UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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BRIEFING ON PROPOSED RULE - REVISION TO
APPENDIX J TO 10 CFR PART 50
PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Thursday, December 8, 1994

The Commission met in open session, pursuant to notice, at 2:15 p.m., Ivan Selin, Chairman, presiding.

COMMISSIONERS PRESENT:

IVAN SELIN, Chairman of the Commission
KENNETH C. ROGERS, Commissioner
E. GAIL de PLANQUE, Commissioner

STAFF SEATED AT THE COMMISSION TABLE:

KAREN D. CYR, General Counsel
JOHN C. HOYLE, Acting Secretary
JAMES TAYLOR, Executive Director for Operations
WILLIAM RUSSELL, Director, NRR
ASHOK THADANI, Associate Director for Inspection and Technical Assessment, NRR
RICHARD LOBEL, Senior Reactor Engineer, NRR
THEMIS SPEIS, Deputy Director, RES
JOSEPH MURPHY, Special Assistant, RES
MONIDEEP DEY, Senior Task Manager, Division of Safety Issue Resolution, RES

P R O C E E D I N G S

[2:15 p.m.]

CHAIRMAN SELIN: Good afternoon, ladies and gentlemen.

The Commission is pleased to welcome members of the staff to brief us on the proposed revision to Appendix J, the primary reactor leakage testing for water-cooled power reactors in Part 50.

In 1992, the NRC proposed that the existing containment testing rule should be considered a potential candidate for modification in order to make regulation less prescriptive and to advance performance-oriented and risk-based regulations. On this basis, the staff analyzed the public comments on the proposal and the Commission announced its plans to initiate rulemaking for developing the performance-oriented regulations.

At a public workshop in 1993, the staff invited discussion of specific proposals for modifying containment testing requirements based on the industry and public comments. I understand from looking -- I peeked, Mr. Taylor. I looked at the slides. We know that you're proposing revision to Appendix G to allow licensees to have an option to adopt performance-oriented and risk-based approach to containment testing.

Copies of the viewgraphs are available.

Commissioner Rogers?

COMMISSIONER ROGERS: Nothing.

CHAIRMAN SELIN: Commissioner de Planque?

Mr. Taylor?

MR. TAYLOR: Good afternoon. As you noted, Mr. Chairman, this rule is performance-based in accordance with our thinking on approaching rulemaking on this basis. We do believe that this rule will have only a marginal impact on safety while concentrating NRC and licensee resources on more safety significant aspects of containment leak rate testing.

The rulemaking will be conducted in two phases. The first phase deals exclusively with containment leakage rate testing. The second phase will focus on a reevaluation of allowable containment leakage rates. Our discussion today will concentrate on the first phase, that is leakage rate testing.

At the table are Themis Speis, Joe Murphy and Moni Dey from the Office of Research, Bill Russell, Rich Lobel and Ashok Thadani from NRR. Joe Murphy will start the briefing.

MR. MURPHY: Thank you.

We have covered the purpose and the -- have the first viewgraph, please.

[Slide]

MR. MURPHY: We believe the change we're proposing has a negligible effect on safety than the significant potential for burden reduction. We're here to ask the Commission's approval of our notice for proposed rulemaking. Buried in that is a question for the public in the form of essentially an advanced notice of proposed rulemaking on phase 2 to request suggestions as to how to put the containment function on a more performance basis. This would include, but not necessarily be limited to, the question of the containment leakage rate itself. Finally, the NRR representatives will discuss the implementation of the proposed testing frequency changes.

In summary, what we have is a rule that is less prescriptive and more performance based.

Next viewgraph, please.

[Slide]

MR. MURPHY: There will be a longer interval between tests, assuming that the performance remains good. We believe that with this rule we'll continue to provide reasonable assurance that the containment function is adequately maintained. There's no increase in risk to the public associated with this extension of intervals. The calculated change in risk appears in the third significant figure, which is essentially meaningless. I do want to stress that our proposed approach is optional. The current

provisions of Appendix J would still be available if the licensee wished to use them.

CHAIRMAN SELIN: I have a question on that, Mr. Murphy. Why would we want that to be optional? Is it for legal grounds so we don't have to do a backfit analysis or is it because there are licensees who would prefer not to take the trouble of changing the current position?

DR. DEY: Can I answer that, Joe?

I think it's primarily the latter, that licensees would have institutionalized programs and they wouldn't want to change. Therefore, we made it voluntary.

CHAIRMAN SELIN: Is there any resource implication in our part accepting both approaches? Would we be able to save resources if we actually went to the new approach on a mandatory basis?

MR. RUSSELL: I think it's probably resource neutral for us. There could be some request for amendments to implement which we would expect a number of licensees would request that, but we've identified appropriate changes to the tech specs to do that. We'll be briefing you on those today. That can be done in conjunction with a tech spec conversion. So, we could identify in, for example, the new standard tech specs, an option with or without the revised testing. I would expect if someone were coming in to modify the tech specs they'd want to take advantage of

this. I think the benefit really is in burden reduction, having to do fewer B&C tests and only doing type A tests once each ten years.

MR. MURPHY: Can I have the next viewgraph, please?

[Slide]

MR. MURPHY: On phase 2 of the program we'll consider the performance-based rule to maintain the containment function in its entirety. There we'll be considering how you might give credit for on-line monitoring, either separate on-line monitoring systems or several plants have features with them today that effectively provide information that allows us to determine whether there is a large hole in the containment. I'm thinking something like the subatmospheric containments by maintaining the containment at a negative pressure and know that there's no major fault in the containment system.

We'll be considering revising the allowable leakage rate requirements, but in doing so there's a number of things we have to consider. One is its effect on public risk and another is its effect on occupational risk, the doses to the control room during an accident and its impact on the licensing bases and other regulations. Phase 2 will be, I think, a much more difficult task than the phase 1 work we're talking about today.

As I mentioned, we are soliciting options or opinions on how to progress in the phase 2 in this rulemaking package. We believe that the proposal we have will either reduce occupational exposures in the significant reduction in industry's test costs.

With this, I'd like to turn over the detailed description of the proposal to Dr. Moni Dey from our staff.

DR. DEY: Thank you, Joe.

Could I have slide 5, please?

[Slide]

DR. DEY: Slide 5 presents a summary of the changes to Appendix J. The proposed revision essentially allows testing to be based on performance. The intervals of the test that show good performance may only be extended. This is compared to current Appendix J requirements that are prescriptive and require testing at fixed intervals, irregardless of performance. Current Appendix J also contains the testing frequencies and detailed test methods that have led to many exemptions.

The integrated leak rate test, also called the IRLT, and the type A test measures the leakage of the overall containment system. The interval for this test may be extended from current three tests per ten years to one test in ten years based on good performance. Good performance is defined as two successful previous tests. I

will describe the basis for this at a later slide when I present our technical findings.

Visual examinations are currently coupled to the type A test. They consist of a walk through of the containment to detect deterioration of the containment structure. The visual examination we've decoupled from the type A test in the proposed rule. This is due to the usefulness of these inspections to detect any early signs of degradation. So, the staff has maintained the frequency at three times every ten years as is currently required.

For the local leakage rate tests or LLRTs, there are two types of these tests. The type B tests are mainly for electrical penetrations and air locks. The type C tests are for containment isolation valves. The proposed revision allows extension of the type B test for electrical penetrations from one test every two years to one test every ten years, based on good performance. Type B tests for air locks may be extended from one every six months to one every two years. The type C tests can be extended from one every two years to one every five years. Again, based on good performance and also the safety significance of the isolation valves. Good performance is defined as for the type A test by two successful previous tests.

We believe the proposed revision will allow a focus on safety significant and problem components compared

to a uniform treatment of components as currently required. Also, the proposed rule requires several important elements of a performance-oriented program. These are establishing performance goals, considering performance factors and evaluating test results and comparing to previous test history. These activities will be new for licensees in this area and we expect it will enhance the overall testing program. At the same time, the proposed performance-oriented approach also allows licensees considerable flexibility in implementing the safety objectives in the rule.

