I containment performance improvement program recommendations are being implemented. The IPE process has started and you'll

hear more about that. The staff has been working with NUMARC on the accident management area and shortly we hope the staff will be ready to make recommendations for the individual plant examination process, considering external events and for containment performance improvement for other containments and Mark I.

Today's briefing is a status report and with regard -- you will be given the current schedule for submissions of the individual plant examination information from licensees and you'll see that schedule as part of today's briefing. It will cause us to look at the resources in that area, but the resources will be part of -- most of the work will come in the fiscal year '92 budget. So, when you see the schedule, we'll be looking at that as we plan our next budget and working with the licensees on those schedules.

With that introduction, I'll now turn it over to Eric Beckjord, who will proceed.

MR. BECKJORD: Thank you.

Mr. Chairman, Mr. Taylor has referred to the progress in the implementation plan and I just wanted to emphasize that. We've passed a number of milestones. There are still a number yet to pass.

I wanted to comment briefly on the severe accident research element of this closure plan. We had a meeting last week of the Severe Accident Research Subcommittee of the Nuclear Safety Research Review Committee. We held that in Chicago last week to go over the work that's underway since the severe accident research plan was published last April. We went over the status, the work underway and the plans for future work with them. I think it was evident to everyone present at that meeting that we've made a lot of progress in getting that revised severe accident research program plan underway.

In the near term, severe accident research is focusing on the mechanisms that could lead to early containment failure, including direct containment heating in the case of the PWRs and liner melt-through in the case of the Mark I BWR.

I want to say also that next week we're holding a two day meeting on direct containment heating at Annapolis, calling together all of the research contributors to this effort for the purpose of evaluating recent information and deciding on where to focus the work and which set of experiments to do next.

We're continuing to make sure that the

severe accident research effort focuses on the key issues that come out of this severe accident resolution plan. I just wanted to make that comment on the research.

Now, Doctor Speis will go through the progress with you in detail.

DOCTOR SPEIS: Thank you.

(Slide) Mr. Chairman, Commissioners, viewgraph number 2 lists the elements of the integration plan which I will go into some detail. Basically, I will talk about the status of the individual plant examination program for both internal and external events, the containment performance improvement program for the Mark Is as well as the work that we have concluded so far on the other containments. I will talk about the status of the accident management program. Then I will bring you up to date with what's going on with the peer review on NUREG-1150, safety goal implementation and say a few more things about the severe accident research program.

(Slide) Viewgraph number 3 begins the status of the individual plant examination for internal events. Since the last briefing of April 1989, we have issued the final NUREG-1335, which

contains the submittal guidance for the individual plant examinations. We have also issued supplement to the original generic letter, which started the IPE clock and contained the Mark I improvements which the Commission decided should be incorporated with the IPE, all of them except the hardened vent issue, which I'll shortly discuss the status with you.

(Slide) If we go to page 4, at present we have under preparation Supplements 2 and 3 with the original generic letter. One of them will contain the guidance on all the containments and the other one will provide additional information on accident management strategies.

The licensee plans and schedules for the IPE have been submitted and, as Mr. Taylor said, at present we are going through the development of the review plan.

(Slide) On page 5, I indicate graphically the submittals as a function of time. Basically all licensees have responded to the generic letter. As is shown here, the solid line shows the total IPEs versus time. The bars indicate the submittals per quarter, starting from '90, all the way up to '94. You see that the peak happens at the last day of the FY '92. That's the date that we requested those submittals be

provided to us. In FY -- yes?

COMMISSIONER REMICK: Excuse me. Did you say that all the licensees have responded?

DOCTOR SPEIS: Yes.

COMMISSIONER REMICK: They have?

DOCTOR SPEIS: They all have responded. You see, all of them will be able to meet the date except 18 of them, which I have on the next viewgraph.

So, if there are no questions on this --

COMMISSIONER ROGERS: Yes. Do any of these -- will any of these contain external events or are these all relative to internal events?

DOCTOR SPEIS: One or two will contain external events.

COMMISSIONER ROGERS: One or two will?

DOCTOR SPEIS: I should have said that all of them have opted for a complete PRA.

COMMISSIONER ROGERS: Oh.

DOCTOR SPEIS: Some of them will do the IPE that was developed by ECOR, but the insides of the IPE will default it into a complete PRA. But in the letters, they all indicate that they will be submitting complete PRAs to us.

COMMISSIONER REMICK: I'm pleased to hear that.

COMMISSIONER ROGERS: Yes.

DOCTOR SPEIS: (Slide) On page 6, as I said already, there are 18 late submittals. I think for most of them there are very good reasons. Some of them, they gave no reason at all why they're late.

COMMISSIONER ROBERTS: Have you got an answer why that gives us those 18?

CHAIRMAN CARR: What's a good reason?

DOCTOR SPEIS: Yes. A good reason is they want to do some more work, expanding before the generic letter. For example, to include level 2 and 3 PRA. Another reason is they want to do the work themselves, the major part of it. Even though we told them that it's very important that they participate, some of them want to do 80 percent or 90 percent, so they would need some more time.

DOCTOR MURLEY: Another reason, if I might add, is that some utilities have four, six, 12 plants and it makes sense for them to do it in series and then learn as they go and not have to do it all at once.

MR. TAYLOR: That's probably one of the best reasons for it.

DOCTOR MURLEY: Yes.

CHAIRMAN CARR: Could we get a list of those

guys who are going to be extended?

DOCTOR SPEIS: Yes. I can even show it to you now, Mr. Chairman, if you want to.

CHAIRMAN CARR: Okay. Let's look at it.

DOCTOR SPEIS: (Slide) Back up slide number 3, please. Back up slide number 3, please. There it is.

COMMISSIONER REMICK: Is Millstone 2 related to the PRA, doing a PRA?

DOCTOR SPEIS: Yes, they're all going to do PRAs.

COMMISSIONER REMICK: No, but is the delay due to completion of the PRA?

DOCTOR SPEIS: I will provide the information on. I don't know if --

MR. BECKNER: I think they're doing four plants is the reason they're doing them in order.

COMMISSIONER ROGERS: What about Vermont Yankee? That's a single unit plant. But is it because it's part of the Yankee system or --

MR. BECKNER: Yes, I think that's the same reason. They're doing their own.

CHAIRMAN CARR: Well, I don't know about my fellow Commissioners, but I'd like to see the -- how about sending us a little note on the reasons that

they've all put forward --

MR. TAYLOR: We'll give that to you, each one. There are multiple commonwealth plants too, as you can see.

