

UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

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4 BRIEFING ON MAINTENANCE WORKSHOP

5 ***

6 PUBLIC MEETING

7 ***

8 Nuclear Regulatory Commission
9 One White Flint North
10 Rockville, Maryland

11
12 Tuesday, August 16, 1988

13
14 The Commission met in open session, pursuant to
15 notice, at 2:00 p.m., the Honorable LANDO W. ZECH, Chairman of
16 the Commission, presiding.

17 COMMISSIONERS PRESENT:

18 LANDO W. ZECH, Chairman of the Commission
19 KENNETH CARR, Member of the Commission
20 KENNETH ROGERS, Member of the Commission
21
22
23
24
25

1 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

2

3 V. STELLO

4 W. PARLER

5 S. CHILK

6 E. JORDAN

7 T. NOVAK

8 W. MORRIS

9 T. KING

10 T. GODY

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P R O C E E D I N G S

[2:00 p.m.]

CHAIRMAN ZECH: Good afternoon, ladies and gentlemen.

On July the 11th, 12th, and 13th of this year, the NRC Staff held public workshops in order to solicit public comment on the development of a proposed rule concerning the maintenance of nuclear power plants, and on August the 3rd, the Commission heard from the Nuclear Management and Resources Council, NUMARC, concerning the industry's view on maintenance and the maintenance rule.

Today, the NRC Staff will brief the Commission concerning the results of the July workshop and the status of their efforts to develop a maintenance rule.

This is an information briefing. Commissioner Roberts will not be with us this afternoon.

We are particularly interested in hearing the Staff's analysis of the public comments received at the workshop and the schedule that the Staff has in mind for preparation of the proposed rule.

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

[No response.]

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

MR. STELLO: Thank you, Mr. Chairman.

I will start by introducing those of us here at the

1 table. On my left are Tom Novak and Ed Jordan from NRR. On my
2 immediate right --

3 MR. NOVAK: Excuse me. AEOD.

4 MR. STELLO: Formerly Mr. Novak was NRR.

5 Mr. Bill Morris and Tom King from Research and Tony
6 Gody from NRR. I got those right.

7 I wanted to talk to you about the workshops and the
8 results and the thrust of where we think we ought to go.
9 Before I begin, I think there are two points worth making.

10 I don't know how many Commissioners have had a chance
11 to read the report from Dr. Inaba, who is one of our
12 consultants. I think it's an excellent summary of that
13 meeting, and we're going to try to get that out, so that the
14 industry will have a copy and have it available to them. I
15 think it has a lot of insights and observations that I think
16 were very worthwhile, and we'll be getting that out.

17 The second point I wanted to bring is, I think
18 Commissioner Rogers at the meeting with the industry raised the
19 issue, is not the idea of proceeding with accreditation of a
20 maintenance program plan for each of the utilities by
21 INPO/NUMARC, some combination, an idea that perhaps is worth
22 pursuing. We intend to meet with NUMARC and raise that
23 question and have a discussion. I think it is an area that is
24 worth pursuing, although I did want to emphasize that even if
25 we did that, I still think it's necessary for us to continue

1 our efforts toward developing a rule, but I think I could
2 visualize accommodating both a rule and having an accreditation
3 program very easily.

4 We have a lot of work to do before we can get to the
5 end. I think the Commission's attention to this issue has been
6 one that has produced results. I think the individual
7 Commissioners and their interest in this matter has caused and
8 has produced an awareness and sensitivity of the industry to
9 move on. I think we're making progress, but this is not
10 something that will come quickly. It will obviously take time.

11 And I think we're at least laying out for the moment
12 a course of action that will keep that interest there where it
13 belongs in a broadly based program of maintenance across all of
14 the components in the plant, so that the entire maintenance
15 activity within each of the utilities can be brought up to a
16 standard where I think significant improvement overall in both
17 safety and reliability -- and, I think, those two, in fact, go
18 together very well -- we'll get to when we finish.

19 But I wanted to say, I don't think this will happen
20 quickly. We didn't get where we are in a short period of time
21 and to turn this around and to get where we ought to be will
22 take time.

23 With that, let me ask Billy Morris to begin the
24 briefing, and then we'll just go through the briefings by the
25 individuals here at the table.

1 CHAIRMAN ZECH: All right. Thank you very much. You
2 may proceed.

3 MR. MORRIS: Mr. Chairman, this meeting today is a
4 key milestone in Staff efforts to develop a proposed rule for
5 the Commission's consideration. It not only provides a forum
6 discussion of the public comments at the workshop, but just as
7 significantly, it provides an opportunity to inform the
8 Commission of the Staff's recommendation for a rulemaking
9 approach.

10 There is a significant amount of work that must be
11 accomplished for the target date for transmitting the rule to
12 the Commission, and that date is October 3rd, and we are
13 working very hard to meet the goal. It is therefore important
14 that we have the benefit of Commission feedback and guidance as
15 we proceed.