The acceptance criteria for the test, the allowable leakage rate, known as LA is contained in the technical specifications currently. It's not in the rule. We don't propose to change that at this time, as Joe mentioned. However, in the statement of considerations for the proposed rule, we've described our understanding of the significance of containment leakage to public risk. We have also used this information to assess the risk impact of modifying the test frequencies and I will describe that later.

One final note on comparing the proposed revision with the current requirements. The criteria for establishing the test frequencies are contained in a reg. guide which endorses an industry guideline as compared to

specific frequencies are contained in the current Appendix J.

Can I have slide 6, please?

[Slide]

DR. DEY: Slide 6 summarizes the technical findings that support the proposed rule. The staff has conducted extensive analysis of historical plant testing data and risk assessment of the alternative testing requirements. These studies are included in the draft NUREG document we have submitted in the SECY paper, attached to the SECY paper. This study was conducted as part of our effort to adopt risk-based approaches.

Our analysis of 770 reactor years of operating history for 110 reactors showed only about three percent of leakages are detected by ILRTs. Also, these leakages were marginally above the allowable leakage rate. This is because the ILRT is basically a confirmatory test after the local leakage rate tests have been conducted, thus extending the interval up to ten years, the IRLT interval to ten years should yield a marginal impact on safety. I will discuss our risk impact analyses in more detail at a later slide.

NEI also conducted an analysis for 31 units and came to similar conclusions for the IRLT historical database.

CHAIRMAN SELIN: Dr. Dey, let me ask you the same

question I asked at the beginning. Why don't we make this change mandatory? I really don't -- it actually improves safety. It can be done by a block change. You don't need an individual license amendment for each piece. Why are we do reticent? Is there any downside to just saying this is how it will be done in the future? Normally I'm somewhat skeptical about prescribing changes, but this is an overwhelming case that says that the accident risk is untouched. These are not very useful tests. Exposure would be less. I mean even not taking the cost into account, it seems to be a dominant case and wouldn't be that hard to implement. You don't need to -- I wouldn't think you'd need to process a license amendment for each plant and it would just make our inspection protocol that much simpler.

MR. RUSSELL: I guess I can compare this to some other cases where we've made changes available on a voluntary basis the issue of doing monthly testing versus quarterly testing for engineered safeguards features, reactor protection systems, et cetera. There was quite a period of time for licensees to phase that in and there are up front costs associated with changing procedures, modifying things, et cetera. So, this scheme with time, we expect that most licensees would do this. But this would allow them to determine the timing of doing that at the cost of potentially having to do additional testing between

outages.

CHAIRMAN SELIN: Flexibility and implementation is different from having it as an option. I mean I'm looking at this and the thing that strikes me so much is the reduction of personnel exposure. In effect, people are exposing their workers to unnecessary radiation in order to comply with our rules. I don't want to overstate my point. I really haven't studied the implementation of this, but I wonder if we're not just being too modest in the objectives.

MR. RUSSELL: We could certainly look at that and request comments during the proposed rulemaking as to whether it should be optional or it should be mandatory.

CHAIRMAN SELIN: I'll start drafting my comments.

MR. TAYLOR: We've got one.

COMMISSIONER ROGERS: Just on this point, that only three percent of the identified leaks were detectable by the integrated leak rate test, did you look at what those kind of leaks were and how they were identified, that three percent? Does that suggest that there's a better way to look for leaks than the integrated leak rate testing?

DR. DEY: I think it suggests that the ILRTs are confirmatory tests after the local leak rate tests are done and that their usefulness is in that respect, that it confirms your leak type, but it doesn't uncover any additional leakages.

COMMISSIONER ROGERS: I see.

DR. DEY: If I can continue on the visual inspections. We found that these are useful for early detection of structural deterioration. Therefore, the staff is not prepared to approve a change in the visual inspection frequency at this stage.

For the LLRTs or the type B and C tests, the staff conducted a detailed analysis of data from North Anna and Grand Gulf Nuclear Power Stations. NEI also provided us with a summary of data from 31 units. Type B tests uncover about 12 percent of the leakages on average. For LLRTs of electrical penetrations, we found very few failures. On average, 98 percent of the penetrations have never failed the leakage test. In some plants, for example North Anna, there hasn't been a failure in 27 unit years of operation.

CHAIRMAN SELIN: Is the testing completely non-destructive or does it have any negative impact on what is being tested?

DR. DEY: I don't think it will have any negative impact on the penetration other than the cost and exposure of conducting the tests.

Therefore, we believe increasing the interval to ten years for these tests would have a marginal impact on risk. For LLRTs of air locks, the performance is about equal to electrical penetrations. But some leakages when

they occur can be larger. Given this and the safety significance of air locks, the staff proposes to improve the extension of the interval to two years.

For LLRTs of isolation valves, analysis shows about 90 to 95 percent of the valves have never failed a test. The type C tests detect about 85 percent of the leaks, most of the leaks. For the valves that do fail, there's an increased probability that they will fail again in the next two outages. That is the failures are dependent. However, we didn't find any correlation between the valve failures and system valve type parameters. These findings were true both for North Anna and Grand Gulf and the summary of data we received from NEI for 31 units indicated similarities to the data from these two plants.

This analysis confirmed the feasibility of performance-based testing schemes proposed by industry. That is, good performance can be established when a component has passed two previous consecutive tests. The staff proposes to approve extending the interval of type C tests to five years based on performance and safety significance. This also should result in a marginal impact on safety.

It is important to note that the type of analysis we've conducted here and the testing schemes adopted are new. Although the staff encourages these innovative

proposals and has concluded that they are feasible, we'd like to proceed with some caution. I'll come back to this point later.

Slide 7, please.

[Slide]

DR. DEY: Slide 7 summarizes our risk impact assessment and also industry burden reduction. First let me cover our risk studies summarized in the first two bullets.

Our present effort essentially extended previous staff efforts in 1984 and again in 1986 to assess the risk significance of containment leakage. Our analyses are presented in the NUREG report in the SECY paper.

Using the latest PRA studies and NUREG-1150, we confirmed earlier conclusions that overall population risks are not sensitive to containment leakage rates at the low levels. Leakage can be increased by two orders of magnitude with only a marginal impact on population risk estimates. The risk is dominated by low probability high consequence scenarios where the containment is failed or bypassed. Little benefit is derived from a high degree of containment leak tightness.

I'd like to spend a couple of minutes on some of the results. Using NUREG-1150, we found the sensitivity of individual cancer risk to containment leakage is essentially flat up to about 10 to 50 percent, volume percent per day

leakage rates. Current allowable leakage rates are at .1 to .5 percent per day range. We conclude the main reason for this sensitivity is the fission product decay or retention versus leakage rate. The source term varies linearly with a very small slope with leakage rate until the leakage affects the source term development and the fission product retention. The curves for BWRs rise at larger leakage rates because of the higher probability of containment failure in BWRs. Also, there's more fission product scrubbing in the pools for BWRs, which will have a similar effect. The presence of engineered safety features plays a role in this sensitivity by affecting the retention of fission products.

This information we used to assess the risk impacts of the alterative test frequencies. Given the very good performance history of the tests and the low leakage rate detected in the failed test, the risk impact on extending test intervals is marginal. For the IRLTs, we estimated that the interval extension to ten years will result in less than one percent increase in risk. For the LLRTs, we estimate that the performance-based testing schemes will result in a few percent increase in overall risk.

Although qualitatively we've discussed in the draft NUREG, we have not as yet included an estimate of the decrease in risk from less testing due to shutdown risk and

post-test restoration errors. As suggested by the ACRS, we intend to quantify the decrease due to shutdown risk. Also as indicated by the ACRS, this decrease may actually negate the estimated marginal increase in risk.

Now let me turn to --

COMMISSIONER ROGERS: Excuse me. Before you move off that.

DR. DEY: Yes.