DOCTOR SPEIS: (Slide) Back to slide number 6, please.

As you see, the second bullet down, we're looking carefully the review process. But when we discussed the IPE, we had estimated at that time that it would take about six person months per plant to review the IPE submittal and that included any proposed modifications. We're taking a closer look at that, especially in light that most of the insights from the containment performance program will be folded into the IPE program itself. So, we're taking a closer look at that estimate that we provided to you a year or so ago.

CHAIRMAN CARR: Okay.

DOCTOR SPEIS: It is our plan to complete all the reviews by FY '95, which is one year after the last arrival basically.

COMMISSIONER ROGERS: Just on this, it looks to me like you've got a great big load there you're going to have to deal with. To what extent are you kind of standardizing the format of the

submissions and things like this, or that might not be able to help, but anything that would help us to move through our reviews of these as quickly as possible, doing a thorough job, but just so we don't have to spin our wheels while we're looking at totally different formats of the submissions or whatever. I don't know. To what extent can we request that these things come to us in a way that we can deal with them?

DOCTOR SPEIS: Well, we provided the-- there are standard review guides for preparing PRAs and they all have access to them.

COMMISSIONER ROGERS: Well, do you have things like a format? I mean that's the basic content, but it could be scattered all over in different ways sometimes.

DOCTOR SPEIS: Yes. In fact, the NUREG that I mentioned earlier, NUREG-1335, provides that, provides a detail --

COMMISSIONER ROGERS: Suggested format?

DOCTOR SPEIS: Yes, sir. Yes, sir. So that will make things -- in addition to that, we're preparing review guidance for the staff, to make sure that they're focusing somewhere important areas. We have been reviewing PRAs for the last ten years and we realize that there is no use to -- there are some

areas that need more attention than others and we're trying to distill that knowledge that we have gained the last ten years and put that forward in the guidance of the staff.

The other thing that --

CHAIRMAN CARR: Well, now, the review is going to be completed in '95. That's including all the late submittals?

DOCTOR SPEIS: Yes.

CHAIRMAN CARR: But, as I remember, any action that the plants turn up that they think ought to be required, they're supposed to go ahead and do as soon as they find it.

DOCTOR SPEIS: Yes, sir.

CHAIRMAN CARR: Okay.

DOCTOR SPEIS: If we go -- everything that I have said so far has been referring to internal events. Let's go to slide 7 now.

COMMISSIONER CURTISS: Before you go on to the external events --

DOCTOR SPEIS: Yes.

COMMISSIONER CURTISS: -- one other quick question on the relationship of the internal to plant life extension. Will the bulk of the IPE evaluations and the fixes that might flow from that be completed

prior to when we expect to get into plant life extensions and separately?

DOCTOR SPEIS: Yes, sir. Yes. That would be made very clear in the rule itself or in the statement of considerations and would have been discussing with industry. Yes.

MR. TAYLOR: That's the plan.

DOCTOR SPEIS: That's the plan, to make sure that --

COMMISSIONER CURTISS: Thank you.

DOCTOR SPEIS: (Slide) Back to slide number 7 then on external events. We have prepared a draft generic letter to provides -- puts together the guidance for external events. We have put it in the PDR. We have given it to industry for their comments. We have discussed so far with the ACRS only the seismic part, preliminary discussions. We have not sent them the whole package yet.

We have had discussions with NUMARC. In fact, the last two or three weeks we had about three meetings with them.

Basically, we'll be recommending examination in the areas of seismic and will have two options, either use the so-called deterministic margin approach that both we and EPRI has been developing, or a PRA

method. In the fire area, we'll --

COMMISSIONER REMICK: Before you leave that --

DOCTOR SPEIS: Yes.

COMMISSIONER REMICK: -- do you have a preference there? If they are all doing PRAs, wouldn't there be some advantage to doing the seismic PRA versus the margin?

DOCTOR SPEIS: Well, some of them might prefer to use margins. It's easily understood. A lot of work has been done and the methodology is very well developed. So, it will be up to them. It's an option basically.

COMMISSIONER REMICK: Do you have any indication how many will opt for the margins?

DOCTOR SPEIS: We have no indication as yet.

In the area of fires, again, the option, it's either a PRA or some more simplified methodology. NUMARC has volunteered to develop methodology and then, following interactions with them, hopefully we can agree on that. But they're a little bit late, even though they told us they would provide the draft some time at the end of January, and we'll start the dialogue with the ACRS. But if, in parallel, the work, we'll just have to see if we can come up with

something soon because our intent is to get this generic letter out as soon as possible because some utilities would like to integrate the external events with internal events. So, we don't like to delay.

The only thing that could delay maybe for a few months is in the area of the seismic, there are some substantial differences between the industry and us, especially in the selection of the hazards. This is the curve that provides the probability versus the intensity of the earthquake. Our contractor at the Lawrence Livermore Laboratory has put some hazard curves and EPRI has done the same thing for industry. In some areas there are some substantial differences. So, we'll have to work very hard the next few months to basically make a decision which way, which curve to select or maybe both or whatever. So that's a very difficult area.

COMMISSIONER REMICK: In the fire area, NUMARC hasn't submitted a draft to you yet to see what they have in mind?

DOCTOR SPEIS: No. They will at the end of January, they promised. But meanwhile, we have put this draft letter with some open holes basically. So, our intent has been to recommend to get the package to the Commission in the spring. But as I say, it's

possible that this date could be delayed for a few months. But as I say, we'll try very hard to come to grips with some of the difficult issues, especially the seismic one.

CHAIRMAN CARR: Is the intent to do the seismic and the fire and whatever other hazards come up at the same time or in the same package, or are you looking for those as a series submittal?

DOCTOR SPEIS: No, in the same package. We want to get the whole seismic -- excuse me, external events package, yes, sir.

CHAIRMAN CARR: Okay.

COMMISSIONER REMICK: Before leaving that, you talk about screening examination for other hazards. Could you elaborate a little bit? I'm not sure I understand what you mean.

DOCTOR SPEIS: Bill, do you want to say something?

MR. BECKNER: Basically, the other hazards are high winds, including tornadoes, floods, external floods, and military and industrial facilities nearby. By and large, we feel the design basis protects adequately in those areas and we're just proposing a screening to confirm that on a plant specific basis.

COMMISSIONER REMICK: Screening by whom, by

the licensee or you mean screening --

MR. BECKNER: By the licensee.

