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NUCLEAR REGULATORY COMMISSION

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Ann Riley & Associates
Court Reporters
1625 I Street, N.W., Suite 921
Washington, D.C. 20006
(202) 293-3950

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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BRIEFING ON TECH SPEC IMPROVEMENTS INCLUDING

REDUCTION OF TESTING AT POWER

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PUBLIC MEETING

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Nuclear Regulatory Commission

One White Flint North

Rockville, Maryland

FRIDAY, JANUARY 6, 1989

The Commission met in open session, pursuant to notice, at 10:00 a.m., the Honorable LANDO W. ZECH, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:

LANDO W. ZECH, Chairman of the Commission

THOMAS M. ROBERTS, Member of the Commission

KENNETH M. CARR, Member of the Commission

KENNETH C. ROGERS, Member of the Commission

JAMES R. CURTISS, Member of the Commission

STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

S. CHILK

W. PARLER

C. ROSSI

R. LOBEL

T. MURLEY

J. TAYLOR

P R O C E E D I N G S

[10:00 a.m.]

CHAIRMAN ZECH: Good morning, ladies and gentlemen.

The purpose of this morning's meeting is for the NRC staff to brief the Commission concerning the current status of staff actions related to the technical specifications improvement program and ongoing staff efforts to enhance nuclear power plant safety by reducing surveillance testing at power.

The staff last briefed the Commission on this subject on June 20, 1988. Today, I'd appreciate the staff briefly discussing the results that have been achieved to date in making improvements to technical specifications at the plant.

This is an information briefing. There will be no votes taken today on this subject. I understand that copies of the slides to be used during the presentation are available at the entrance to the room.

Do any of my fellow Commissioners have any opening comments before we begin?

[No response.]

CHAIRMAN ZECH: If not, Mr. Taylor, you may proceed.

MR. TAYLOR: Good morning, sir. Mr. Chairman, you hit the tone and meaning of what the staff will present this morning. Most importantly, the staff in the briefing this morning will concentrate on the staff's look at surveillance

testing, an in depth look at those requirements in the technical specifications, and taking into account the experiences, the many trips that occurred during surveillances and so forth, and most importantly, the basic theme is take an in depth look at the question of how they should be changed to improve operational safety, to reduce the challenges and transients that occur and the transients on equipment itself.

That is the basic tone and theme of the briefing you will hear today. With that brief thought in mind, I will ask Dr. Murley to start the formal part of our briefing.

CHAIRMAN ZECH: Thank you very much. Dr. Murley, you may proceed.

MR. MURLEY: Mr. Chairman, I just have a few opening comments. This program actually got started several years ago, in 1983 and before. The impetus for the program has always been to see if we can improve safety by reducing unnecessary testing.

The Commission, you know, has been interested in this. We got guidance from the Commission a year ago, February 1988. One point I'd like to add that is not in the Commission paper, last May I led a regulatory team to visit Japan. We met with MITI and we also visited some sites there, two different sites. One of the things that I and my colleagues in particular focused in on was their experience with surveillance testing. It turned out that they do substantially less than we

do for basically the same equipment. There was no fundamental reason that we could find why we could not also test at about the same frequency they were doing.

That gave us an international benchmark so to speak that told us we were on the right path and it also gave us, I think, a little more impetus to keep going and hurry things up. I'm convinced we are on the right path. I think we are doing the right thing and we are improving safety by doing this.

Ernie Rossi will now lead into the general discussion.

CHAIRMAN ZECH: Thank you. Mr. Rossi?

MR. ROSSI: The bulk of the presentation today will be on the staff's efforts to improve safety by reducing surveillance testing at power. Rich Lobel is going to give the majority of the presentation. Before I turn this over to Rich, what I'd like to do is describe how this particular component fits into the agency's technical specification improvement program.

If you recall, the Commission issued its interim policy statement on tech spec improvements in February of 1987.

[Slide.]

MR. ROSSI: The three elements of our technical specifications improvement program were designed to implement that policy statement. This program is a voluntary program for licensees and it is aimed at improving operational safety. It

will do this by reducing the size and complexity of technical specifications in a way that focuses technical specifications on the most safety significant requirements. It will make the technical specifications more understandable to operations personnel. It will improve specific technical requirements and provide a clear link between the requirements and the safety analysis for the plants. Finally, by reducing operational transients and challenges to safety systems such as those caused by scrams during testing, it will improve safety.

The three major elements of the improvement program are development of new standard technical specifications for each of the NSSS vendor plant types and then voluntary adoption of these new standard technical specifications by the licensees.

It also has a parallel program of immediately available line item improvements to the tech specs and there are other activities, the third component is other activities that are necessary to fully implement the policy statement. This includes the development of guidelines that specify what items can get changed under 10 CFR 5059 without prior staff approval and descriptions and guidance on how the 5059 reviews should be made by licensees.

The staff has made significant progress in each of these three areas and is continuing its efforts to implement the Commission's interim policy statement.

We have resolved a number of issues that are key to having licensees adopt the new standard tech specs. We have carefully examined each of the current standard technical specifications and decided which requirements based on the criteria in the interim policy statement can be removed from the technical specifications and placed in licensee controlled documents and which requirements must be retained in the technical specifications.

The results of this staff effort were formally issued to the owners groups for all the NSSS types in May of 1988. Having resolved these issues and decided on the content of the new standard technical specifications, each of the owners groups is now rewriting their standard technical specifications. The staff plans to -- the industry plans to submit these new standard technical specifications to the staff for review in April of this year.

It is in this context that we would like to inform you of our results to date in the area of reducing the surveillance test required by the technical specifications. We plan to integrate our results into the overall technical specifications improvement program. All of the improvements we identified related to reduction in surveillance testing at power will be factored into the new standard technical specifications. The more safety significant improvements will be handled on an expedited basis by the staff as line item

improvements to the technical specifications and these more safety significant items will be made immediately available to licensees through generic letters and through the approval of topical reports submitted by the owners groups, and those will be made available regardless of whether licensees do or do not eventually adopt the new standard technical specifications.

[Slide.]

MR. ROSSI: The goal of the staff's study of surveillance requirements is to maximize operational safety by balancing reliability and availability of safety equipment against the risk of transients and challenges to safety systems that are caused by the testing.

Our ultimate objective is to eliminate all testing at power of any equipment for which an acceptable level of safety can be achieved and demonstrated without testing at power.

[Slide.]

MR. ROSSI: When we established the existing surveillance test intervals, we did it based on engineering judgment, often times without significant equipment reliability data, failure rate data and operating experience. Now that we have this data and experience, we are in a better position to establish safer test intervals and strategies and eliminate excessive testing that is not enhancing safety.

We expect several benefits to come from this work as listed on this slide. Technical specifications surveillance

testing accounts for about 14 percent of the total number of plant trips. We have identified tests which unnecessary cause trips and we are taking steps to reduce or eliminate these particular tests. Inadvertent trips are a safety concern because they challenge safety systems and can in some cases progress into more complicated events.

In addition, testing sometimes results in a transient which leads to a trip. In our mind, there is no question that reducing the number of trips caused by surveillance testing is in the interest of safety, where that surveillance testing is not finding failures commensurate with the frequency of doing the testing.