COMMISSIONER ROGERS: Those calculations of the increase in risk or the risk as a result of these leakages, how do you do those? Do you assume that the leakage rate is unaffected by the existence of an accident? I mean, for example, if there is a severe accident in a containment with a low leakage rate, is it possible that that leakage rate would not be the one that would actually control in the event of an accident, that that rate may be increased by some damage to the area where the leak is occurring? So, when you do your calculation, if you just simply assume that you've got a severe accident or something inside the containment and then the leakage rate is fixed, and then you calculate what the increased risk is as a result of that, is that the only possibility? Isn't there another possibility that the rate itself may be affected by the existence of an accident?

CHAIRMAN SELIN: In which case the test would be

even less useful.

MR. MURPHY: When we did NUREG-1150, we were very conscious of that. So, the assumption in NUREG-1150 was that the containment leaked at one percent per day rather than at ten percent. It's because of the additional stresses that would come from the severe accident that was beyond design basis essentially. What we did in this study was essentially to start with that one percent per day number from NUREG-1150 and then vary it down to zero and vary it up as high to the point where we could see the bend in the curve which is on the order of start bending around 50 percent. I think the highest we went was about 200 percent. At some point you would expect it to essentially start to turn over because the higher leakage rate prevents the ultimate failure of the containment from over pressure failure. So, it's a complex relationship, but at least in that range from zero to 200 percent we have a reasonably good feel as to how it would behave. But your concern is certainly a valid one.

MR. RUSSELL: Generally we've used correlations that are related to pressure to leak rate. We have in cases where the pressure is reduced essentially assumed that the leakage stops. So, that's another factor that needs to be built into the parameters, but we have assumed a constant and generally have modeled based upon what containment

pressure would be as the forcing function such that if you are able to get the pressure back down it's less of a concern. This is one of the big differences between what we're looking at now with the passive designs and the evolutionary designs where you have system sprays, et cetera, things to intentionally drive pressure down. Pressure will be staying up in containment for a much longer period of time because that's, in fact, the heat sink that you're using. We are exploring those issues as well as a part of the advanced design reviews.

DR. SPEIS: Let me add something also to this. I think the main reason why the curve is flat of risk versus leakage is that for those accidents, severe accidents where the containment remains intact but leaks, is that there is an assumption based on PRA arguments that some of the engineering safety features work. Therefore, the non-noble gases are retained in the containment and the only thing that leaks out is the noble gases. So, this area has to be looked very carefully to make sure that you understand the sequences. For example, there are some sequences where the engineering safety features will retain their integrity, but others, like for example station blackout, you don't have sprays. So, that area has to be looked very carefully. But I think we're confident, at least up to a factor of ten. Beyond that, we have to explore all the PRA arguments to

make sure that we're on very sound ground.

CHAIRMAN SELIN: These calculations remind me of my days in the Defense Department when we compared weapon systems that have one percent difference in case of nuclear war. We just want to know if we're in the right ballpark.

DR. SPEIS: Yes, that's exactly right.

CHAIRMAN SELIN: Basically you've said there are very few leaks, we can't detect them anyway and even if we could they wouldn't make any difference. So, why are you so cautious? If we didn't do leak testing today and you came to us with this program and say, "We want to do this leak testing based on this program," we'd throw you out. I really don't understand this. At the very least, I want to make sure that the language you put in this statement is broad enough so that if we decide to make this mandatory or even less, you don't have to go out with another draft rule. The whole argument seems to be based on we can do a little bit, whereas in fact I think your argument supports doing a lot more than you're proposing to do.

I apologize slightly for the weak attempt at humor, but I really don't understand why you're so cautious on the conclusions that you draw. By our standards, by NRC standards, this is definitive analysis. Remember some of the stuff you've come to us with at different times, and yet you're so cautious in the conclusions.

DR. SPEIS: Well, in this proposed rule, we're not using leakage on an absolute sense as a performance criterion. We're talking about leak rate testing intervals. Okay? But the phase 2 will address that issue and coupled to that our licensing basis, Part 100 calculations. We're really ahead of the game, but we agree with you.

CHAIRMAN SELIN: Phase 2 is a different part. Then you're really getting into better understanding of the physics and the dynamics. Here you have a fairly limited question. You've got, as I said, an overwhelming analysis and very cautious conclusions. At the very least, allow us some flexibility so that if we decide to draw more far reaching conclusions we don't have to go out with another draft rule.

COMMISSIONER de PLANQUE: Is it obvious to you that phase 2 and this one are indeed separable so that it makes sense to go out with this now?

DR. SPEIS: Yes.

MR. RUSSELL: The issues that you would need to address in reassessing what is the appropriate leak rate to use are much more complex and gets to a broader evaluation of the containment performance function. For granting relief, I think that we would have to understand better the sequences, source term, source term transport, how it's playing out, the timing issues and we're seeing some of that

now.

DR. THADANI: It will impact some of the licensing basis and some of the other regulations then clearly that have to be addressed. For example, Part 100.

MR. RUSSELL: Well, we've proposed changes to put that back into Part 50. Basically the surrogate that we've used is a dose calculation for a two hour dose. We've proposed some changes to you to put that all in Part 50. But this would have potentially significant implications for the regulatory process that we've used in the past.

DR. DEY: Okay. Let me turn to the reduction in burden estimates this rule revision would provide to industry. The flexibility -- that's in the third and fourth bullet of slide 7.

The flexibility provided by the proposed rule is expected to provide an economic incentive for good performance and also significantly reduce industry burden. Extending the IRLT intervals to one and ten years based on good performance is expected to decrease total industry costs by $330 to $660 million. The lower range assumes results from assuming an average life of 20 years remaining for the 110 reactors. The upper range is assuming an average 20 year life extension for all reactors. The total occupational exposure is estimated to be reduced by up to 400 person rem.

The performance-based testing schemes for the LLRTs are expected to reduce total industry costs from $30 to $55 million. The total occupational exposure will be significantly reduced by up to 2,800 person rem.

We estimated than an IRLT costs about $1.8 million. About $1.5 million of this is from replacement power costs because IRLTs require about five days during an outage when no other work can be done. Cost for each plant will vary because of differences in replacement power costs. Occupational exposure is estimated at about .4 person rem for an ILRT. An average battery of LLRTs for a PWR is estimated to cost about $165,000.00. Grand Gulf, a BWR, has indicated their cost for LLRTs is about half a million dollars. BWRs typically have a larger number of penetrations.

The performance-based testing schemes for LLRTs are estimated to reduce the number of tests by about 50 percent. The occupational exposure from a battery of LLRTs is estimated at 2.4 person rem.

Can I have slide 7, please? Slide 8.

[Slide]

DR. DEY: Slide 8 describes the key aspects about the reg. guide and the NEI guideline. The reg. guide endorses the guideline, subject to two exceptions. Before I describe the exceptions, I would like to first describe

briefly the NEI guideline.

The guideline establishes the performance factors for extending the test intervals. IRLT test interval may be extended to one in ten years if two consecutive tests meet the allowable leakage rate. For LLRTs, test intervals may be extended to five years based on two successful tests and up to ten years based on three previous successful tests. Performance is based on as-found tests. Safety impacts, service, design will also be considered before extending intervals. For extension to ten years, the tests should be staggered to detect for common mode failure mechanisms and the entire process should be reviewed. The guideline emphasizes performance assessment and corrective action when failures are detected. It also endorses an ANSI standard for test methods.

CHAIRMAN SELIN: Let me ask you a not completely hypothetical question. What if for the IRLTs we just said, "We're just not going to do them." I mean not based on performance, we just said we're not going to do them. Do them one every ten years or do them at license renewal. What would that do to the risk? You know, I'm a little concerned that you've gotten on a sort of performance kick just because we want to do performance-based, but maybe we can just cut out some of these tests regardless of their performance, particularly the ILRTs. The risk much be

comparable to the storage tanks that we look at every 40 years and a couple of other questions, aren't they?