COMMISSIONER REMICK: -- by the staff of submittals?

MR. BECKNER: It's a progressive screening approach. If you confirm that you indeed meet the current design basis, that would be it. Then it becomes a progressive looking at different types of analyses to try to screen it out, either frequency of the event or a bounding type analysis. But we believe that in general the plants are designed very conservatively in these areas and we're just looking for isolated things that may have been missed, a smokestack from a nearby facility that's not nuclear, that type of thing.

CHAIRMAN CARR: Or encroachment.

MR. BECKNER: Correct. That's another major thing, is that the sites have changed over time.

DOCTOR SPEIS: (Slide) Leaving the IPE and going to containment performance improvement program on slide 8, 19 of the 24 Mark I plants have chosen to install a hardened vent. The remaining five Mark I plants have said that there is not good justification in their minds, so will proceed to give a plant specific analysis. Of those five, I should say that

one of them feels very strong. The other four, they want to take another look at it. By the way, the other four Mark Is are the so-called Mark I plants that have -- in addition to a suppression pool, they have an isolation condenser.

So, we agree with them that it's least cost beneficial for those plants in relation to the other ones because they have the diverse or the redundant availability of water there. So, it's not going to be as cost effective, but we still feel it's cost effective, but not as cost effective as for the other ones.

COMMISSIONER CURTISS: The plan for those five plants is to conduct a cost benefit analysis?

DOCTOR SPEIS: Yes. Yes, sir, a plant specific one.

COMMISSIONER CURTISS: Okay.

DOCTOR SPEIS: And the four isolation potential plants are the Oyster Creek, the two Dresden plants and the Millstone 1.

COMMISSIONER REMICK: When you say hardened vent, I assume this is bypassing their standby gas treatment with a -- are any of them hardening the standby gas treatment facility? Nobody is talking about using the standby gas treatment then as part of

the venting?

DOCTOR SPEIS: I'm not so sure we have seen the specifics.

COMMISSIONER REMICK: Yes, okay.

DOCTOR MURLEY: It wouldn't be practical, I don't think, to harden standby gas treatment to 20 or 30 psi.

CHAIRMAN CARR: So, once we've identified the four with the isolation condensers, who is the guy that feels strongly?

DOCTOR SPEIS: Fitzpatrick.

DOCTOR MURLEY: Fitzpatrick.

DOCTOR SPEIS: Of course, for Mark I, the other improvements were sent to the licensees via the IPE generic letter.

For the other containment types, we have developed preliminary conclusions. We have already given them to you in a SECY paper and we're proceeding to finalize our conclusions and our findings. I can report at this time that we don't think that there will be a need for any generic recommendations similar to those made for Mark I.

Here we're talking about nine Mark IIs and four Mark IIIs. The generic recommendations that we have distilled from all the studies that have been

done will be given to them for their information, to be considered in the IPE program. For example, for ice condensers and for Mark IIIs, we'll tell them to take another look at diverse power sources for the ignitors. At present, the ignitors are connected to the diesels, so if you have a station blackout. So that's one example. Okay?

COMMISSIONER REMICK: Incidentally, I was pleased to read in the SECY document and what you say, that you are integrating those containment performance improvements with the IPE process, I sincerely believe that's the way to do it, unless there's something that really is outstanding that was identified, and since you didn't do that, I think it would be a good idea to integrate it.

DOCTOR SPEIS: The other reason is that on most of these improvements, the risk reduction is not as strong and as obvious as it was for Mark I plants and there are many reasons, the volume of the plant. But I guess the other basic reason is that they're so different. For example, the Mark IIs, they all have a different pedestal design. I have to be careful how I say that word. But again, our initial thoughts are in the SECY paper that we have provided to you and we're packaging our final recommendations. They will be

going to the ACRS and CRGR and it is our intent to provide it to you very early next year.

COMMISSIONER ROGERS: Well, do I understand you correctly that you don't really intend to normalize these plants to one another with respect to the question of venting the containment, is that it? In other words, that this would just be part of the IPE evaluation for each individual plant? In other words, you won't deal with the venting question --

DOCTOR SPEIS: The venting will be in this generic, the insights to be included as part of the IPE. For example, tell them that there are benefits to hardened venting even for Mark IIs and Mark IIIs. But right now, we don't think we can justify, either on the cost benefit or -- there are so many plant unique differences that we cannot be very explicit about -- you know, "Oh, my God, you should accelerate this ahead of the IPE," basically.

COMMISSIONER ROGERS: NO, no, but I mean even within the IPE process, you won't focus particularly on the venting question for Mark IIs.

DOCTOR SPEIS: Yes. We will ask them to explicitly -- that's one of the things that should be considered.

COMMISSIONER ROGERS: Well, it's part of the

process. But what I'm saying is that the decision on whether to vent or not will not be just solely on some basis in which you look at the Mark II containments for those nine plants and make a decision or a recommendation or whatever based on that. It will be folded into the total IPE process.

CHAIRMAN CARR: It's going to be plant specific.

DOCTOR SPEIS: Yes. They have to address it --

COMMISSIONER ROGERS: They have to address it.

DOCTOR SPEIS: -- on a plant specific basis.

COMMISSIONER ROGERS: But you won't pull it out the same way we have in the Mark Is.

DOCTOR SPEIS: No. No. No. No. That's basically what I was saying.

COMMISSIONER ROGERS: Yes. Okay.

CHAIRMAN CARR: Let me ask you, in the SECY-89-308 you say the recommendations from the CPI program, on other containment types it will be broader than for those, for Mark I plants. What do you mean by broader?

DOCTOR SPEIS: We're not going to have detailed cost benefit analysis. It will be a kind

of -- we have gone through all the PRAs, the NUREG-1150, the research and we see that there are some things that make sense to be considered. But they're going to be very specific, you know, details, valves and power sources. For example, in venting for Mark I, we went into great detail and discussed the power sources associated with the -- it's all going to be that type of detailed analysis.

DOCTOR MURLEY: Broader means, I think, less specific.

DOCTOR SPEIS: Less specific, yes.

(Slide) On page 9, the accident management, again it's one of the key elements for closure. If you'll recall, the three key closure elements was the IPE, the CPI and accident management. We have put together a -- based on discussions with the Commission before, we have put together a number of strategies which we are pushing through the ACRS and the CRGR at the present time, to be sent to utilities for their consideration now or during the IPE.