16 We are going to proceed with a presentation by Tom
17 King, and if you look at the first page of the handout, you'll
18 see that -- that is an unnumbered page, by the way -- the
19 presentation will cover some general information on the
20 organization of the workshop. We will briefly go over the five
21 rulemaking options which were made public prior to the
22 workshop. We will discuss the general comments from the
23 workshop and specifically the comments on the various
24 rulemaking options will be presented, and then we will discuss
25 Staff conclusions and recommendations.

1 Tom King will now proceed with his presentation.

2 CHAIRMAN ZECH: All right, thank you. You may
3 proceed.

4 MR. KING: Let me start with a short discussion of
5 the workshop, and then we'll summarize the results and also
6 review quickly the five options that were presented by the
7 Staff at the workshop.

8 [Slide.]

9 Starting with page 1 of your handout, the purpose of
10 the workshop was to conduct -- to solicit early public and
11 regulated industry participation in the formulation of the
12 proposed rule.

13 [Slide.]

14 On page 2, in preparation for the workshop, the Staff
15 had prepared a description of five options and a "strawman"
16 rule for a preferred option, which was put in the PDR prior to
17 the workshop and also sent by direct mail to over 100 parties
18 who had indicated that they were planning to attend the
19 workshop, and we did that to try and maximize the benefit from
20 the workshop and providing them with early information to
21 review.

22 The workshop discussions were focused to obtain
23 feedback on the preferred rulemaking option, but also included
24 discussion of all five options.

25 [Slide.]

1 Page 3, a brief summary of the participation in the
2 workshop. There was major interest by the industry and the
3 public in the workshop. We had over 300 participants,
4 representing 80 organizations. That included 45 utilities, who
5 sent approximately 150 participants. The remainder of the
6 organizations were composed of nuclear steam supply system
7 vendors, A/Es and other design organizations such as EPRI and
8 NUS.

9 [Slide.]

10 Page 4, briefly the workshop agenda. It was a two
11 and a half day workshop. Day One was devoted to a general
12 session. We described, provided an overview description of the
13 options, and industry provided overview comments regarding
14 their comments on maintenance rulemaking.

15 [Slide.]

16 On page 5, the second day of the workshop was devoted
17 to working groups. We divided the maintenance area up into
18 four working groups which were based upon what we felt were
19 four functional areas that the maintenance activities listed in
20 the Commission's policy statement fell into. These were
21 maintenance technology, maintenance management planning
22 organization, maintenance monitoring assessment effectiveness,
23 and maintenance communications.

24 Each working group was chaired by two NRC co-
25 chairmen, and its purpose was to solicit to discussion on

1 problem areas and potential solutions. In running the
2 workshops, we did not persuade the participants to change their
3 point of view. It was primarily directed toward soliciting an
4 open and frank discussion of their views on maintenance
5 problems, the NRC proposals, and their ideas for solutions to
6 these problems.

7 The third day was a half a day session where the
8 working group chairmen summarized the results of their working
9 groups and provided an opportunity for any final comments by
10 the industry and public participants.

11 [Slide.]

12 Page 6 begins a summary of the main points from the
13 workshop, particularly from the general session on the first
14 day. These are listed on the next several pages, and they're
15 not listed in any order of importance, and they're not listed
16 in terms to imply any Staff agreement or disagreement. They're
17 just being presented as we heard it at the workshop.

18 The first point was that industry recognizes the
19 importance of maintenance and is interested in improving its
20 effectiveness. There are significant industry maintenance
21 initiatives underway, particularly by INPO and EPRI.

22 [Slide.]

23 Continued on page 7, the industry, particularly the
24 licensees, are not homogeneous in their approach to
25 maintenance. Each utility, each licensee, has his own program.

1 They involve sometimes a different scope, different definitions
2 of maintenance activities, and different degrees of adherence
3 to the INPO guidelines.

4 There was also pointed out that there was a need in
5 any rulemaking for integrating existing NRC regulations and
6 activities with the proposed rulemaking. In particular,
7 Appendix B and tech specs were pointed out as areas that need
8 to be looked at closely, and that seemed to be a particular
9 point of concern with many of the utility participants.

10 [Slide.]

11 Page 8, the overall bottom line from the industry
12 summaries on the first day was that they still prefer no rule;
13 however, given that there would be a rule, there were several
14 points that they felt should be included in such a rule.

15 One, they were concerned that it not require
16 excessive documentation, particularly documentation involving
17 collecting and reporting of data. They were concerned that it
18 not shift resources from conducting maintenance to meeting
19 regulatory requirements.

20 They were concerned about the content and direction
21 of the rule and prescriptiveness that might be in the rule.

22 [Slide.]

23 On page 9, they were concerned that the rule should
24 provide for flexibility for the conduct of maintenance; in
25 other words, allow licensees to work within the framework of

1 their utility maintenance structure. And they wanted to make
2 sure that any rule did not conflict with other requirements,
3 such as requirements for recordkeeping that are included in
4 Appendix B to CFR Part 50.