DR. DEY: One limitation we had in the process of reviewing that question was the risk analyses given the data shows that you could go beyond ten years, up to 20 years, a very marginal risk impact. But there's some uncertainties related particularly to degradation and aging of the structures. Currently, most pressure vessels are tested at that range, ten year range. So, we concluded that we'd like to keep it at this time limited to ten years until we gain more experience. As a note, the Europeans also settled on that frequency.

CHAIRMAN SELIN: Explain to me again which ranges are based on performance and which are just reductions in frequency regardless of performance?

DR. DEY: I was going to get into this a little more later. We used the risk analysis to justify extension of the intervals, but we've used deterministic -- the risk analysis using historical databases in the analysis. But we used deterministic engineering judgment to limit the intervals for the type A and also I was going to get into the type C tests. We took exception to industry's proposal going to ten years on those.

CHAIRMAN SELIN: The type A tests, you're not taking a look at the individual licensee's performance to

decide whether to increase the interval, you would just increase the interval, is that correct?

DR. DEY: No. It's based on two previous successful tests at the plant.

CHAIRMAN SELIN: Two previous successful what tests?

DR. DEY: IRLT tests.

COMMISSIONER de PLANQUE: But if the likelihood of a leak increases with the age of the thing, why is previous success a determining factor? Why does previous performance indicate it's okay?

CHAIRMAN SELIN: Let me just carry on with Commissioner de Planque's. Your chances of having a leak are very low, based on history. You're sort of independent almost. Chances of having found it are very low. Why not just make it one in ten years or some period that depends on age, not on previous performance? I really would like to see the false alarm and false -- if you're going to stick to this approach, I would like to see some of these conditional probabilities. I think it's a much higher chance that you will miss the leak when you do the test than you will find it and therefore you can't change the interval. You have very low probability of finding something and yet you're conditioning future performance based on finding something. From a Bayesian point of view, that just doesn't make any

sense.

DR. DEY: I think you're right.

CHAIRMAN SELIN: Now, the LLRTs, that's a little different. Your probabilities are a little higher, both of having a risk and of finding them. But I really wonder whether you haven't been too obedient to our guidance. We don't want you to do performance based if based on absolute criteria you can end up with better results.

DR. SPEIS: Let me try again. What we're proposing today is not really performance-based. Okay? It's based on -- well, that's not quite true.

CHAIRMAN SELIN: I guess you fooled me because you said performance-based.

DR. SPEIS: It's based on past performance.

CHAIRMAN SELIN: You mean on historical information, not on the performance of a particular example?

DR. SPEIS: That's right. But at the same time we looked at the model, a risk model, and we put the numbers that we derived from historical experience and we were okay. Then we did some extensions. We went to 20 years and --

CHAIRMAN SELIN: Let me come back to the basic question. Which tests depend on the previous history of that universe, of that -- you know, previous examples of that test on that containment?

DR. DEY: It's basically the LLRTs.

CHAIRMAN SELIN: The ILRTs are just -- you know, we're just changing the features regardless of what we found at that reactor in the past. Is that right or is that not right?

MR. MURPHY: Well, what we have tried to do on the IRLTs is recognize that -- we haven't found many leaks in IRLTs.

CHAIRMAN SELIN: Right.

MR. MURPHY: But we also don't have a lot of data with a lot of years, with a lot of aged plants. So, one of the reasons for setting the limit to ten years as opposed to extending it further is to recognize that the undetected time could increase so much over that period.

CHAIRMAN SELIN: Why don't you do a sample then? I mean why do you have -- I'm sorry. I'm getting too far into detail, but I really do believe that if we applied a neutral test, a Bayesian test, let's just say is there a risk justification for what you're doing, it's too far. If we don't understand the phenomenon, you don't have to test every reactor. Why don't you do a sample and see what happens with age?

I don't want to change what you go out with, but I do want the possibility of considering a less restrictive testing regime. I want to make sure that the document that goes out for comment doesn't undercut us if we decide to cut

back even further on the testing.

DR. DEY: Okay.

DR. SPEIS: Also, one of the reasons -- this is the only test that tests the capability of the containment from a structural standpoint.

MR. RUSSELL: There are several different types of containments. The pressure at accident pressure with doing visual inspections can become valuable. We've said that the visual inspections are valuable for degradation, but there has been crack mapping and other things which have been done on containments. I'm thinking now about some of the prestressed or containments with tendons, et cetera. So, we at this point aren't ready to --

CHAIRMAN SELIN: I don't have a problem with the visual testing part.

MR. RUSSELL: But the visual testing with pressure provides you information on the structural situation which you would not have by just a visual without being under pressure. The proposal would go to ten years instead of doing this three times in ten years. We did not develop at this point a detailed rationale that would look at going beyond ten years and the structural implications of that, detection of degradation or the risk side. If that's what the Commission wishes, we can certainly go back and look at that, but I'd like to give a more reasoned answer than a

short answer at the table.

DR. DEY: Let me cover the two exceptions in the reg. guide the staff has taken. One is to continue the IRLT and the visual inspections, the visual inspections of the current frequency because we don't think they are very burdensome and maintaining the frequency will allow early detection of degradation. We've been talking about this, that the staff has used PRA and risk insights to assess the impact of extending these intervals. However, we haven't set the exact intervals based on a risk calculation and algorithm. This is because mainly of limitations in data, particularly for the LLRTs. We've used deterministic engineering judgment to complement the risk analysis.

This performance-based technology is new for the industry and exact quantification of leakage levels in the tests and the nature of common or repetitive failures are limited at this stage. Also, based on historical data, we've proposed to emphasize the LLRT program. Therefore, the staff has taken exception to NEI's proposal for extending the test intervals or isolation valves, the type C tests, up to ten years and limited the extensions to five years.

The staff proposes to adopt these approaches with some caution. As data is gathered on extended intervals, the uncertainties can be decreased and the staff is

committed to reevaluate its position at that time and revise the reg. guide.

Can I have slide 9, please?

[Slide]

DR. DEY: We've talked a little bit about this. Slide 9 presents the summary of the staff's proposal for future performance-based oriented rule in phase 2. In this phase we propose to address all aspects of containment integrity. In SECY-92-263, the staff had proposed to relax the allowable leakage rate along with the revision of Appendix J. But later in SECY-93-028 and more recently in SECY-94-090, we propose a separate action and we've discussed this briefly. This is because revising the allowable leakage rate on a risk basis would impact licensing basis and other regulations. This would involve more careful consideration. So, we decided to separate the two actions. Control room habitability will also need to be considered in revising the allowable leakage rate.

In the statement of considerations we have, as Joe mentioned, inserted a couple of questions to guide this future rulemaking. We plan to develop the details in the schedule after our analysis of the public comments.

If I could have slide 10, please.

[Slide]

DR. DEY: Slide 10 shows the schedule for the

final rule. Based on Commission approval, we expect to publish the rule by the end of this year. Public comment period will take us until about mid-March 1995. We'll prepare a final rule based on our review of public comments and plan to submit a final rule package to the ACRS in May and initiate parallel review with ACRS and CRGR, and aim to send the Commission the final rule in June of 1995 and brief you in July. This is really the best possible schedule. We're trying to be responsive to industry that has indicated a desire for the rule. However, we will only proceed after a thorough analysis of public comments. Also, industry will need to provide timely revisions of that guideline in response to the staff's position and guidance based on public comments. Thus far, the staff has had productive interactions with industry in this rulemaking.

That completes my presentation. Unless there are questions at this point, Rich Lobel, NRR, will brief you on the implementation of the rule.

CHAIRMAN SELIN: Thank you very much, Dr.

MR. LOBEL: Thank you.

My name is Richard Lobel. I'm a senior reactor engineer in the Containment Systems and Severe Accident Branch in NRR, and I'd like to talk about the implementation of the proposed rule.

Next slide, please.

[Slide]

MR. LOBEL: The character of the new rule will require some changes in implementation from the current rule. Presently the rule is very prescriptive and schedules, test methods, acceptance criteria are all spelled out in the rule itself.