We have gotten a letter from the ACRS in essence agreeing with us. They've told us that, "Maybe you will be confusing the world by calling them strategies versus emergency operating procedures as they have been called in the past." I feel the

industry understands what we mean but maybe we should be more careful and come up with one definition. In fact, industry will have a flexibility of deciding what to do with these so-called strategies or procedures that go farther into the severe accident area. They can either extend the existing emergency operating procedures or maybe put them some different place. But again, industry will have that flexibility to do that.

We're working with NUMARC to create the framework. So, as the information is developed, either from the IPE or from research in the future, that information is evaluated for its worth in either preventing or mitigating accidents basically. That's the big thing that we're working with NUMARC right now.

The detailed guidance, summarizing all this work, will be ready in 1991 and we hope that really at that time we'll be able to endorse the work that NUMARC is doing with the utilities. That's our objective.

CHAIRMAN CARR: For one, I'd like to see that sometime before it's 1991. Can you give us a progress report halfway --

DOCTOR SPEIS: Oh, yes.

CHAIRMAN CARR: -- or something to find out where you're going?

DOCTOR SPEIS: Yes, sir. In fact, we will be coming to you before we issue this letter on the strategies.

CHAIRMAN CARR: Okay. That's bullet 2?

DOCTOR SPEIS: Yes, sir.

CHAIRMAN CARR: We'll see it before it goes out to industry?

DOCTOR SPEIS: Yes.

CHAIRMAN CARR: Okay.

DOCTOR SPEIS: You have given us guidance.

CHAIRMAN CARR: I just want to make sure you're carrying it out.

DOCTOR SPEIS: Yes. No question about it.

COMMISSIONER REMICK: Themis, I would appreciate getting a copy of that NUMARC guidance that you can provide.

DOCTOR SPEIS: Sure.

COMMISSIONER REMICK: I have not seen that. I'd appreciate getting a copy of that to look at.

DOCTOR SPEIS: (Slide) On page 10, the status of the NUREG-1150, the only thing I can say is it is on course. Our plan is to complete it in mid-1990.

Mr. Beckjord, do you want to add anything to it?

MR. BECKJORD: Well, the Peer Review Committee will be meeting in March to draft their paper on the 1150. They may -- it's possible that they might issue it in April. It's possible it might be, I'm not sure about that. But certainly by mid-year, we will have the report.

CHAIRMAN CARR: From what you know already, has that been a worthwhile effort?

MR. BECKJORD: Yes.

COMMISSIONER ROGERS: Do you think that there's any possibility that any significant new guidance might come out of that relative to external events?

MR. BECKJORD: Well, I don't want to try to second guess. I expect they're going to have some things to say. I don't know that it will be about external events though. I think it's more likely it will be in the severe accident area.

DOCTOR SPEIS: (Slide) Page 11, Mr. Chairman, safety goal implementation. Our proposal basically is in front of the Commission. Meanwhile, we are proceeding according to proposals contained in SECY-89-102 in a number of areas. For example,

there's a listing of generic issues. You sent us back to make sure that we have further discussions with the ACRS and make sure that we settle our differences, and if there are any differences, make sure that we understand what those differences are.

One of the areas that we have been discussing lately is the concept of adequate protection as it relates to the safety goal. There is a -- we put a draft paper together, we sent it to the ACRS to make sure that they agree or disagree. They sent us back some comments. That Commission paper now has been revised and it's on the way to you. It's at the EDO's office at the present time.

Basically, the bottom line as far as safety goals is that both we and the ACRS agree that they shouldn't be used to make plant specific licensing decisions. There's no question about that. But that's the only thing I want to say at this time regarding the safety goal, unless there are any questions.

COMMISSIONER ROGERS: How do you think we will use them though in the aggregate, particularly with respect to some of the qualitative goals?

DOCTOR SPEIS: Well, let me go to the quantitative. For example, when we get the IPEs back,

all of them, evaluate them, the safety goal is there. You know, the core melt frequency, the larger release category. If some of the IPEs indicate, or maybe a number of them indicate that somehow the results are substantially at odds with the safety goal, we'll try to address why, in terms of the regulations though. Maybe there is something peculiar or something unique or something in the regulations that allowed this thing to happen or maybe it's something specific to the plant. Then we will proceed to recommend to you some changes to the regulations, via rulemaking or some other way that you people might think it's worthwhile.

But the basic thing that we will address when we get the IPEs or PRAs, why there are differences. Okay? But that why will be in relation to the regulations. We're not going to take that specific plant and say it meets or it does not meet some number. That's the bottom line.

COMMISSIONER ROGERS: I understand, but once you have all the IPEs, you'll have the whole constellation of the United States plants.

DOCTOR SPEIS: Right.

COMMISSIONER ROGERS: And there they are. Now, this is -- now we can look at what the

qualitative aspects of the safety goals are, whether we think they're being met or not.

DOCTOR SPEIS: Qualitative --

COMMISSIONER ROGERS: Well, we had two quantitative and two qualitative goals or at least one can talk about them that way. I'm just curious as to what we're going to do with these things. We've got all the plants there now. You've got the IPEs, we've got the whole collection.

DOCTOR SPEIS: Well, we feel that even based on what we know right now that all plants meet the two quantitative safety goals that are out already, the health effects safety goals.

COMMISSIONER REMICK: Including external events?

DOCTOR SPEIS: Well, maybe I should be more careful. Is Mr. Wayne Houston here?

DOCTOR MURLEY: Well, can I say something? On the IPE, Mr. Commissioner, I'm not certain yet that we're going to be reviewing these to the kind of detail that we can validate the numbers that come into us. That's not the -- in my mind, that wasn't the original intent of doing the IPE. It was mainly to look for --

COMMISSIONER ROGERS: Yes. Well, I don't

think we can redo the IPEs, no.

DOCTOR MURLEY: -- to look for some areas that they need to improve their plant. So, the numbers that come in are going to have a wide range of quality to them. My own judgment, there's big factors of uncertainty that come in with these numbers. So, I always get nervous when we start down this path of trying to compare somebody's analysis with a goal because I'm quite sure that by judicious use of human error rates, of common mode failure rates, of seismic fragility, that I can change a PRA number by some large factor --

COMMISSIONER ROGERS: Yes, sure.

DOCTOR MURLEY: -- judgmentally like that. And so, I think that's what, for some number of years, has given the staff a lot of trouble in how we do want to use the safety goals.