Some safety related equipment is worn or degraded by testing. By being aware of this, testing can be designed to minimize this wear or testing may be done less often while still providing adequate assurance of equipment operability.

Radiation exposure to plant personnel is a significant consideration in performing some tests and the need for testing should also be balanced against the radiation dose received by those doing the testing.

An important consideration also is the allocation of the licensee's staff resources to surveillance testing. Performing unnecessary tests reduces the resources available for maintenance, design improvements and other important licensee work.

A final consideration is the attitude of licensees and operators towards technical specifications. Technical specifications which don't require unnecessary testing or the performance of tests of marginal value will promote a more positive attitude of the plant personnel to safety.

I would now like to turn the presentation over to Mr. Richard Lobel who will discuss our program for reducing surveillance testing in more detail.

CHAIRMAN ZECH: Before you do that, will you put that last slide on again, please? The first point you make in that slide is reduction in number of unanticipated trips. I call your attention to the title, safety benefits from staff programs to improve technical specifications surveillance requirements. I understand what you are saying here, but your thrust that you gave in your oral description of this slide and the purpose of it focused on safety. I agree that is what we are really talking about.

We all want unanticipated trips reduced because we recognize that is supportive of safety improvements, but you are not saying that on your slide. In other words, the first point you make, the first bullet, reduction in number of unanticipated trips, it seems to me that might preferably read reduce safety system challenges resulting from unanticipated trips.

In other words, the thrust is on safety, as Mr.

Taylor alluded to in his opening remarks and Dr. Murley, too. It may be semantics. I think it is an important point to make because what our interest is and I believe should be, appropriately so, is on safety. What we are saying is safety can be improved by not having these challenges, trips that are unnecessary. It is a different way of saying it but I think it gets the thrust of what you are trying to do across better than just saying reduce the number of unanticipated trips.

MR. ROSSI: Again, there is not just the challenges to safety systems, there is also the fact that some trips that are unnecessary and only caused by the surveillance testing can then proceed into more severe events because a trip is a challenge to transfer of power systems within the plant, significant temperature changes during the trip. These are all things that both challenge the safety systems and in addition they have the potential for leading into things that are more serious, such as losses of off-site power.

CHAIRMAN ZECH: Exactly. For just that very reason, I just make the point that when you are talking about the benefits from it, I think that is the first primary benefit. That is what we are trying to focus on.

COMMISSIONER CARR: While you are on that, the last one bothered me more than any other. An implication there is there is lack of respect for tech specs out there now. Can you support that?

MR. ROSSI: I don't know that we have any specific results that would indicate there is lack of respect, but it seems in our judgment that if you have things in the technical specifications that operators feel are unnecessary requirements and may not be promoting safety, that certainly has the potential for reducing their respect for the tech specs. Even thought we haven't got perhaps definitive evidence this is the case, it is our feeling that if you remove the things from the tech specs that are of marginal importance to safety and keep the things that really focus on the safe operation of the plant, that can do nothing but increase the operator's respect for the tech specs.

MR. LOBEL: Could I add to that?

MR. ROSSI: Yes.

MR. LOBEL: My name is Richard Lobel. I am going to do the rest of the presentation. That word was my word. I put it in there. What I meant was pretty much what Dr. Rossi already said, but the comment I heard many times on plant visits was people do tests over and over again on equipment that never fails or the only time the equipment fails is because we keep testing it, we keep unplugging and plugging, we keep taking equipment in and out of cabinets, turning valves, when otherwise they wouldn't need to be turned. The people in the plant know what equipment they have problems with and what equipment they don't. Sometimes the technical specifications

address the equipment that they know they don't have as many problems with as maybe some other equipment that they do.

In that sense, they are getting told in some way that here is what you have to work on, when maybe there is something else of equal importance that should be getting worked on that is not in the tech specs or that they don't have to spend as much time on, in terms of the language in the tech specs. That's all I meant.

COMMISSIONER CARR: I would rephrase that as a response to beneficial operator suggestions, perhaps.

MR. LOBEL: One of the other things that I heard a lot or that I gathered from doing these plant visits is that the people who actually do these tests don't always get their point through to the NRC. The utility has its own organization and the trouble somebody has doing a test may not be of that much concern to people as long as the test is getting done.

It is difficult to make technical specifications changes in some cases. They don't always get made. The people who are out doing them aren't the people who submit those changes -- those proposed changes to the NRC.

COMMISSIONER CARR: I would say there would be plenty of submittals to the NRC if we got the answers out to them faster.

CHAIRMAN ZECH: Let me add to that, too. I think that is a management concern that could be addressed and

improved. There is no question about that. Another observation I have had is at least in some plants, the tech specs are so voluminous that the operators simply can't from a practical standpoint really physically be expected to give as much attention to each one of those tech specs as they do to others. I think that is what you probably mean by "respect," but I agree with Commissioner Carr. I think your choice of words should be looked at and maybe you can figure out some other way to say it.

The volume sometimes, from a practical standpoint, when the operator has as many tech specs as I've seen at a few plants at least, he has to prioritize in some sort of way and that is our responsibility in a sense and that is why we have this reduction of tech specs' program in place, at least to one degree, in order to ensure that the operator has an useful set of tech specs that he really practically can use and therefore, that doesn't mean that every tech spec in there isn't important right now. It just means, at least in my understanding of it, that some are clearly more important to safety than others and even though they are all important to a degree, it is our responsibility as it is the utility's responsibility to give us their input so that we can give the operators a very useful tool rather than overwhelm them with a tremendous number of tech specs that from a practical standpoint makes it very difficult for them to use. That impinges on safety because if

he looks at these books and books and books that he has there, it just isn't contributing to safety in my judgment, unless they are prioritized to a degree.

I think that is part of what the problem is, too. I think perhaps that is part of what you are trying to say in that bottom bullet. Again, I agree with Commissioner Carr. I think that is not a choice of words. I'm not so sure they don't respect the tech specs but the fact is they are so voluminous in some cases that it is difficult for them to give the same priority to each one.

MR. TAYLOR: Your comments are well taken. You know, the operators, I don't think this is meant to imply lack of respect. We enforce the tech specs. They know it. They follow the tech specs. We enforce in accordance with their importance to safety.

CHAIRMAN ZECH: You got our attention when you say they need more respect. They have to be respected.

MR. TAYLOR: It is important for the operators to appreciate that what they are doing there at power is important and it is the balance question. When they know we are looking and in this type of evaluation that I think the staff is conducting, when the operators truly understand it, and we do make changes, I think they will gain a better appreciation of the importance of what they are doing.

COMMISSIONER CARR: That is the purpose of the whole

exercise.

MR. TAYLOR: Right. Perhaps that is better in words.

COMMISSIONER ROGERS: If I could suggest a little different approach. It seems to me the concept here is what we are doing is we are validating technical specifications on the basis of operating experience, so if you can fold those words in.

COMMISSIONER CARR: And we are long overdue doing it. That's the problem.

COMMISSIONER ROGERS: You can put that in parentheses.

CHAIRMAN ZECH: You have a lot of suggestions on that bottom bullet. Let's proceed.