The guidance for implementing the new rule will be contained in other documents, a regulatory guide which will in turn endorse the NEI guidance document, the industry document that Dr. Dey was talking about, and also an ANSI ANS standard. Under the new rule, licensees will determine the test intervals based on the performance of each component. Each component will be monitored separately. Licensees will therefore have more latitude for implementing the rule and more incentive to strive for good performance since a good performing component doesn't need to be tested as often.

The staff intends to require that the regulatory guide which contains the implementation guidance be contained in the plant technical specifications. This is an important point and I'd like to discuss it more shortly.

Reporting and recordkeeping requirements have been changed. Based on the experience that we've obtained with the present rule, the staff has reassessed what information we think we need from licensees and what information can be

retained by the licensee.

Because licensees will have more latitude in implementing the new rule, the inspection procedures will be a little different.

And finally, the new rule should result in many fewer exemptions being required by licensees since the new rule is so much less prescriptive.

An important issue that arose during the rulemaking that I'd like to discuss is type A exemptions. Some licensees have type A tests -- these are the overall containment tests -- scheduled for their facilities during the time of this rulemaking. These licensees are requesting a postponement by exemption until after the rulemaking is completed. The staff considers it inappropriate to grant exemptions to items being addressed in a rulemaking. We are granting other exemptions, both type A exemptions and type B and C exemptions to Appendix J. We're doing this on a routine basis as justified and I'll talk about that more later.

MS. CYR: I think the Commission has to be prepared to look at exemptions. I mean, you can prioritize the basis under which you accept exemptions, getting priority to completing the rule, but basically we have a provision in our regulations under 50.12 which provides that we will consider exemptions so that we have to in a sense

accept the exemption requests, look at them, consider them. But, I mean, we can certainly -- the staff can put its priorities where they need to do in terms of getting the rule done.

CHAIRMAN SELIN: Actually, I'd like to follow-up.

We only have one rule at a time, and so while we have a current rule we have to follow that rule. So a basis for an exemption can't be that we have a new rule coming around the corner.

On the other hand, you can't stop looking at exemptions because we're going to change it. It's just the licensees have to be smart enough to say, "We've done the risk analysis and this test is unnecessary," rather than "You've done the risk analysis and because you're going to change it we don't want to --

DR. THADANI: There are specific criteria that Karen is in fact talking about under 50.12 which do give that option to the utilities to follow.

CHAIRMAN SELIN: That's a generic thing. We have a set of rules and until we have a new set of rules we have to follow those, which includes not only the restrictive part of it that you have to do these things but also the exemption part of it which says that here are the procedures for getting exemptions.

MS. CYR: That's correct.

MR. RUSSELL: The point we're trying to make is that they would have to justify it technically --

CHAIRMAN SELIN: On the current rule.

MR. RUSSELL: -- on the current rule and not simply say that because there's a proposed rule and here's the technical basis in the proposed rule and cite that proposal as a basis for saying grant me an exemption.

COMMISSIONER de PLANQUE: So in theory the exemptions are possible. They just have to state it in the right way.

MR. RUSSELL: They would have to bear the burden of showing why this is appropriate to do under the criteria that's currently in 50.12.

COMMISSIONER de PLANQUE: Is that a real possibility?

MR. RUSSELL: We've said that we would look at those. There would be -- basically an individual licensee would be carrying the same burden that we're carrying in the rulemaking activity.

MR. LOBEL: And we have been looking at those and we have been giving exemptions from type A tests where it's been justified on a basis other than that a new rule is coming.

Next slide, please.

[Slide]

MR. LOBEL: A licensee electing to use the new rule will have to revise their existing technical specifications to eliminate those specifications that are applicable to the existing rule. These specifications are typically fairly simple, usually a general statement at least in the improved tech specs that the leakage rate testing will be done in accordance with Appendix J and approved exemptions. Since the detailed requirements are in the rule, this is sufficient for the technical specifications.

The new rule requires the regulatory guide or an equivalent licensee document be incorporated by reference in the plant technical specifications. Since the details of the implementation requirements have been removed from the regulation, the staff considers it to be necessary that there be some regulatory control maintained and that this is best done with the technical specifications.

NEI, representing the industry, is opposed to incorporating the implementation guidance in the technical specifications. NEI would prefer to use 50.59 to revise the updated safety analysis report to document the containment leakage rate program. This gives the licensee the decision power as to whether a change is an unreviewed safety question that requires NRC review, and ACRS has agreed with the NEI position.

MR. RUSSELL: I would point out that the Commission's policy on the content of technical specifications, by following that policy activities associated with the containment are appropriate to include in the technical specifications.

CHAIRMAN SELIN: But isn't there a third position possible, which is that, yes, it is a tech spec but we have come up with some kind of a broad statement that says this section of tech specs are not relevant and this section can be --

MR. RUSSELL: If you look in the package, it's a very simple technical specification that just says that "The frequency will be done in accordance with..." and it references the reg guide, and if they follow the reg guide that's fine. Or if they propose to do something different from the reg guide, then we would cite whatever the licensee document is that's proposed.

CHAIRMAN SELIN: But can you preapprove that change? I mean, do we have to -- let's say they make the change you just cited, Mr. Russell. Do we have to then process each of these tech specs one at a time to say it's approved as a license amendment?

MR. RUSSELL: Yes.

CHAIRMAN SELIN: Is there a way to do that and block -- you know, can we just have a flat statement that

says anybody who incorporates this exact language would automatically have a change approved or something like that?

MR. RUSSELL: There would be an amendment to the technical specifications to change from the current technical specifications to the revised specification which references the regulatory guide. We could have a generic evaluation that would not require substantive work, but you're still making physical changes --

CHAIRMAN SELIN: I see, but --

MR. LOBEL: But, essentially --

CHAIRMAN SELIN: Please, Mr. Lobel.

MR. LOBEL: Essentially, that's what we'd be doing and that's what we have been doing by doing the review of the NEI guidance document. The acceptance into a specific plant's technical specification would have to be on a plant specific basis, but we have essentially done or are in the process of doing the technical review. It's similar to line item improvements and I guess I don't know of any way --

MS. CYR: The only way you could do it would be by rule or license amendment.

CHAIRMAN SELIN: We're doing a rule, so why can't we --

MR. RUSSELL: Then we would have to incorporate the regulatory guide into the rule to have the finality, and we wanted to have the ability, if there are changes to the

regulatory guide, to not have to go back to rulemaking to revise that.

CHAIRMAN SELIN: I don't think that's right. Why can't we put a line in the rule that says, "If you follow the currently approved regulatory guide..." and you put in this exact language citing the regulatory guide, "your change is approved."

MR. LOBEL: Well, let me say --

MR. RUSSELL: That's one that the General Counsel needs to answer.

MS. CYR: You could do that. I mean, you could figure out a way to take the rule which essentially amends all licenses --

CHAIRMAN SELIN: I mean, basically what I'm suggesting is that --

MR. RUSSELL: We do that even with the ASME code. We approve a particular version, we incorporate it. As there are subsequent changes to that, you're still into a rulemaking to approve the subsequent change.

CHAIRMAN SELIN: Well, you really ought to think twice about that, because otherwise you're in a position that every time the reg guide changes everybody who's followed this has to come back and get a license amendment to change a tech spec.

I don't want to go too far. What I'm saying is I

think it's possible to give you your main point, which is that these are not unreviewed changes, you know, anything to do with containment, without having to go to the extreme case of having to approve case by case what are a bunch of trivial license amendments. It's worth taking a look to see if you can come up with a procedure. You can keep your principle but still simplify the execution, perhaps.

MR. RUSSELL: We were also trying very hard to not have the very explicit detail in a rule. That was the whole reason for moving it out of the rule into a regulatory guide.

CHAIRMAN SELIN: The reg guide is still referenced and if the reg guide changes the reference changes. And the second is that doesn't have to be the only way that you change your tech specs. In other words, if you do it this way, it's approved. If for some reason you want to do it another way, you file a license amendment. You don't have to be prescriptive. You can just say here's an option that's approved en block and then other options we'll do the way we would do them anyway.