COMMISSIONER ROGERS: Well, I know, but-- that's right, it's giving us all trouble, but there they are out there and we're talking about safety goal implementation. We keep using these words. I think we have to go back and look at the whole thing. There it is. It's called a safety goal. We can't just take a piece of it and say, "Well, we feel comfortable with doing a measurement or something on that." I think we

have to look at the whole thing at this time, sometime. If not now, when?

So, I'm just curious as to how we're going to try to deal with that.

MR. TAYLOR: We're going to have to do a lot of cross look and see what is the benefit of any action that we would propose.

COMMISSIONER ROGERS: We all agreed, I think, all along that you don't use these to make a decision on an individual plant. That's correct. But now you've got these analyses for every single plant in the country with varying uncertainties in the numerical scores that come out and we understand that. But now, there they are. How do we use these? Do we put the qualitative goals up there on the wall and say they look nice and there they are and here we have all these plants, but there's no way of really, somehow or other, making a statement about the plants that assures us that when all is said and done we are meeting to, within some degree, what those goals are.

These are the tough questions. They're not easy questions. I'm not suggesting they are, but I'm just asking you to what extent you're going to try to come to grips with that.

MR. HOUSTON: If I may, Wayne Houston from

the staff. To try to respond to your question, I think an aspect of the real answer, perhaps the best answer to your question is that from PRAs on existing plants, the kinds of things that we can learn are places where improvements can be made in the future. So, I think really what we will see happen in the next several years, vis-a-vis safety goals, will really be more directed towards questions associated with requirements for future plants that we've learned on the basis of experience and PRA analysis, including IPE analysis on present operating plants.

The IPE program itself will produce Level I PRAs for all these plants and although it's true that the total of them may not be completed until 1993 or 4, in the meantime we will have a very large sample in a couple of years of those analyses. They should begin to give us the kinds of insights that should be very helpful in answering some of the key questions as we face them with respect to requirements for future plants.

So, it's the applicability of the goals to the future plants that I think is perhaps most relevant. The questions of whether or not these PRAs, the IPEs can have a significant effect on operating plants then has to be subject to the provisions of the

backfit rule which is a very different kind of a cost benefit question than it is for a forward looking rulemaking activity.

COMMISSIONER ROGERS: Well, I'm not entirely comfortable with that approach, but I'm not sure we want to get into a debate on it. But it does seem to me that once we've got an individual plant examination for every plant in this country, that we should be asking ourselves whether we feel comfortable that when all is said and done, that we have satisfied the safety goals that we wrote down and said are -- not for future plants, for the plants that we have now. Future plants is another question in my mind.

So, I don't want to duck the first question by saying, "Well, it's really relevant to the future plants," because one could immediately interpret that to say that we are not sure about the present plants. I think maybe we're not so sure that we -- I think we feel relatively confident about the present plants, and I don't think we should duck the issue.

MR. TAYLOR: I agree and we do have the results, for example, in NUREG-1150, which is a very extensive --

COMMISSIONER ROGERS: But it's just that number that's smaller.

MR. TAYLOR: Just that number. But there is some assurance to be taken out of what is there. We will get a big broad picture. I think we haven't-- this is -- I think where we see things that may require further analysis, we may have to go to work either ourselves, but I don't know that we're in a position to say specifically what we're going to do in all cases.

COMMISSIONER ROGERS: Well, I just want to keep pressing on it.

MR. TAYLOR: We're going to keep -- right.

COMMISSIONER ROGERS: It's not the first time I've asked about that.

MR. TAYLOR: Right. I think there's a lot of work to be done and we're going to --

MR. BECKJORD: It's going to depend a lot on what comes out of the IPE.

MR. TAYLOR: Right.

MR. BECKJORD: What the numbers are.

MR. TAYLOR: And we will be telling the Commission and we will be coming to the Commission if there are any major concerns. As Wayne says, we have the backfit criteria to help us make our decisions. If they're in a class of plants we learn something new that we haven't recognized, we're going to have to

address it.

COMMISSIONER REMICK: Certainly I think at the end of this process, the IPE process, we're going to be in a much better position than we've ever been in making some subjective judgment. Does it look like these plants meet the safety goals or not?

MR. TAYLOR: Yes.

COMMISSIONER REMICK: They're not quantitative exactly, but we ought to be able to make some subjective judgment.

MR. TAYLOR: We ought to be able to make-- yes.

COMMISSIONER REMICK: Better than we've ever been before.

MR. TAYLOR: Right. We're going to have a lot more knowledge, yes, and information.

COMMISSIONER REMICK: Right.

COMMISSIONER ROGERS: And then I think we ought to do it.

COMMISSIONER REMICK: Yes.

COMMISSIONER ROGERS: Make the judgment.

MR. TAYLOR: Sure.

COMMISSIONER ROGERS: Not that we can, do it. I think we need to close a chapter here in history at some point. Now, we're not ready to do it

yet, but I think we have to be prepared to do that.

MR. TAYLOR: I think we'd be prepared to do that.

MR. BECKJORD: It needs a little more effort.

COMMISSIONER REMICK: Following up on Commissioner Rogers' question, you're going to be getting a lot of information, and I realize some of it is going to be good, some of it maybe not so good, on all of the plants. Have you thought about how you're going to capture relevant, good information so it's readily accessible to you over a period of time? You're going to get a flood of information, perhaps more complete than you've had in recent years of all the plants. What are you going to do to make sure that it's not lost? It must be a tremendous pile of paper you're going to receive.

MR. BECKJORD: Well, I'd expect that we would do -- there'll be a report that comes out afterward on the insights gained from the IPE, the same way we've done that on the 1150, only this one will be much more extensive.

COMMISSIONER REMICK: But how about some of the detailed information that might be in there that may be more complete than you have on some of these

plants based on walkdowns and that that people are going to do?

MR. TAYLOR: We'll retain that, as well as the licensee I'm sure will retain it.

COMMISSIONER REMICK: But no attempt to capture that, some of it on computer? I realize that they can't all of it, but any database system you have in mind?

MR. BECKNER: Yes, we definitely have an effort planned to capture and save both for the end, but also as the process goes through. If we learn something from one PRA, we want to be able to make use of it as we review subsequent. So, we're definitely planning an effort, which is an overview, to summarize what's happening and store it in an appropriate manner.

CHAIRMAN CARR: Let's proceed.

DOCTOR SPEIS: (Slide) Page 12, Mr. Chairman, I think we have talked about already.