MR. LOBEL: Good morning. I have already introduced myself. My name is Richard Lobel.

I'd like to start with slide four and give you a status of the staff review of the owners groups' topical reports on surveillance testing.

[Slide.]

MR. LOBEL: The industry owners groups have submitted nine topical reports for staff review dealing with surveillance testing. These reports address surveillance testing of safety related instrumentation which performs the functions of tripping the reactor, actuating safety systems and isolating portions of systems to reduce radiation exposure following an

accident.

In general, these reports propose to extend the surveillance test interval from one month to three months; increase the allowed time for performing some tests and to allow testing without placing an instrumentation channel in the tripped position, since placing a channel in the tripped position makes the reactor more vulnerable to a trip.

The topical reports justify these changes to technical specifications surveillance requirements by means of risk and reliability techniques. A staff review of seven of the nine reports is complete. The review of the other two will be completed in early 1989.

The staff expects several benefits from these reviews. We have talked about some of these already but I will go through them, maybe from a little different point of view.

A reduction in unnecessary plant trips due to testing. Current rate of trips for a Westinghouse plant due to testing safety related instrumentation is approximately .5 trips, half a trip, for Westinghouse plant per year. We expect this number would be reduced by approximately two-thirds.

In order to test an instrumentation channel, it is necessary to put that channel in a tripped position. This makes the reactor more vulnerable to the trip, since the trip of only one other channel will trip the reactor. Another safety benefit from the review of these reports is the

reduction in the amount of time that a reactor protection system channel would be operable -- the system would be operable with one channel trip. Reactors are currently in the situation about 10 percent of the time, that is 10 percent of the time they are running, one channel is in a tripped position for testing, and you can add a little bit more to that for maintenance time. This is just testing time. This would be reduced by the proposals of the topical reports essentially to zero.

Also another benefit would be a reduction in the frequency of false alarms and indications of associated testing which distract control room operators. When a channel is put in trip, the operator sometimes sees alarms that mean not what the alarm says, but only mean that the channel is being tested and he has to keep track of these things.

A more effective use of the operating staff for other purposes, maintenance and design changes, was mentioned already. Currently, according to the Westinghouse owners group, 3,120 staff hours per year are required to test the channels that are addressed in the topical reports of safety related instrumentation. This amounts to two people, they usually work in pairs, working six hours a day, five days a week, 52 weeks a year, and doesn't count the paperwork and administrative time which could double this figure.

With the completion of these reviews, the licensee

may propose technical specifications changes to incorporate the proposals of the topical reports. We expect minimal staff review would be required since the staff technical review is already complete.

MR. ROSSI: Let me just stress that point. These seven topical reports that are listed here as having been approved by the staff, and by the way, the one that says estimated 12/88 was actually signed yesterday. We didn't quite make it 12/88. Those are completed topical report reviews. What that means is now licensees can use those as the basis for requesting amendments to their plant specific tech specs, to adopt the surveillance test intervals that are in these topical reports.

That is completed work. However, in order for a licensee to get it into his tech specs, he does have to go through the amendment process.

COMMISSIONER CARR: How long will that process be?

MR. ROSSI: I don't know what the exact figure now for an amendment is. We have pushed very hard on these, however, to do the reviews of the topical reports in a way so that the project managers can do the reviews of the specific amendments and approve them.

As I'm sure you know, the amendment process is somewhat involved because it is a legal process that we have to go through to actually change the tech specs.

I did want to point out these reports are completed. They are available today and their availability does not depend on licensees adopting the new tech specs. The results of this will go into the new standard tech specs.

COMMISSIONER ROGERS: How about number nine? Is that on target?

MR. ROSSI: Number nine, the reason number nine would have already been completed, it is my understanding that Combustion Engineering owners group wanted to change what they asked for in their original submittal. I don't know whether we have gotten their submittal back in or not. That was the reason for the delay of that. We were ready to approve what they had previously requested. It is my understanding they have now changed somewhat what they want, and we agreed that the change is probably in the best interest of safety. We are waiting for additional information to do that. I believe eight, as far as I know, is on schedule. I think it is in the concurrence chain now. I think we need an additional submittal from the owners group on nine.

COMMISSIONER CARR: How do you communicate those approved ones to the utilities?

MR. ROSSI: The approved ones go back with a letter signed by a Division Director back to the owners group chairman. That's the way the topical reports are handled.

COMMISSIONER CARR: It is up to the owners group to

notify each utility?

MR. ROSSI: Yes. We assume the utilities that are involved with the owners groups know about that and are following it.

CHAIRMAN ZECH: Let me ask a related question. In October of 1988, I think the staff told us you had approximately 750 technical specifications amendment requests pending. It is my understanding that backlog is essentially constant. If we are making improvements here and we are making results in this area, a very related area is the utility's ability to have their amendment request acted upon and if appropriate, approved.

How do we stand on the backlog? Are we making any improvements?

MR. MURLEY: I don't have the statistics with me. Generally, we are holding level.

CHAIRMAN ZECH: Which means you are getting some in and you are approving some?

MR. MURLEY: Yes. The backlog, there is going to be a natural backlog. It just takes a certain amount of time to act on certain things and get a certain rate in. The real question is what is the residence time of tech spec amendments or any other amendment. We are working on reducing the residence time. I think we are improving there.

Your real question is can someone reference one of

these documents and get quick action. The answer is two part. The answer is yes, we can do it probably within a matter of a couple of months or maybe even faster if they don't take a lot of exceptions to it. As a matter of fact, they always come in with exceptions. It presents the staff with a different situation.

We haven't reviewed specifically what they are asking us for. That can take many months because it has to get in queue with all the other things that a particular staff, in this case the electrical engineering staff, is looking at. It is not a simple answer.

CHAIRMAN ZECH: We appreciate that. I do think it is important especially if we are talking about safety impact and improving safety, that we make sure we put the resources on it that we can to be responsive to something that we see as an improvement. If an utility responds and they acknowledge in their view it is an improvement, too, to safety, then I think it behooves us to do what we can. I recognize if there are amendments that have exceptions to it and all that, it is going to be more difficult than a straightforward request to take advantage of the improvement that we have suggested.

In any case, it just behooves us to do what we can to speed up processing of those amendments. I know you are doing what you can. If you feel we need more resources or we need to do more in that regard, I hope you will come to the Commission

and let us get involved and assist where we can. Maybe it is balancing resources or maybe it is getting more resources. I don't know. If it does impact safety, it is something important that I think we should be involved with.

MR. TAYLOR: As we get more of these in, it might be appropriate at a future briefing to bring up just how this traffic is being handled. Dr. Murley's point is if they can adhere as close as possible to what's been approved --

CHAIRMAN ZECH: I appreciate that and that is a good point, too. I hope they know that.

MR. MURLEY: We have tried to tell them that but they like to come in with, well, we'd like some of this and some of that and not too much of that.

CHAIRMAN ZECH: I understand. At the next tech spec briefing, let's address this specific issue.

Let's proceed.

[Slide.]