What I'm saying is I really want to make life simple if in fact the safety issue is simple. Maybe you can figure it out. Maybe you can't.

MR. RUSSELL: We'll dialogue with General Counsel's office and see if there's a way that we can do

that.

CHAIRMAN SELIN: It may be a bad idea. I'll grant that.

DR. SPEIS: I think the specific issues we're talking about are how does a plant develop a new algorithm based on the new information, so we're going to have to provide some general guidance in the reg guide, how you develop algorithms up or down, and then -- but that's what we're talking about. That's one of the issues that we might want to review on a plant specific basis.

MR. RUSSELL: But the issue that is at point between NEI and the staff or the industry and the staff is that they want to be able to make changes to testing methods without prior review pursuant to 50.59 and the staff feels that that's not appropriate.

CHAIRMAN SELIN: I don't -- I agree with the staff.

MR. RUSSELL: So we want to control either by amendment or rulemaking.

CHAIRMAN SELIN: I agree with the staff. Okay? But it doesn't follow that you have to then do it by amendment.

Let me make this clear. It's not that I'm trying to save one-tenth of a man day per rule. It's that you're reluctant to make this a mandatory change because the

process for getting these approved is hard. So, if it's not so hard, maybe you would be willing to make it mandatory. I see all the man rem saving that we can get and therefore I'm very interested in reducing the bureaucratic barrier so that you would feel comfortable making these mandatory as opposed to optional and getting those savings and exposing individuals to tests. If simplifying the paperwork will do that, then that has a safety significance, not just a resource significance.

COMMISSIONER de PLANQUE: If you were to go the route of making this mandatory, would there be any problem with the backfit rule?

MR. RUSSELL: The note I passed to you earlier, if we were to --

COMMISSIONER de PLANQUE: On backfit?

MR. RUSSELL: Yes. If we were to make this mandatory, would we be able to carry the burden under the backfit rule of showing that this would provide substantial additional protection given the level of personnel exposure that we're looking at on a per unit basis.

MS. CYR: This is a question that the Commission has struggled with in the past on this basis and we can look at it again, but I think the -- we've had some trouble in the past giving our current test. That's not to say that the Commission couldn't make a judgment, but the staff has

had trouble developing guidance in the past recognizing there is an occupational overall savings here, but in terms of looking at the way we've traditionally done our balancing and calculations of the backfit test, I think.

CHAIRMAN SELIN: We took the position that if there is no cost, you don't have to prove a positive health benefit to change the rule under backfit.

MS. CYR: I don't think so.

CHAIRMAN SELIN: Oh, I took that position.

COMMISSIONER de PLANQUE: Let me theoretically carry that one step further. If we didn't currently have Appendix J and you were proposing it as a new rule, would it be justifiable under backfit?

DR. DEY: Yes. I think if there wasn't a rule, I think the testing for some of the isolation valves which can be fairly safety significant would increase safety.

MR. RUSSELL: That's a very hard question to ask given the history that we've had with testing and the containment performance. So, I'm not sure that we can really answer that in the abstract.

COMMISSIONER de PLANQUE: I realize that

MR. TAYLOR: If that didn't exist, I think we'd have the basis of backfitting, containment protection purposes.

DR. SPEIS: We had an earlier proposal and we had

a hard time showing --

COMMISSIONER de PLANQUE: I know.

DR. SPEIS: -- an overwhelming safety benefit. That's why we're --

COMMISSIONER de PLANQUE: That's why this is optional.

DR. SPEIS: That's why we're here today basically.

COMMISSIONER de PLANQUE: Yes.

MR. RUSSELL: Let me also point out that while we talked about the leakage aspects of containment, containment failure which would result in gross leakage as compared to the assumptions that were made, which is really the structural integrity, and the vehicles that we use to assess capability of passive components to perform and all the issues we have with the license renewal rule as it relates to passive components, we currently have not even endorsed the ASME code standards for in-service inspection of containments. That's another issue that we're working on. So, the in-service inspection aspects, all of this is tied together. So, I would propose in coming back to the question that the Chairman raised on whether we could eliminate the integrated leak rate test totally be looked at in the context of the phase 2 program because I think this involves both leak rate and structural performance for different types of containments. It is not the kind of

question that we can respond to in a relatively short period of time.

MR. TAYLOR: And there are enough differences in individual containments even of the same type that we have to look at differences in individual containments, even for the same type of containment.

MR. LOBEL: I think it may help to answer the question a little bit to look at -- to understand the way we look at Appendix J. Dr. Dey talked about LA before which is in the technical specifications and is the leak rate that the licensee has to stay below to meet the criteria of his accident analysis. Really, Appendix J is the surveillance requirement for that number. So, to say that you had Appendix J -- to say that you had LA but didn't have anything that was equivalent to LA, that probably wouldn't be the case. There would probably be some kind of surveillance to assure that plants were meeting the LA value, which gets into my next slide.

Can I have the next slide, please?

[Slide]

MR. LOBEL: I was going to try to explain a little bit about why the staff felt that we needed a technical specification for the regulatory guide and really the point is the one that I was just discussion, that LA is specified in the technical specifications and Appendix J is the

surveillance requirement. It's the staff's requirement to make sure that the LA value is being maintained or less than LA and therefore we feel it's important enough to have prior review and approval. Rather than have all the details in the rule, we've decided to put them in a regulatory guide, but we still feel that there should be some regulatory control.

As I think was also mentioned before, LA meets the Commission's criteria for inclusion in the technical specifications and again Appendix J is the surveillance requirement for LA. It's usual to have a surveillance requirement in the technical specifications.

The staff plans to issue a generic letter after issuance of the new rule that will provide some sample technical specifications. In the package, the SECY-94-283 that you have, are some samples of technical specifications. They're really pretty simple. The main items of importance that we're concerned about are the algorithm for determining the test intervals. If a licensee feels that there's a good technical justification for changing those, we would like to have prior review and approval before they're implemented. The testing methods themselves, if a licensee wants to change those, we would like to be aware before the change is made. Also there are certain isolation valves that the staff considers so important that we specified these in the

technical specifications.

Two examples of these are the BWR main steam isolation valves that are connected directly to the reactor vessel and purge and vent valves which directly connect -- they're large valves and they directly connect the containment atmosphere to the outside atmosphere. We feel that they should not be on a performance basis, that they should be on a fixed basis. If a licensee feels that based on their particular performance they can justify something else, we would like to have prior review and approval of that.

Can I have the next slide, please?

[Slide]

MR. LOBEL: The proposed rule will also change the reporting and recordkeeping requirements of the present Appendix J. They will be relaxed. They'll be fewer formal reports sent to the NRC. The information, the results of tests and the test procedures will be retained at the reactor site and available to our inspectors. However, even with that change, the staff is still confident that the regulations still assure that safety-significant incidents related to containment leakage rate are reportable under 50.72 and 50.73.

An important provision of the proposed rule requires that licensees compare the results of their testing

with previous results to assure that there's no decline in the level of performance. We feel this is an important aspect of performance-based testing, that you monitor and make sure that your performance isn't degrading when you go to these longer test intervals.

Can I have the next slide, please?

[Slide]

MR. LOBEL: We intend to conduct inspections of the licensee's implementation of the new rule. We don't expect that these will be a large additional resource burden. The most significant change in the rule from an inspection viewpoint is the algorithm for determining the test frequency. Since the testing methods won't change, no more resources should be necessary for actually observing the testing that are now used and this is fairly minimal. An important area for inspection will be the licensee's determination of the pass-fail criteria. Licensees under the proposed rule will determine what we've been calling administrative limits which are leakage limits not specified in the rule that the licensee will set to determine the pass-fail criteria. We will look at those to make sure that they're set in a reasonable way and in accordance with the guidance in the NEI report.

As a side benefit to this work, we intend to update and reduce the number of inspection modules for

Appendix J testing.

Next slide, please.