(Slide) Go the last viewgraph, page 13. This is, again, a summary. It just shows the key actions. We feel that the program is on course. As we said already, we want to make sure that the closure of the severe accident issue takes place before the license renewal applicants start coming in.

MR. TAYLOR: That's our goal.

DOCTOR SPEIS: That's the bottom line.

MR. TAYLOR: Anything else?

DOCTOR SPEIS: No. Again, what we mean by closure is that all major issues have been examined, cost effective changes made, if necessary, so we can be able to confirm the conclusion of no undue risk to public health and safety from severe accidents. That's basically, in essence, what we mean by closure.

That concludes my presentation, Mr. Chairman.

CHAIRMAN CARR: All right. Any questions?

Commissioner Remick?

COMMISSIONER REMICK: I have a question in the accident management area, not surprising. I'm interested in the accident management training area that might develop out of that. Is the staff following or giving any thought to some of the work that is being done? And I had a briefing within the last year out in Idaho of some work that I thought they were exciting, where they can run something like Relap 5 and with the state-of-the-art simulators-- they weren't able to do it at real time right now, but thought they could do it eventually -- where you could extend the capability of some of the state-of-art

simulators to be able to run out beyond design basis conditions and perhaps out to the initiation of core damage.

Is the staff following this? Does anybody know what the current status is? You need now give me the status now, but I would like to talk to them because I found that exciting possibility of extending the capability of current simulators out beyond where typically we are now able to do it.

MR. SHERON: Brian Sheron from the staff. We've been following it. It's not an easy thing to do, going out in an area with these codes primarily because it's hard to make them run in real time and still give good results. One of the things that we are doing that's related right now is the simulators down at the training center. We are benchmarking those simulators against these advanced codes, like relap and track, to make sure that they, in fact, are accurate.

But we did have an effort looking into the possibility of extending simulators into the severe accident regime, how far and to what type of events they could indeed handle.

COMMISSIONER REMICK: Okay. So you are definitely following the progress in that area?

MR. SHERON: Yes, sir.

CHAIRMAN CARR: Any other questions?

COMMISSIONER REMICK: Nothing.

CHAIRMAN CARR: Commissioner Roberts?

Commissioner Rogers?

COMMISSIONER ROGERS: Do you still plan to rotate the staff reviewers on these IPE examinations, of our reviews of IPE?

DOCTOR MURLEY: We're still going through-- that's the intention, but we're looking at our resources across the board now. We haven't firmly decided on the scope and depth that we're going to do these IPE reviews because there's a lot of other stuff on our plate right now, quite frankly. That's why I get a little nervous. I'm sorry if I sound like I'm backing away from things, but --

COMMISSIONER ROGERS: No, no.

DOCTOR MURLEY: -- we've got tech specs, we've got advanced plants, we've got a lot of other things on our plate.

CHAIRMAN CARR: Let me ask a question. My impression of doing PRAs in the first place was not the advantage of our review, but was the advantage to the utility of doing it and learning about their own plant and correcting what they found wrong. Is that

not still the case?

MR. TAYLOR: That's the best features of this program.

CHAIRMAN CARR: And I would assume by getting PRAs on everybody, we'll have some interesting things to compare with similar plants who turn up problems that other similar plants didn't turn up.

MR. TAYLOR: Yes.

CHAIRMAN CARR: So that will raise some questions. But is that the kind of review you're talking about, review them for consistency more than for detail?

DOCTOR MURLEY: Consistency, how they approached it. Did they use standard methods of doing the analysis and once they found a problem, how did they actually deal with it? That sort of thing is what I had in mind. But not necessarily a validation of each and every number.

CHAIRMAN CARR: We don't have that kind of manpower.

COMMISSIONER ROGERS: No. I don't think there's any possible way we could do that. It would be enormously --

DOCTOR SPEIS: That's why, Mr. Chairman, our initial estimate of six plants a month is

substantially much lower than earlier commitments in reviewing a PRA which took quite a few man years basically. Even these six men, because of resources, we might have to cut it down a little bit.

MR. TAYLOR: And we'll be looking at the new thing, anything they decide has to be done for appropriate cross plant applicability, as we always do.

COMMISSIONER ROGERS: Yes. Well, this big pile-up of submittals expected in the last quarter of '92, would it be helpful to have any of those come in earlier, to start to spread this out?

DOCTOR MURLEY: In fact, we're meeting with Yankee next week. They intend to submit theirs now, but we're having a preliminary meeting with them to see if what they've done is what we had in mind. So, I view that as a kind of an icebreaker on the kind of review we're going to do and the kind of study that the industry does.

CHAIRMAN CARR: Let me amplify that a little bit. I understand you to say that everybody's opted to do a PRA instead of really the IPE that we looked for.

DOCTOR MURLEY: Some may do both.

CHAIRMAN CARR: Yes. Do we require anything

in the IPE program that a Level I PRA doesn't do? I mean we've got 30 or 40 plants out there already with Level I PRAs.

DOCTOR SPEIS: Well, some of them will have to -- we told them certain things that we want to make sure that -- in the past, some of these PRAs were done by contractors and those companies took them and put them in the shelves. We want to make sure that even if a PRA has been done, that they take it, they scrutinize it, understand it, they adopt it. That will take some time. So, that will take some time. So, even though they have done a PRA, they still have to make sure that they know that the PRA really represents the plant and the sequences.

Also, we told them that they have the option of resolving a number of USIs and GSIs as part of this examination. We also told them that they should look at the shutdown heat removal issue because it was so plant specific. So, we put some additional things that they'll have to make sure that they consider before they finalize the submittal to us.

CHAIRMAN CARR: And containment also was included, right?

DOCTOR SPEIS: Containment, yes.

CHAIRMAN CARR: So that's beyond the Level I

PRA for most of them.

DOCTOR SPEIS: Yes, sir. Yes, sir, yes. Not a very detailed -- we told them what type of truncation they could undertake.

CHAIRMAN CARR: But it's not like we're starting from scratch in a lot of plants.

DOCTOR SPEIS: No, no, that's right. In fact, we feel that maybe there will be 20 or 25 should be able to come a year earlier, but maybe they're waiting to see what the staff does with the early ones. They don't want to be the first ones to face the music.

CHAIRMAN CARR: The first guy that successfully passes is going to set an example for all those that are waiting to follow then, huh?

DOCTOR SPEIS: That's possible.

DOCTOR MURLEY: To some extent I think that's true, yes.

COMMISSIONER ROGERS: Yes. Well, any way you could smooth that out a little, spread it out, I'm sure would be very helpful to you.