MR. LOBEL: As an indication in the reduction of surveillance testing expected from these topical reports, a comparison was made of the number of surveillances required by the current technical specifications with the proposals of the topical reports. This was done for a Westinghouse reactor, using the Westinghouse standard technical specifications and assuming that reactor would operate on an 18 month cycle with three start-ups and shutdowns during that cycle, since some

technical specifications tests are done during start-up and shutdown.

Using the current requirements of the Westinghouse standard technical specifications, there would be approximately 2,000 surveillances of the RPS instrumentation during that 18 month cycle. Under the proposals of the topical reports, that number would be reduced to approximately 900 or a 55 percent reduction.

Similarly, for the engineered safety features actuation systems, these are the systems that actuate the emergency features that mitigate accidents, 3,000 surveillances would be required of that instrumentation under current tech specs and this would be reduced to approximately 1,500 or a 50 percent reduction by the proposals in the topical reports.

The net safety benefit is estimated to be a reduction in the number of trips by two-thirds. In view of the previous comments, I could add that when these reviews were being done, the emphasis wasn't on the number of trips, the emphasis went farther in looking at safety, at core melt, core damage frequency and that kind of thing. Those were the parameters of interest, not the number of trips. I am simplifying by stating it in terms of number of trips.

COMMISSIONER CARR: Of those 14 percent that you mentioned that are caused by testing, how many are caused by this RPS/ESFAS testing?

MR. ROSSI: I think a significant number of them, because this is the basic instrumentation. These are the instrumentation used to trip the reactor. I think it is significant.

COMMISSIONER CARR: You expect to drop that to about 5 percent instead of 14 percent?

MR. ROSSI: Yes, if it goes down by the two-thirds.

MR. LOBEL: This is the most significant contributor with one other test that I will talk about later. That other test and testing this instrumentation are the biggest contributors to plant trips.

[Slide.]

MR. LOBEL: In addition to the owners groups' topical report reviews, another part of the staff's evaluation of surveillance requirements is a study of the feasibility of reducing technical specifications surveillance requirements, which I refer to as the feasibility study. The purpose of this task is to perform a comprehensive examination of technical specifications to determine if safety can be enhanced by modifying surveillance requirements. This was a short term study. It took four months, starting in June of 1988. It concentrated on major mechanical equipment and instrumentation other than that covered by the topical reports. For example, radiation monitors.

The study used operational data from LER's and

component failure data from a variety of sources, from the NRC aging study currently underway in Research, from EPRI reports and from data available from licensees. The recommendations of the study were based on engineering judgment, taking all this information into account.

Five plants were visited to discuss technical specifications with those who actually schedule and do the surveillance testing. We talked to mechanical testing people, health physics' people, electrical testing people, the people who do the scheduling for all these tests, the people who are actually in the plant performing the tests.

At least one plant of each vendor design was visited. In addition, a search of dockets was made for plant specific technical specifications changes which may have generic applicability. The idea was that if a technical specifications requirement had to be changed to permit better operation at one reactor, other licensees may also benefit from the change, and only changes that had already been found acceptable by the staff after a technical review were considered.

Also, a qualitative risk assessment was performed for every surveillance requirement in two sets of technical specifications. For PWR's, we used the Westinghouse standard technical specifications. For BWR's, we used the Hatch Unit 2 technical specifications. Every surveillance requirement in these technical specifications was evaluated for three things;

direct risk, indirect risk and reliability considerations. The evaluations were done using risk concepts but no calculations were done.

Direct risk is the importance of the component to be tested to risk. If the component is important, then it follows just looking at that one point, that the component should be tested more often. For example, auxillary feedwater pumps are currently tested every month while other safety related pumps are usually tested every three months.

Indirect risk assesses the negative impact of testing a component. Just looking at it from this point of review, if there is a negative impact of testing, the testing should be done less frequently. For example, testing the reactor protection system has a potential for causing a plant trip and as I will talk about later, testing some pumps can degrade the pumps. In addition, testing some pumps, for example, auxillary feedwater pumps, requires realigning the pump from its flow path used for its safety function to perform the test. While you are performing the test, you have realigned the pump away from its position to perform its safety function.

The last one is reliability. Reliability was assessed in terms of how important the testing was to determining the operability of a component. For example, some safety related pumps also have non-safety related functions and they are operated continuously so that the operator always

knows what the status of that pump is, while other pumps are operated only for testing.

COMMISSIONER CARR: Did you also look at number of failures that were discovered by testing?

MR. LOBEL: Yes. What we did was we tried to get data on the failures and data on the number of those failures discovered by the technical specifications surveillances and tried to balance those two things. In some cases, the failures, and I will give some examples, aren't found from the technical specifications surveillances. They are found in other ways. Performing the test doesn't really help that much.

These assessments were made for every technical specifications requirement in the two sets, like I said, and using these aspects, recommendations were made for approximately 40 technical specifications for which it was felt a change could enhance safety.

[Slide.]

MR. LOBEL: Before discussing the results of the study, I thought it would be useful to give you some idea of the magnitude of surveillance testing at a typical reactor. We obtained the numbers shown on this slide, which are typical, from the Limerick plant licensee.

For 1986, with no refueling outage, approximately 15,000 tests were done. This averages just over 41 tests per day. For 1987, with a refueling outage, the number went up to

approximately 17,500 tests, since some tests are only performed when the plant is shut down. Of these tests, 98 percent were required by technical specifications and 2 percent were required by other NRC licensee agreements. These numbers show that a large amount of testing is required. The testing requires significant resources, both for scheduling and performing the tests. The resources just to schedule these tests shouldn't be dismissed.

Most utilities have whole groups whose only function is to make sure that all the required tests are performed when they are supposed to be performed and that the tests don't interfere with testing other equipment or the testing isn't done at certain times when the plant is more vulnerable because it is in another point of view, and these groups have to balance all these concerns and make sure they are satisfying the technical specifications as well as all their operating considerations, and as well as all the other testing that needs to be done that isn't part of the technical specifications, testing non-safety related equipment. There is significant resources there, too.

[Slide.]

MR. LOBEL: There is a definite relationship between surveillance testing and plant transients. The most common events caused by testing are reactor trips, area isolations and equipment actuations. Let me give you one example of each

which has occurred within the last month as an illustration.

As an example of a reactor trip, on December 16, 1988, a BWR tripped, firing a continuous run of 362 days, almost a year, because of the failure of a metering valve during the scheduled surveillance test on a reactor low water level instrument and the reactor protection system.

As an example of an area isolation, on December 12th of last year at a BWR operating at 100 percent power, during the surveillance test on a radiation monitor, a reactor building ventilation isolation and a control room ventilation isolation occurred. The cause was a relay which failed during the testing. While these isolations aren't of themselves usually of great significance, they do distract the operator and they take his time and attention away unnecessarily.

As an example of an actuation, at a PWR operating at 100 percent power on December 21, 1988, an actuation of one diesel generator and its associated train of emergency equipment including cooling pumps occurred while the licensee was securing from the performance of a surveillance test. Spurious actuations of diesels are not uncommon and are a cause of diesel engine wear.