[Slide]

MR. LOBEL: Finally I'd like to discuss exemptions. Appendix J over the years, because of its level of detail, has necessitated a fair number of exemptions on an average of approximately 15 a year. Mostly these are scheduler. Because of various unanticipated problems, licensees have not always been able to do their Appendix J testing when specified in the rule. When they could justify not doing a test in accordance with the rule, we have granted exemptions for a delay. The new rule will eliminate this type of exemption because the testing intervals won't be specified in the regulation itself.

Other exemptions that have been granted over the years for one reason or another are when licensees haven't been able to test components that are required to be tested by Appendix J, containment isolation valves or penetrations that for some reason can't be tested according to the way Appendix J specifies. When a licensee can demonstrate that an alternate approach is acceptable, we've granted exemptions to that. We have been granting exemptions of these two types during the rulemaking and we intend to continue to do that.

Some of these exemptions will have to be carried

over under the new rule, mostly the second type that have to do with not being able to test certain components. Licensees will have to maintain those exemptions. We intend to give licensees guidance on carrying over exemptions with the generic letter that will be issued following issuance of the rule.

I'd like to spend a moment discussing another aspect of exemptions that's arisen during the rulemaking. In SECY-94-036, which was dated February 17th of this year, we discussed the staff position on granting exemptions while the rulemaking was ongoing. We discussed the scheduler and design specific exemptions and stated that we intended to continue to grant these where justified and we have. We also discussed performance-based exemptions. The staff received a request for an exemption to Appendix J from the Grand Gulf licensee. We stated in that SECY paper that we were prepared to review that exemption request because of its value to the rulemaking process. We have reviewed the exemption request and it has been very beneficial. Our review is almost complete.

We have also received many plant-specific requests for exemptions to postpone the type A test until after the rulemaking is completed. This is what we were discussing earlier. The staff position has been that we consider this type of exemption request to be inappropriate since the

technical rationale put forth for the postponement is part of the ongoing rulemaking and that granting these exemptions prior to consideration by the Commission may give the perception that the Commission has prejudged the outcome of the rulemaking. It also would eliminate the opportunity for public comment on this aspect, which is a very significant aspect of the proposed rule.

This has economic consequences for the licensees. Like Dr. Dey said earlier, our estimate of the typical cost of type A test is around $1.8 million. NEI has requested that we reconsider this position and we're now complying with the NEI request.

To conclude, the implementation of the new rule should be fairly straightforward and should benefit both the industry and the NRC while maintaining close to the same level of protection to the public.

Thank you.

CHAIRMAN SELIN: I'm about to do something I always say you never should you do, which is ask a lawyer a question if you don't know the answer before you ask.

MS. CYR: Maybe the lawyer doesn't know the answer.

CHAIRMAN SELIN: Let me put this backfit rule question in the most extreme case. If there is a change which would actually result in a net decrease in cost that

would have no measurable impact on safety one way or another, do we have to do -- would we be precluded from making that change on a mandatory basis by the backfit rule?

MS. CYR: We're supposed to find a substantial increase in potential. But in this instance we can look at what the occupational -- if truly you have a net cost here, then you look to see whether there is a substantial increase.

CHAIRMAN SELIN: That's so inconsistent with the theory that we don't make capricious changes to increase cost. To say that this precludes us from making capricious changes to reduce cost, that's so far apart from the intent.

COMMISSIONER de PLANQUE: That wasn't the intent.

MS. CYR: But you have here -- if you look at the overall benefit here, the 2800 rem from a rulemaking context, we can look at that as representing -- I just am not familiar enough with what the cost is.

CHAIRMAN SELIN: No, no. I'm not asking you to make an off-the-cuff decision as to whether this saving is significant enough, but it was more the canonical question about if the net impact on cost is to reduce cost, do you still have to show a significant saving to make it mandatory?

MS. CYR: You still have to make some kind of evaluation about substantial --

CHAIRMAN SELIN: Oh, you have to make -- even if it's a wash from a safety point of view, we can't mandate just dropping some rule because it has no impacts on safety one way or another. We would have to do it voluntarily or show that it improves safety. You know, dropping a rule that therefore reduces cost.

MS. CYR: Everything is totally neutral you're talking about? I just find that --

CHAIRMAN SELIN: No. Reduces cost and it's neutral on safety. Okay.

COMMISSIONER de PLANQUE: Essentially the situation is you feel the rule is no longer needed for health and safety purposes and by eliminating it you'd reduce costs. Can we do that or do we have a backfit problem?

MS. CYR: Well, I have sort of a theological problem defining that in the sense that that's not a substantial -- if you truly say it's not a --

CHAIRMAN SELIN: Well, I would argue that reducing cost itself benefits safety, that causing licensees to waste money that has no net benefit is taking resources away.

MS. CYR: We've not really looked at it in that way in the past.

CHAIRMAN SELIN: Let me go on to three things. Number one, I think you've done a terrific analysis. It's

very rare that you've come up and you've made your case and that the Commission is harassing you saying, "You've done such a good job that you should have gone even further." So, please consider my comments in that light.

The second is that I realize that once we get out of a fairly narrow range, you have to look at other benefits of testing. You can't just do this highly theoretical thing that all we're doing is looking for leak rates. You find out other things when you do the testing. So, you would have to take a look before you did the rule that if you were going to entertain extrapolations and not just interpolations, that you've looked at deterministic questions, engineering questions, a whole lot of things other than just range because you have a theory that applies to small -- to differentials and now we're talking about vast changes.

So, it does not follow that we can just drop testing altogether. One would have to take a look at what other benefits come from the testing in addition to just confidence in a good leak rate. I'd like you to do that.

Then the third question is tied in with what I was asking the General Counsel. I really think you ought to take a look and see if -- I mean your arguments for doing these things is so overwhelming that isn't there a way of doing it that would be either mandatory or very close to

mandatory? It doesn't mean you have to do it our way, but to simply life so that if you do it our way -- you know, we're giving you an option now. If you do it some other way, maybe you need a license amendment. But if you follow the generic approach so that you can keep the principle, which I think the staff is right, NEI is wrong, but still simplify the execution to the point where there really is very little if any cost to implement this approach. That saves resources, it saves exposure. It's a good thing.

But the key thing is before we go out with this rule, I would like to have enough language that supports going even further than the recommendation without having to come back. I don't think I'm going to -- I might ask the staff some questions. I think it's enough that you understand that those are the questions I have in mind and make sure they're answered in the general discussion before the rule goes out. You know, what would the engineering implications be of going further. It is possible we'll go further, to make sure that we're protected in case we decide to draw what I think is implicit in your conclusions.

Commissioner?

COMMISSIONER ROGERS: I have no specifics other than to thank the staff for a very informative briefing.

CHAIRMAN SELIN: Commissioner de Planque?

COMMISSIONER de PLANQUE: Likewise.

CHAIRMAN SELIN: Thank you very much.

[Whereupon, at 3:33 p.m., the above-entitled matter was concluded.]

CERTIFICATE

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

TITLE OF MEETING: BRIEFING ON PROPOSED RULE - REVISION TO APPENDIX J TO 10 CFR PART 50 - PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Thursday, December 8, 1994

was held as herein appears, is a true and accurate record of the meeting, and that this is the original transcript thereof taken stenographically by me, thereafter reduced to typewriting by me or under the direction of the court reporting company

Transcriber: Carol Lynch

Reporter: Peter Lynch

COMMISSION BRIEFING

ON

PROPOSED REVISION TO APPENDIX J, 10 CFR 50

PERFORMANCE-ORIENTED CONTAINMENT LEAKAGE TESTING REQUIREMENTS

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DECEMBER 8, 1994

PURPOSE

- BRIEF COMMISSION ON PROPOSED REVISION (PHASE I) TO APPENDIX J.
- IMPACT ON SAFETY AND BURDEN REDUCTION POTENTIAL
- REQUEST COMMISSION APPROVE NOTICE OF PROPOSED RULEMAKING.
- DISCUSS PLANS FOR CONSIDERING FUTURE REQUIREMENTS (PHASE II) TO PUT CONTAINMENT FUNCTION ON PERFORMANCE BASIS.
- DISCUSS IMPLEMENTATION OF PROPOSED TESTING FREQUENCY CHANGES.