DOCTOR SPEIS: Yes, we agree with you.

COMMISSIONER ROGERS: Is there anything new since our briefing last May by you folks with respect to schedule and information relative to closure of

severe accident issues? Anything since we met last May that has significance?

DOCTOR SPEIS: No.

CHAIRMAN CARR: Estimated closure of those is still June 1995?

DOCTOR SPEIS: Yes.

CHAIRMAN CARR: Okay.

COMMISSIONER ROGERS: That's all I have, Mr. Chairman.

CHAIRMAN CARR: Commissioner Curtiss?

Well, I would like to thank the staff for a very informative briefing. You've made significant progress toward closure of severe accident issues and I certainly commend the staff for the progress you have made.

I guess the best news I got here today is everybody's opting for PRAs. I hope they're opting for PRA Level III before they're through and we get all these issues behind us.

As you know, we still have work to be done. The remaining work, we must be diligent in our effort to control the schedules. The ball's in the staff's court to make recommendation regarding containment performance improvement, external events and accident management. Since all these issues should be

considered in conjunction with the IPEs which the utilities are currently working on, the staff should work expeditiously so the utilities can consider these issues in a timely manner.

In particular, I really hope we can maintain a severe accident closure date for the existing plants of June 1995. I think it's important that the Commission continue to be kept informed of the status of the implementation of the plan and I understand it's going to be semi-annually in April and in October.

Are there any other comments from my fellow Commissioners?

If not, we stand adjourned.

(Whereupon, at 11:01 a.m., the above-entitled matter was concluded.)

CERTIFICATE OF TRANSCRIBER

This is to certify that the attached events of a meeting of the United States Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON STATUS OF IMPLEMENTATION OF THE SEVERE ACCIDENT MASTER INTEGRATION PLAN AND STATUS OF LICENSEE PROGRESS ON IPE

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: DECEMBER 14, 1989

were transcribed by me. I further certify that said transcription is accurate and complete, to the best of my ability, and that the transcript is a true and accurate record of the foregoing events.

Carol Lynch

Reporter's name: Peter Lynch

COMMISSION BRIEFING ON

STATUS OF IMPLEMENTATION OF THE

SEVERE ACCIDENT MASTER INTEGRATION PLAN

AND STATUS OF LICENSEE PROGRESS ON IPE

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U.S. NUCLEAR REGULATORY COMMISSION

DECEMBER 14, 1989

PURPOSE OF BRIEFING

TO DISCUSS THE STATUS OF THE STAFF'S PLAN FOR CLOSURE OF SEVERE ACCIDENT ISSUES ON OPERATING PLANTS, AS DESCRIBED IN SECY-88-147, DATED MAY 25, 1988.

ELEMENTS OF INTEGRATION PLAN - SECY-88-147

- o INDIVIDUAL PLANT EXAMINATIONS (IPEs):
  - INTERNAL EVENTS
  - EXTERNAL EVENTS
- o CONTAINMENT PERFORMANCE IMPROVEMENT (CPI) PROGRAM:
  - MK Is
  - OTHER TYPES
- o ACCIDENT MANAGEMENT PROGRAM
- o NUREG-1150
- o SAFETY GOAL IMPLEMENTATION
- o SEVERE ACCIDENT RESEARCH PROGRAM

INDIVIDUAL PLANT EXAMINATIONS (INTERNAL EVENTS)