More serious events can result from surveillance testing. For example, in 1987, at a PWR which was shut down with the vessel partially drained, an engineer performing a containment penetration leak test inadvertently caused a loss

of water inventory which resulted in the loss of shutdown cooling and boiling in the reactor core with the containment open. The event was successfully mitigated when the leak was identified and stopped and shutdown cooling was reinstated. Meanwhile, the containment had to be evacuated and there was some potential for fuel uncovery.

[Slide.]

MR. LOBEL: As part of the feasibility study, we identified those surveillance tests which are significant contributors to plant trips. I'd like to discuss the status of the staff actions with respect to each of these surveillance tests.

Turbine overspeed testing is a significant contributor to those trips caused by testing. A little while ago when I was referring to another test that seemed to cause a good deal of trips like the reactor protection systems surveillances, this was the test.

In order to perform this test, it is necessary to close each turbine valve one at a time while the plant is at power. This test is required to be done typically every 7 days and every 31 days. The purpose of the test is to assure that the turbine will not overspeed, failing a turbine rotor and generating missiles that could strike and damage safety related equipment. This safety concern has to be balanced against the relatively frequent trips caused by this testing.

The feasibility study recommends that the test frequency be changed from weekly and monthly to quarterly, if the turbine vendor agrees. The turbine vendor in some cases also requires frequent testing of these valves.

The next four test shown on the slide are addressed in the owners groups' topical reports, which the staff has reviewed or is completing review of. Engineered safety feature logic testing; reactor protection system testing, we talked about; reactor trip breaker testing and nuclear ex-core instrumentation testing.

COMMISSIONER CARR: That first one on there is not really overspeed testing, that is the isolation valve testing.

MR. LOBEL: The purpose is to --

COMMISSIONER CARR: You don't overspeed the turbine to see if the valve goes shut.

MR. LOBEL: That's right.

MR. ROSSI: You make sure the valve will go shut and then you assume that if the turbine overspeeds, it will go shut.

COMMISSIONER CARR: You are not testing the overspeed function. You are testing whether the valve trips when it gets a signal.

MR. LOBEL: It is the protection to make sure you won't get a turbine overspeed.

MR. ROSSI: Recognize that when you do a test like

that which trips the turbine and then results in a reactor trip because you tripped the turbine, you have put a significant transient on the plant that has led to the reactor trip. That is part of the reason why we sort of measure a lot of this by inadvertent reactor trips. Here you get a transient that leads to a reactor trip.

COMMISSIONER CARR: All I wanted to make clear is we are not overspeeding the turbine to test the trip, we are just testing if the valve goes shut. It is a valve test.

CHAIRMAN ZECH: Let's proceed.

MR. LOBEL: The feasibility study also examined these four tests and reached the same conclusions as the owners groups' topical reports, they could be done less frequently than currently required while still maintaining adequate safety. This conclusion was based on failure data and operating history rather than the type of detailed calculations in the owners groups' topical reports.

For example, reactor trip breaker testing is required by technical specifications to be completed within two hours. A review of reactor trips while performing this test showed that the trips are a result of human error. The types of errors one would expect when people are in a hurry, going to the wrong piece of equipment, opening the wrong breaker, that kind of thing.

It seems to be reasonable then to allow more time,

six hours instead of two, to reduce the error rate without significantly impacting plant risk. The owners groups' analyses also showed this analytically.

Nuclear ex-core instrumentation testing is a frequent cause of trips from testing. An examination of the failure mechanisms of this instrumentation showed that many of the problems are found by operators during routine observations of the instruments rather than during the surveillance testing. For example, power supply failures are a fairly frequent cause of failure of this instrumentation and they are immediately alarmed. Therefore, reducing the test frequency of the technical specifications while maintaining safety seems reasonable. This is a test where the technical specifications surveillance isn't the main way failures are found. The instrumentation is alarmed, control rod movement is blocked, there are a lot of indications to the operator that he has a failed instrument without having to specifically perform a test.

Control rod movement tests are another cause. This is another test that control room operators say they would rather be done on somebody else's shift. Each control rod is moved a short distance specified in the technical specifications every 31 days. The purpose is to find mechanically stuck rods that would not trip if required but this test also causes reactor trips.

A search was made of operating data and we found 16 cases of mechanically stuck control rods going back to the 1960's. Of these 16 cases, only two were found during technical specifications surveillance tests. The others were found, as you might expect, during start-up of the reactor, when the rods are first pulled to go critical or during low power physics testing, where the rods are dropped into the core to measure how fast the rods will scram.

Therefore, the feasibility report recommended extending the surveillance interval from monthly to quarterly.

Mainstream isolation valves are required to close, to isolate steam generators, to limit consequences of the break of a steam line. The technical specifications require these valves to be stroked to 10 percent closed every quarter. This involves shutting the valve by 10 percent while the reactor is at power. This test also causes a relatively significant number of trips. However, in this case the test also discovers problems with the valve's capability to close and therefore, it is not possible, just looking at operating data, to say the test frequency should be changed and the feasibility report recommends more study by the staff.

In summarizing, the staff has now studied the main causes of reactor trips from surveillance testing and has approved changes to reduce the testing frequency for four causes and made recommendations which are currently under staff

review for the other three major causes of reactor trips.

[Slide.]

MR. LOBEL: In discussions with utility personnel, as part of the feasibility study, it became clear that part of the difficulty with performing surveillance tests is due to plant design. That is, the capability to easily perform a test wasn't considered adequately in the design of a plant. This can lead to trips, equipment wear and unnecessary radiation exposure. For example, testing some electrical equipment requires plugging and unplugging connectors, removing equipment from cabinets and bypassing actuating devices by lifting leads or using jumpers. It would be preferable to install test circuitry in cabinets so that entry and manipulation of equipment in the cabinets isn't necessary.

Commonwealth Edison has a testing device called MESAC which connects to the cabinet and tests all the circuitry in the cabinet with a minimum of manipulation of the equipment. This not only prevents wear to the equipment but also reduces the likelihood of a plant trip.

Correct location of equipment which needs testing can minimize radiation exposure to personnel performing the test, while conversely, while radiation dose could be increased by not adequately considering radiation exposure during testing in plant specific designs, radiation exposure due to surveillance testing accounts for approximately 20 percent of the total

exposure to people in a nuclear plant. These are tests required by technical specifications and also tests as part of the ISI in-service testing program.

The major radiation dose comes from maintenance work, because people are changing filters, changing reactor coolant pump seals and doing work in systems with high radiation.

These two are the major contributors to radiation dose.

Utilities have made efforts to reduce this fraction but in balancing the need to test against the radiation dose obtained, it is probably not possible to make a significant reduction in this number.

The location of equipment sometimes makes the test unnecessarily difficult to do. At one plant we visited, it was necessary for workers dressed in protective clothing to climb tall ladders carrying sample containers to take a sample of ECCS water while at other plants, the lines are extended down to floor level and that makes it a relatively easy task to do.

The staff is including testing capability in its review of advanced LWR designs to assure that in the future, the capability to easily perform tests is considered in the original design.

[Slide.]

MR. LOBEL: Wear on equipment is a concern during surveillance testing. Wear on electrical equipment from

frequent plugging and unplugging causes failures of electrical components. Turning power on and off stresses computers and other electronic equipment.