SUMMARY OF PROPOSED APPENDIX J REVISION

- LESS PRESCRIPTIVE, MORE PERFORMANCE BASED.
- LONGER INTERVAL BETWEEN TESTS BASED ON PERFORMANCE.
- CONTINUES TO PROVIDE REASONABLE ASSURANCE THAT CONTAINMENT FUNCTION MAINTAINED.
- NO INCREASE IN RISK TO PUBLIC.
- PROPOSED APPROACH OPTIONAL; CURRENT PROVISION STILL AVAILABLE.

SUMMARY OF PROPOSED APPENDIX J REVISION (CONT.)

- PHASE II TO CONSIDER PERFORMANCE-BASED RULE TO MAINTAIN CONTAINMENT FUNCTION.

  PROVIDE CREDIT FOR ON-LINE MONITORING, REVISE ALLOWABLE LEAKAGE RATE REQUIREMENTS, AND CONSIDER PUBLIC AND OCCUPATIONAL RISK, AND IMPACT ON LICENSING BASES AND OTHER REGULATIONS.

- OPINIONS SOLICITED BY ANPR IN PRESENT RULEMAKING.

- REDUCED OCCUPATIONAL EXPOSURE AND INDUSTRY TEST COSTS

COMPARISON WITH CURRENT REQUIREMENTS

- **INTEGRATED LEAK RATE TEST (ILRT) TYPE A**

  FROM 3 TESTS/10 YRS TO 1 TEST/10 YRS.

  3 VISUAL EXAMINATIONS/10 YRS AS CURRENTLY.

- **LOCAL LEAKAGE RATE TESTS (LLRT)**

  TYPE B - FROM 1 TEST/2 YRS TO 1/10 YRS.

  TYPE C - FROM 1 TEST/2 YRS TO 1/5 YRS.

IMPORTANT TECHNICAL FINDINGS

- ONLY 3% OF IDENTIFIED LEAKS DETECTABLE BY ILRTs
- FEWER ILRTs YIELD ESSENTIALLY NO INCREASE IN OVERALL RISK.
- VISUAL INSPECTIONS IMPORTANT TO SHOW STRUCTURAL DEGRADATION.

  NO CHANGE FROM CURRENT 3 INSPECTIONS/10 YRS.
- 12% OF LEAKS - TYPE B - REOCCUR RARELY.

  MARGINAL RISK IMPACT BY INCREASING INTERVAL FROM 2 TO 10 YRS.
- 85% OF LEAKS - TYPE C

  MARGINAL RISK IMPACT BY INCREASING INTERVAL FROM 2 TO 5 YRS.

IMPORTANT TECHNICAL FINDINGS

- SEVERE ACCIDENT RISKS INSENSITIVE TO CONTAINMENT LEAKS (UP TO TWO ORDERS OF MAGNITUDE ABOVE DESIGN BASIS VALUE).

- RISK DOMINATED BY LOW PROBABILITY, EARLY CONTAINMENT FAILURE.

- FEWER ILRTs REDUCE INDUSTRY COSTS BY ~ $330-660M CUMULATIVELY OVER REMAINING LIFE OF PRESENT PLANTS.

  TOTAL PERSONNEL EXPOSURE REDUCED BY ~ 400 PERSON-REM

- FEWER LLRTs REDUCE INDUSTRY COSTS BY ~ $30-55M CUMULATIVELY OVER REMAINING LIFE OF PRESENT PLANTS.

  TOTAL OCCUPATIONAL EXPOSURE REDUCED BY ~ 2800 PERSON-REM.

REGULATORY GUIDE

- ESTABLISHES CONDITIONS TO IMPLEMENT PERFORMANCE-BASED OPTION.

- REG. GUIDE ENDORSES NEI GUIDELINE, EXCEPT:

  5 (VS 10 PER NEI) YEARS, TYPE C INTERVAL.

  3 (VS 1 PER NEI) VISUAL EXAM PER 10 YRS.

- NEI GUIDELINE EMPHASIZES PERFORMANCE ASSESSMENT AND CORRECTIVE ACTION; ENDORSES ANSI STANDARD

FUTURE PERFORMANCE-ORIENTED RULE (PHASE-II)

- ALL ASPECTS OF CONTAINMENT INTEGRITY PERFORMANCE-BASED.
- REVISED LEAKAGE RATES TO CONSIDER PUBLIC RISK, OPERATIONAL RISK, CONTROL ROOM HABITABILITY, LICENSING BASES.
- PUBLIC COMMENTS SOLICITED IN ANPR OF PRESENT RULEMAKING.
- DETAILS AND SCHEDULE DEVELOPED AFTER PUBLIC COMMENTS.

Schedule for Final Rule

12/94	3/95	5/95	6/95	7/95
Publish Proposed Rule for Comment	Public Comment Period Closes	Final Rule to ACRS/PDR - CRGR Review	Meetings with ACRS - Final Rule to Commission	Brief Commission - Publish Final Rule

CONSIDERATIONS FOR RULE IMPLEMENTATION

- NEW CHARACTER OF RULE REQUIRES IMPLEMENTATION CHANGES
- TECHNICAL SPECIFICATIONS
- REPORTING AND RECORDKEEPING
- INSPECTIONS
- EXEMPTIONS

TECHNICAL SPECIFICATIONS

- IMPLEMENTATION WILL REQUIRE TECHNICAL SPECIFICATION CHANGES
  - ELIMINATE SPECIFICATIONS APPLICABLE TO CURRENT RULE
  - ADD SPECIFICATIONS FOR NEW RULE
- NEW SPECIFICATIONS WILL REFERENCE REGULATORY GUIDE
- NEI OPPOSES TECHNICAL SPECIFICATIONS/WANTS 50.59
  - ACRS SUPPORTS NEI POSITION

NEED FOR TECHNICAL SPECIFICATIONS

- MAINTENANCE RULE JUSTIFIED PER BACKFIT RULE (50.109) : "SUBSTANTIAL INCREASE IN OVERALL PROTECTION"
- TECHNICAL SPECIFICATIONS REQUIRE LEAKAGE LESS THAN L_A
- L_A: IMPORTANT ROLE IN PUBLIC SAFETY
- APP J: SURVEILLANCE FOR L_A
- CURRENT APP J: DETAILED REQUIREMENTS
- NEW APP J: GENERAL PERFORMANCE BASED REQUIREMENTS

REPORTING AND RECORDKEEPING

- EXCEEDING NRC-SPECIFIED LIMIT (E.G. L_A) REPORTABLE - 50.72 AND 50.73
- REPORTING OF TEST RESULTS TO NRC NOT REQUIRED
- RECORDS AVAILABLE AT SITE FOR INSPECTION
- RULE REQUIRES COMPARISON WITH PREVIOUS CONTAINMENT PERFORMANCE

INSPECTIONS

- NRC INSPECTIONS OF LICENSEE IMPLEMENTATION
- INSPECTION RESOURCE BURDEN NOT LARGE
  - INSPECT ALGORITHM FOR DETERMINING TEST INTERVALS
  - INSPECT LICENSEE COMPONENT CRITERIA FOR PASS/FAIL
  - PERIODICALLY INSPECT CONTAINMENT PERFORMANCE DOCUMENTATION
- NUMBER OF APP J INSPECTION MODULES REDUCED

EXEMPTIONS

- NEW APP J LESS PRESCRIPTIVE
- NO NEED FOR SCHEDULAR EXEMPTIONS
  - LESS STAFF RESOURCES REQUIRED
- EXISTING NONSCHEDULAR EXEMPTIONS STILL APPLY
  - DEVIATIONS FROM TESTING REQUIREMENTS
- EXEMPTIONS REQUESTED TO POSTPONE TYPE A TESTS

BACKUP SLIDE

RISK IMPACTS OF CONTAINMENT LEAKTIGHTNESS