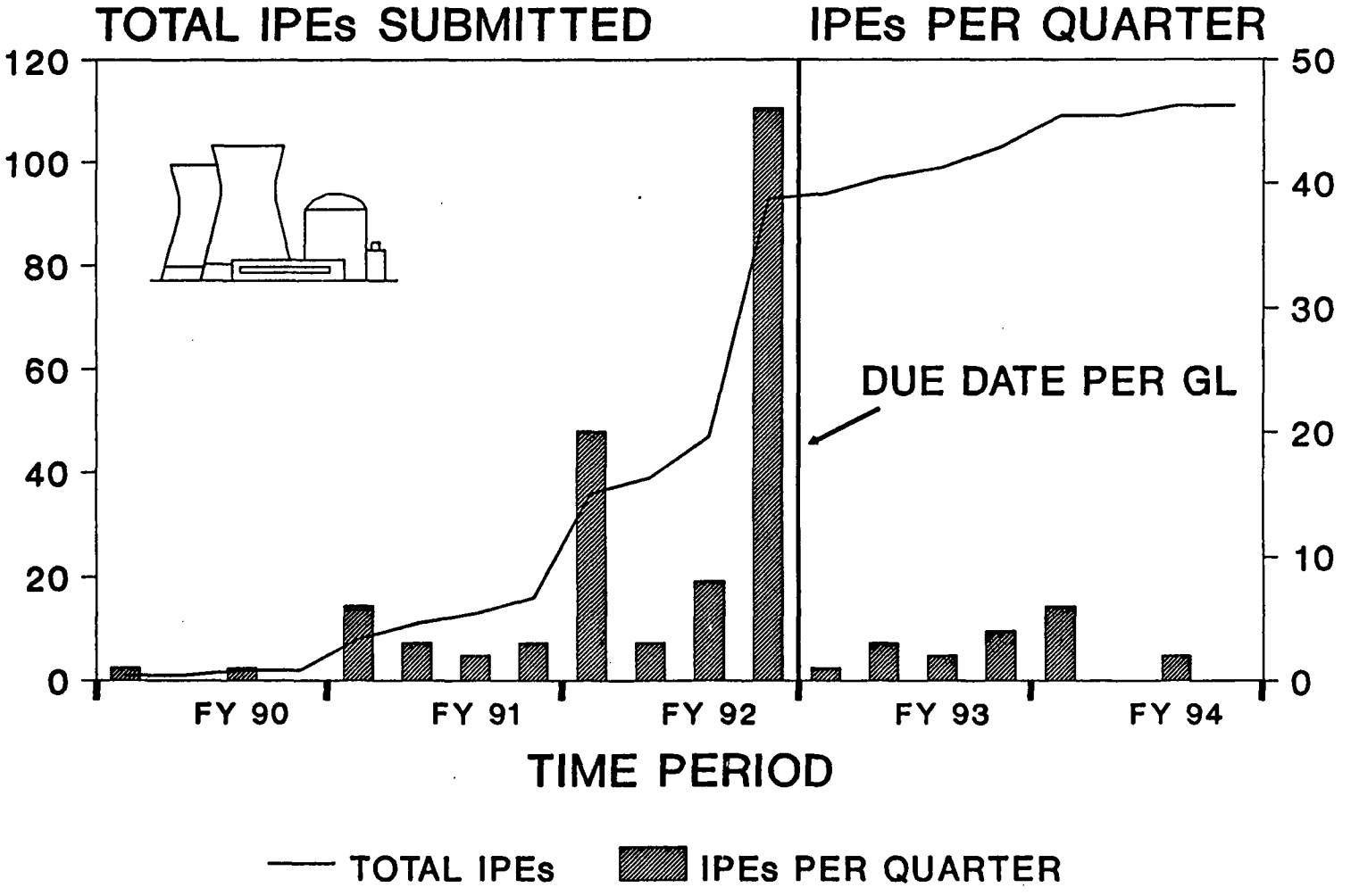
- NUREG-1335, "INDIVIDUAL PLANT EXAMINATIONS: SUBMITTAL GUIDANCE," AUGUST 1989

- GENERIC LETTER 88-20, SUPPLEMENT 1, AUGUST 29, 1989:
  - STARTED IPE "CLOCK,"
  - ISSUED MK I IMPROVEMENTS

INDIVIDUAL PLANT EXAMINATIONS (INTERNAL EVENTS)

- GENERIC LETTER 88-20, SUPPLEMENTS 2 AND 3 UNDER PREPARATION:
  - GUIDANCE ON NON-MK I CONTAINMENTS
  - INFORMATION ON ACCIDENT MANAGEMENT STRATEGIES
- LICENSEE PLANS AND SCHEDULES SUBMITTED
- STAFF EVALUATION OF LICENSEE SUBMITTALS

IPE SUBMITTAL SCHEDULE



IPE REVIEW PLAN

- STAFF CURRENTLY ASSESSING JUSTIFICATION FOR 18 LATE SUBMITTAL REQUESTS.

- SCOPE AND RESOURCES REQUIRED FOR STAFF REVIEW OF IPE SUBMITTALS UNDER DEVELOPMENT.

- STAFF REVIEW OF IPE SUBMITTALS TO BE COMPLETED IN FY 1995

INDIVIDUAL PLANT EXAMINATIONS FOR EXTERNAL EVENTS (IPEEE)

- o EXTERNAL EVENT STEERING GROUP
- o DRAFT GENERIC LETTER PREPARED
- o DISCUSSIONS HELD WITH NUMARC
- o WILL RECOMMEND EXAMINATION IN AREAS OF:
  - SEISMIC,
  - FIRES,
  - SCREENING EXAMINATION FOR OTHER HAZARDS
- o RECOMMENDATIONS TO COMMISSION SPRING 1990

CONTAINMENT PERFORMANCE IMPROVEMENT (CPI) PROGRAM

- o MK I RECOMMENDATIONS (SECY-89-017) BEING IMPLEMENTED PER COMMISSION DIRECTION
  - PLANT-SPECIFIC BACKFIT OF HARDENED VENT FOR UTILITIES NOT IMPLEMENTING VOLUNTARILY
  - OTHER IMPROVEMENTS CONSIDERED IN IPE
- o RECOMMENDATIONS FOR OTHER CONTAINMENT TYPES BEING DEVELOPED. PRELIMINARY STAFF CONCLUSIONS:
  - NO GENERIC RECOMMENDATIONS
  - EXAMINATION OF SEVERAL PLANT-SPECIFIC IMPROVEMENTS VIA IPE
  - COLLECTION OF INSIGHTS FOR IPE

ACCIDENT MANAGEMENT

- o REGULATORY AND RESEARCH ELEMENTS DESCRIBED IN SECY-89-012
- o CANDIDATE ACCIDENT MANAGEMENT STRATEGIES TO BE ISSUED TO INDUSTRY FOR INFORMATION
- o NUMARC DRAFT GUIDANCE TO UTILITIES FOR ACCIDENT MANAGEMENT
  - NRC AND INDUSTRY COMMENTS
  - TRIAL APPLICATIONS PLANNED IN 1990
- o DETAILED GUIDANCE TO BE PROVIDED FOR COMMISSION REVIEW IN 1991 - PRIOR TO ISSUING GENERIC LETTER
- o NRC RESEARCH ON ACCIDENT MANAGEMENT ONGOING

NUREG-1150

- COMMISSION BRIEFED SEPARATELY ON NUREG-1150
- CURRENTLY UNDERGOING PEER REVIEW. EXPECTED TO BE COMPLETED IN MID-1990
- ISSUE FINAL NUREG-1150 AFTER PEER REVIEW COMPLETE CURRENT ESTIMATE FOR FINAL IS 12/90

SAFETY GOAL IMPLEMENTATION

- STAFF PROPOSAL FOR SAFETY GOAL IMPLEMENTATION PROVIDED IN SECY-89-102 (MARCH 30, 1989)

- WE ARE PROCEEDING ACCORDING TO PROPOSALS CONTAINED IN SECY-89-102

SEVERE ACCIDENT RESEARCH PROGRAM

- IMPLEMENTING PLAN (SECY-89-123 AND NUREG-1365) EMPHASIZING EARLY CONTAINMENT FAILURE ISSUES

- PLAN TO MEET WITH COMMISSION AGAIN THIS SPRING

SUMMARY

KEY ACTIONS FOR CLOSURE OF SEVERE ACCIDENT ISSUES ON OPERATING PLANTS

- COMPLETION OF IPEs, INCLUDING EXTERNAL EVENTS, IDENTIFICATION AND IMPLEMENTATION OF IMPROVEMENTS

- IMPLEMENTATION OF ANY GENERIC CONTAINMENT IMPROVEMENTS APPROVED BY THE COMMISSION

- DEVELOPMENT AND IMPLEMENTATION OF AN ACCIDENT MANAGEMENT PROGRAM

BACKUP SLIDE

IPE SUBMITTALS BEYOND 9/92

RIVER BEND	10/92
MILLSTONE 2	01/93
PRAIRIE ISLAND 1 & 2	02/93
QUAD CITIES 1 & 2	06/93
HOPE CREEK	07/93
NINE MILE POINT 1	07/93
SALEM 1 & 2	07/93
BRAIDWOOD 1 & 2	10/93
FT. CALHOUN	12/93
ST. LUCIE 1 & 2	12/93
VERMONT YANKEE	12/93
LA SALLE 1 & 2	06/94