The recommendations of the owners groups' topical reports should help these situations.

Since pumps cannot inject into a vessel or a steam generator while the plant is at operation, a recirculation path is necessary from the water source to the pump and back to the water source in order to test the pumps during operation.

In PWR's, this recirculation path in many cases is smaller than the injection path, the safety path, for some pumps. The pump does not pump at its optimum design conditions then and this results in wear to the pump.

At one plant we visited, the licensee gave us an example of the wear to standby pumps from this type of testing. A circulating water pump, a large pump, in continuous operation for 10 years had a reduction in flow rate due to wear of 10 percent. It is a 10 percent reduction in flow in 10 years. At the same plant, on the other hand, a pump that was in standby service and tested periodically had 8 percent wear in the same time. A pump that was only tested monthly had almost the same amount of wear as a pump that ran continuously for 10 years.

Auxillary feedwater pumps are required to be tested monthly by technical specifications, while the ASME code would permit quarterly testing. The feasibility study is

recommending that the testing of all safety related pumps, which is currently required by technical specifications to be done monthly, be done quarterly in accordance with the ASME code.

Diesel generators are subject to a lot of testing. At one plant we visited, with five emergency diesel generators for two units, 70 tests were conducted in two months and all these tests were required by technical specifications. This isn't typical. I don't want to give the impression this is typical. This is the type of situation that a plant can get itself in by technical specifications.

Some non-standard technical specifications require more testing of diesels than standard technical specifications. They require testing, for example, when other equipment besides the other diesels are inoperable. This is called alternate testing. For example, if ECCS equipment, emergency core cooling system equipment is inoperable, it would be required to test the diesel generators. If the service water system is inoperable, it would be required to test the diesel generators. If a diesel generator is inoperable only in the technical specifications sense, that is, the engine may be running okay but there may be a problem with a cooling water pump, it is required to test the other diesel generators. If the emergency diesel generator doesn't start twice or more times out of 20 attempts, the rate of testing is required to be increased. In

some cases, the diesel engine is not only tested once under these conditions, but tested every eight hours or every eight days until the situation is corrected, either by fixing the equipment that is inoperable or by shutting the plant down.

All this testing does --

CHAIRMAN ZECH: Before you go on, what are we doing about that? What are the results? Haven't we done something about the diesel engine testing?

MR. LOBEL: Yes, I was going to get to that a little later. There is a study being done by Research as part of the aging program. A big part of that study is looking at diesel generators, not just testing but other causes of diesel generator failures. They are looking at it from an aging point of view. There is also a generic issue that is nearing completion in Research, Generic Issue 56, on diesel reliability, that is looking at how better to test diesels, to assure the reliability. This is an outgrowth of --

CHAIRMAN ZECH: Haven't we done something to reduce the number of cold start-ups?

MR. ROSSI: Yes. That has been done.

MR. LOBEL: Yes, there was a generic letter issued in 1984 that addressed cold start-ups.

CHAIRMAN ZECH: That is the last time we have done anything about it? Have we done anything about it since then?

MR. LOBEL: That is the last thing I know of other

than the programs that are going on now.

CHAIRMAN ZECH: Check on that. I thought we did something fairly recently to reduce the number of cold fast starts of the diesel engine.

MR. ROSSI: I think the generic letter was intended to be the thing that was done.

CHAIRMAN ZECH: Not in 1984, I think we have done something since then. That is what I am saying. I think we have done something on that.

MR. LOBEL: The generic letter gave the utilities the opportunity to come in and propose technical specifications changes to stop doing that kind of testing. There is a test required, a fast start required every six months by the new standard technical specifications, by the current standard technical specifications, but it is not a cold start. It still requires a fast start and load.

CHAIRMAN ZECH: Would you check on that? I thought we had done something in the past few years that would try to improve that situation.

MR. TAYLOR: We will check.

CHAIRMAN ZECH: I'm certain that we have but I would appreciate your checking.

MR. ROSSI: I think many of the diesel things you are talking about don't involve cold starts, it is just starts period, but not necessarily cold ones.

CHAIRMAN ZECH: It has been my impression since I have been on the Commission and looked at the plants, and I know we brought this up before, I've been to some new plants and it looks like the engine is old already and the plant is a near term operating licensed plant, we require so much testing to it that the poor diesel engine looks at least like it is almost worn out when we grant the license. That concerned me. I asked the staff, I think, several different times to look at that situation and see if all that testing before we grant licenses is necessary because my impression has been that even though the diesel has finally passed all those tests, I'm a little concerned that if it is needed, is it going to be ready.

I think we have looked at that and I think we have made what I believe are reasonable changes to ensure that the proper testing is done, that we don't over test, so we can have more assurance that these diesels if needed will come on line and will perform as required.

MR. MURLEY: We have found some very serious problems in the pre-op testing. It requires something like a 100 hour run. I remember we found a generic problem by requiring the Shoreham diesel to do that test. After several hours, it got into a vibration mode which failed the crankshaft. That would not have been found had we not done that extended test.

Clearly, there is balance that has to be made.

CHAIRMAN ZECH: Will you get back to us on that?

MR. TAYLOR: We will get back to you. I believe you are right. I think we put that information together but I can't remember exactly. We will give you an update on that.

CHAIRMAN ZECH: Thank you. You may proceed.

MR. LOBEL: Talking about alternate testing, testing of diesels because other equipment is inoperable, one licensee performed a study that showed that the alternate testing of diesels actually increased the unavailability of the diesels by a factor of three. When I talk about alternate testing, I'm talking about older technical specifications. The current technical specifications that a current plant would be licensed with don't have these requirements, but there are older plants that do. The study was done by one of the older plants.

I was going to talk next about the work that is ongoing. I don't think I have anything new to add except that the feasibility study's recommendations incorporated the recommendations of this work that is going on in Research as well as looking at other areas besides just testing.

[Slide.]

MR. LOBEL: The staff's work with technical specifications requirements has progressed to the point where the results can be implemented and we mentioned this a couple of times now, with the issuance of the staff's safety evaluations on the owners groups' topical reports, individual licensees can now propose changes to their technical

specifications to incorporate these changes as voluntary line item changes to the technical specifications improvement program. I understand that at least some licensees have already come in and proposed changes.

The feasibility study is complete and is currently undergoing staff review by Research, NRR and the Regions. Following the incorporation of the comments from the staff review of the feasibility study, the recommendations which are expected to have a major effect in reducing plant trips and the degradation of equipment will be incorporated into one or more generic letters.

COMMISSIONER ROBERTS: When do you anticipate that?

MR. LOBEL: I think we are aiming in the area of next May.

CHAIRMAN ZECH: This coming May?

MR. LOBEL: This coming May. Licensees will then propose technical specifications and like the changes to the topical report reviews, these changes should be approved very quickly since they won't require technical review.

All the recommendations of the feasibility study will be incorporated into the new standard technical specifications which are under development now by the owners groups and which should be complete by the end of this year.

[Slide.]

MR. LOBEL: In conclusion, the staff as part of the

technical specifications improvement program, has taken two major actions to improve technical specifications surveillance requirements. These improvements are based on techniques and data that weren't available at the time the first standard technical specifications were written. The two major actions are the review and approval of the owners groups' topical reports and the study of surveillance testing of major mechanical equipment and instrumentation not covered by the owners groups' topical reports.

We expect these recommendations, as I've listed before, to reduce the number of unanticipated trips due to testing and reduce wear and degradation of the safety related equipment, reduce radiation exposure. I feel this is important, reduce the testing burden on licensees by eliminating tests which experience has shown to be unnecessary or meaningless, so that the utility personnel can use their time more productively.

These changes will result in licensees, and I hate to use this word again, having more respect for their technical specifications.

CHAIRMAN ZECH: Find a better word.

COMMISSIONER ROBERTS: Yes, that might make all of us nervous.

MR. LOBEL: As documents, those requirements will truly reflect and enforce safety. Thank you.

CHAIRMAN ZECH: Let me make one observation on your last slide, again, before I call on my colleagues for any comments or questions they may have. That first bullet again, I just repeat, I would suggest you change the wording, in order to place the focus on safety, which is really what we are trying to do, change the wording to say something like reduction in safety system challenges, resulting from a reduction in unanticipated trips. It just kid of focuses on what we are trying to do, I think, a little better.

Questions from my colleagues? Commissioner Roberts?

COMMISSIONER ROBERTS: No.

CHAIRMAN ZECH: Commissioner Carr?

COMMISSIONER CARR: Yes. I noticed in one of your previous papers, you said you were going to get the submittal of a final policy statement on tech specs on June 30, 1989. Is that still a good date?

MR. ROSSI: That's still a good date.

COMMISSIONER CARR: You have convinced me, I don't have to be convinced, we have been talking about this for a couple of years now, the problem I have is none of it gets into the plant. It is still in the paperwork phase. We have done a lot of work on it and the guy out there on the other end that you are worrying about, that poor operator, he hasn't seen any of it yet.

MR. ROSSI: I believe the topical reports are getting

into the plants. That is my understanding.

COMMISSIONER CARR: When you come in with your data, how about telling me how many tech spec changes in accordance with those nine letters you have there are in and how long they have been in and how many of them you have turned around.

MR. ROSSI: That will start to show the progress.

COMMISSIONER CARR: The idea that they don't need a technical review is a good idea but then I listen to Dr. Murley who says, well, but they don't ever come in exactly like they should to not require technical review. I get the feeling what we really need is a tech spec czar that has the charge of you get rid of those tech spec changes and get them cleared out of here and report back. I think we have the responsibility so spread out across "X" number of guys' in baskets that we never have been able to get them finally out.

MR. TAYLOR: Our system is built to have them submit to us and we hope they do.

COMMISSIONER CARR: As I understand it, it comes in as --

MR. TAYLOR: It may be that it doesn't work that way and we may want to do other things.

COMMISSIONER CARR: It comes into the project guy who has a technical question, it goes out to some guy in another in basket who is working on something else and the system is just not built for finishing up that piece of paper before it gets

put down. Thank you.

CHAIRMAN ZECH: Commissioner Rogers?

COMMISSIONER ROGERS: Just a little follow-up. I think if we are really convinced and I think we seem to feel very strongly that this is an activity which enhances safety, then I think we have to ask ourselves whether we are being sufficiently proactive with respect to the licensees. If there is this aspect of it that Commissioner Carr has referred to, namely getting the paperwork out, and then if we put the paperwork out and nobody comes back and says, I'd like to make some changes, have we really accomplished anything.

It is just that I'm a little uncomfortable with all this work going on which I think is very important, that might not lead to very many changes in tech specs because licensees for some reason feel that they just don't want to take that step. My impression is that in general that is the way tech specs are regarded, as something you don't want to get into changing, because you have them, good or bad, that is what they are and you have learned how to live with them for "X" years and opening that door is maybe something you may not want to do.

It seems to me that is something of an attitude I detect with respect to licensees, and maybe with good reason. If we are pushing this program, we really believe it is of importance to safety, I think we want to see that it actually

gets implemented and as broadly as possible.

MR. TAYLOR: I think the staff agrees. I think if our experience shows it is that way, maybe we will have to take a more proactive step than we have in our authority to do. We would like to see the licensees pick it up and do the job.

COMMISSIONER CARR: The older plants don't have as many tech specs and they don't want to pick up a lot. The newer plants have a lot and they would like to get rid of some.

MR. TAYLOR: It is mixed.

CHAIRMAN ZECH: Commissioner Rogers?

COMMISSIONER ROGERS: Just one other thing. We are reducing the frequency with which surveillances are done, in general, that is the approach we are taking, rather than just totally eliminating them, maybe in some cases they are being eliminated, but we are changing the frequency. The surveillances are still being done, maybe at a less frequent rate. That raises the question as to whether we still couldn't encourage the way surveillances are done to be performed better. We know some of the experience overseas is much better with respect to the actual trips that result from surveillance tests. The Japanese may have reduced the number of surveillance tests that they do, but they also do the tests that they perform much better than we do.

MR. MURLEY: More carefully.

COMMISSIONER ROGERS: I've read about that and heard

about it and you talked to them about it. I think it is also important to look at that since we are looking at surveillance testing, not just the reduction of it, but we want to reduce the problems that it brings, look at the training and management questions that are related to reducing problems from those tests which are continuing.

MR. MURLEY: Much of the tests we saw going on, they had two people involved. One person reads and verifies what the actual person doing the manipulations is doing. We don't generally do that. There are some things clearly that involve utility practices that can improve the quality of the tests.

COMMISSIONER ROGERS: It is all a question of the environment in which the test is being performed, whether there is enough light, whether there is enough room, so on and so forth. So often, it has been my observation that plant trips that have come about from instrumentation or control instrumentation surveillance testing have come about because it was very difficult for that test to be performed in the first place, the conditions under which it was to be performed were really inadequate, put the person who was doing the test really in an almost impossible situation. As much as possible, we should encourage the improvement in the environment in which the test is being performed.

CHAIRMAN ZECH: Commissioner Curtiss?

COMMISSIONER CURTISS: I have nothing.

CHAIRMAN ZECH: Just a couple points. First of all, I think the staff efforts to enhance safety through improved technical specifications overview and to attempt to reduce the challenges to safety systems are very important activities. I think you can tell and see and you know you have the full support of the Commission in this initiative.

I think as you have pointed out, too, and we discussed very briefly, there is a balance and a judgment between how much testing is appropriate, how much is vital, how much is good, how much is perhaps not necessary, but it is a judgment call, how much testing is necessary and it is a judgment call about whether or not you are getting the benefit from that testing as far as reliability and safety is concerned. We recognize that. That is something that has to be given careful thought and the best analysis possible.

The technical specifications, as we know in some cases, can be so voluminous that priority is necessary, at least that is my view. It would appear to me that we have done a reasonably good job in the planning on this issue, we have done a reasonably good job on what I would term the programming of this issue. That is the first few phases. Now we need to see implementation. Part of the implementation, at least in my judgment, is the processing of the amendments that have resulted from the program we have put in place.

If there is a better way to process those amendments

more expeditiously and if we do believe, as you have indicated and as I think the Commission would agree, there is safety improvements to be made in this effort, if that is the case, it would seem to me that we should give a considerable amount of attention to the implementation of this program so that we can actually see results. That is kind of what we are all looking for.

It is a good program, it would appear. We have it set up now, all we need is to see it implemented.

I would hope, Mr. Taylor, you and Mr. Stello could look at this with Dr. Murley and others, to ensure that we are placing enough agency resources on this implementation phase so that we can get the benefits of the planning and programming that has gone into this particular issue.

It would seem to me that is something that perhaps at the next meeting, we could focus on, the implementation and also focus on perhaps a little more than we have today the specific results, the completed results, not only the planning and programming but the implementation, so that we can see here are results, how many amendments have been processed, how many have been approved, and therefore, are we seeing the benefits of this planning and programming. We need to see implementation and we need to see results. I think that is the focus I would ask for at the next briefing.

Are there any other comments by my fellow

Commissioners before we conclude?

[No response.]

CHAIRMAN ZECH: Thank you very much. It is a very important program and we appreciate the staff's efforts.

We stand adjourned.

[Whereupon, at 11:20 a.m., the briefing was concluded.]

CERTIFICATE OF TRANSCRIBER

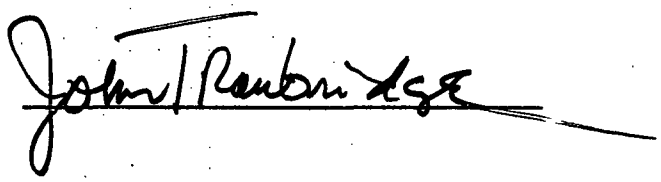
This is to certify that the attached events of a meeting of the U.S. Nuclear Regulatory Commission entitled:

TITLE OF MEETING: Briefing on Tech Spec Improvements

PLACE OF MEETING: Washington, D.C.

DATE OF MEETING: January 6, 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.



Ann Riley & Associates, Ltd.

COMMISSION BRIEFING

UPDATE ON STAFF ACTIONS RELATED TO TECHNICAL SPECIFICATIONS IMPROVEMENTS

JANUARY 6, 1988

TECHNICAL SPECIFICATIONS IMPROVEMENT PROGRAM

The Program Will Implement The Commission's Policy Statement Thru:

- *Development Of New Standard Technical Specifications*
- *A Parallel Program Of Specific Line Item Improvements To Technical Specifications*
- *Other Activities Necessary To Fully Implement The Policy Statement*

PROGRAM GOALS RELATED TO SURVEILLANCE REQUIREMENTS

To Improve Operational Safety by Assuring That Techinical Specifications Surveillance Requirements

- *Maximize Safety*

- *Balance Equipment Reliability And Availability Against Risks Of Plant Transients From Testing*

SAFETY BENEFITS FROM STAFF PROGRAMS TO IMPROVE TECHNICAL SPECIFICATIONS SURVEILLANCE REQUIREMENTS

- *Reduction In Number Of Unanticipated Trips*
- *Reduction In Wear And Degradation Of Safety Related Equipment*
- *Reduction In Radiation Exposure To Plant Personnel*
- *Allows A Better Allocation Of Licensee's Resources To Preventive And Corrective Maintenance*
- *Results In More Respect For Technical Specifications*

TOPICAL REPORTS

Approved By The Staff

1.	W Topical Report On RPS	2/85
2.	GE Topical Report On RPS	7/87
3.	B&W Topical Report On RTS	12/88
4.	GE Topical Report On Rod Block Instrumentation	9/88
5.	GE Topical Report On Isolation Instrumentation	Est 12/88
6.	GE Topical Report On ECCS Actuation (Part 1)	12/88
7.	GE Topical Report On ECCS Actuation (Part 2)	12/88

Review Ongoing

8.	W Topical Report On ESFAS	1/89
9.	CE Topical Report On RPS And ESFAS	2/89

REDUCTION IN SURVEILLANCE TESTING AS A CONSEQUENCE OF TOPICAL REPORTS

(For An 18 Month Cycle)

RPS/ESFAS Current	2,000/3,000
RPS/ESFAS Proposed	900/1,500

Net Safety Benefit

Approximately 2/3 Reduction In Number Of Plant Trips From RPS/ESFAS Testing

STUDY OF THE FEASIBILITY OF REDUCING TECHNICAL SPECIFICATIONS SURVEILLANCE REQUIREMENTS

TASK: *Perform A Comprehensive Examination Of Technical Specifications To Determine If Safety Can Be Enhanced By Modifying Surveillance Requirements*

MAGNITUDE OF SURVEILLANCE TESTING

For Limerick Plant:

1986 (No Refueling)	15,000
1987 (With Refueling)	17,500

SURVEILLANCE TESTING AND PLANT TRANSIENTS

Most Common Events Caused By Testing

- *Reactor Trips*
- *Area Isolations*
- *Equipment Actuations*

More Serious Events Can Develop From Surveillance Testing

SURVEILLANCE TESTS WHICH ARE SIGNIFICANT CONTRIBUTORS TO PLANT TRIPS

- Turbine Overspeed Testing
- Engineered Safety Feature Logic Testing
- Reactor Protection System Testing
- Reactor Trip Breaker Testing
- Nuclear Instrumentation Testing (Source, Intermediate, Power Range)
- Control Rod Exercising (PWR)
- MSIV Partial Stroke Testing

SURVEILLANCE TESTING AND PLANT DESIGN

- Many Surveillance Testing Problems Are Related To Plant Design

For Example:

- *Lifting Leads, Installing Jumpers, Etc. To Perform Instrumentation Surveillances Without Causing Trips And Equipment Actuations*
- *Location Of Equipment May Result In Radiation Exposure*
- *Location Of Equipment May Make Test More Difficult To Do*

- Advanced LWR Designs Are Considering Surveillance Testing In Design Phase

SURVEILLANCE TESTING AND EQUIPMENT WEAR

- Wear On Electrical And Electronics Equipment
  - *Plugging and Unplugging Connectors*
  - *Removing Equipment From Cabinets*
  - *Lifting Leads*
  - *Using Jumpers*

- Wear On Centrifugal Pumps
  - *Testing In Configuration Different From Safety Function*

- Emergency Diesel Generators

IMPLEMENTATION

TOPICAL REPORT TECHNICAL SPECIFICATIONS CHANGES

- Proposed License Amendments Submitted On A Voluntary Basis

SHORT TERM STUDY RESULTS

- Generic Letter To Be Issued Proposing Changes That Significantly Improve Safety

- Other Report Recommendations Will Be Incorporated In The New Standard Technical Specifications

SAFETY BENEFITS FROM STAFF PROGRAMS TO IMPROVE TECHNICAL SPECIFICATIONS SURVEILLANCE REQUIREMENTS

- *Reduction In Number Of Unanticipated Trips*
- *Reduction In Wear And Degradation Of Safety Related Equipment*
- *Reduction In Radiation Exposure To Plant Personnel*
- *Allows A Better Allocation Of Licensee's Resources To Preventive And Corrective Maintenance*
- *Results In More Respect For Technical Specifications*