5 And finally, there was concern about the application
6 of the rule to the balance-of-plant and other equipment, that
7 is wasn't clear from our options or from our strawman rule as
8 to what that application would be.

9 [Slide.]

10 The second day were the workshops, the working
11 groups, which concentrated on going through the five options,
12 particularly the strawman option. Perhaps before we get into
13 the feedback from those, let me just quickly summarize what the
14 five options were that were presented.

15 The first two were what we call performance-based
16 options. They dealt with the development and submittal to NRC
17 of maintenance performance indicator information.

18 The first option would have been a general rule that
19 would require licensees to develop and periodically report
20 maintenance performance indicators to the NRC. A Reg Guide
21 would have been developed to provide guidance on what
22 acceptable maintenance performance indicators -- give some
23 examples of acceptable performance maintenance indicators.
24 This was our strawman rule that we presented where we had more
25 detail on the exact wording of the rule.

1 Option Two was an option where the performance
2 indicators would have been included in the rule. They would
3 have been -- each licensee would be required to have the same
4 set of indicators, because they would actually be in the rule.

5 [Slide.]

6 On page 9B, a summary of the third, fourth, and fifth
7 options, which we call program-element-based options. These
8 actually provided more of a description of what should be in a
9 maintenance program, and they were listed in order of
10 increasing prescriptiveness.

11 Option Three would have been a general rule which
12 would have provided for a Reg Guide to either -- to endorse an
13 industry standard, if such an industry standard existed that we
14 felt was acceptable in the maintenance area.

15 Option Four would have been a general rule with a Reg
16 Guide providing the additional details and guidelines for an
17 acceptable maintenance program.

18 And Option Five would have been a prescriptive rule
19 where many of the details would have been in the rule itself.

20 [Slide.]

21 Okay. With that summary, let me talk about the
22 industry feedback on the various options themselves. Again,
23 these are not listed in any particular order, and they are not
24 listed in terms of whether we agree or disagree. They're just
25 information as we heard it at the workshop.

1 On the performance-based options, there was a general
2 agreement that performance indicators are useful. Most plants
3 have performance indicators for their own internal use. They
4 are different from plant to plant, and they are a tool used by
5 plant management to evaluate the maintenance process.

6 [Slide.]

7 On page 11, even though various licensees felt that
8 performance indicators were useful for internal management and
9 plant planning, they were concerned about reporting them to the
10 NRC because of potential misinterpretation when reviewed by
11 external parties.

12 They were also concerned that performance indicators
13 in a rule could drive a maintenance program, rather than
14 provide input to it. In other words, there might be potential
15 for a maintenance program to be adjusted to optimize the
16 performance indicators. I must say, we had a very frank
17 discussion, and they were very open and honest in this regard
18 in their concerns in both of the items on page 11.

19 [Slide.]

20 On page 12, there was general agreement that the
21 licensees would be willing to make available maintenance
22 performance indicators for the NRC Resident Inspectors, but
23 again, were not -- were concerned about requiring them to be
24 submitted to the NRC. They would have no problem if, on an NRC
25 audit or inspection, if maintenance performance indicators,

1 their internal indicators, were included as part of that audit
2 and inspection.

3 There was agreement, general consensus by the
4 industry, that if we're going to look at performance
5 indicators, they ought to be overall performance indicators,
6 not what they call process indicators, overall performance
7 indicators being a broader measure of plant performance or
8 system performance, and not looking at individual items, such
9 as the number of backlogged engineering change notices and so
10 forth, which they called the process performance indicators.

11 [Slide.]

12 On page 13, the first bullet we had covered, the
13 potential for manipulation of the data. There was general
14 concern that any maintenance performance indicators submitted
15 to the NRC might be used to manage plants. There was concern
16 as to what we were going to do with the information.

17 [Slide.]

18 Moving on to page 14 and their feedback on the
19 Options Three, Four, and Five, the program-element-based
20 options, these options were generally received more favorably by
21 the participants at the workshop. They felt that these would
22 establish criteria and guidance on what constitutes a good and
23 adequate maintenance program in a better fashion than the
24 performance-based options would provide that guidance.

25 [Slide.]

1 On page 15, of the program-element-based options,
2 there was a general concern with the prescriptive option,
3 Option Five, which they felt might impeded some of their
4 initiatives.

5 Of the three program-based options, the industry
6 generally favored Option Three, which would build upon endorse
7 an industry standard or initiative, and they pointed out that
8 industry organizations have already developed maintenance
9 guidelines that should be considered by the NRC.

10 [Slide.]

11 Finally, on page 16, there was concern about the
12 effective date of the rule. In the strawman, we had made it --
13 put in, I believe, 90 days; it would be effective within 90
14 days of being published. They pointed out that their
15 experience is that significant time is required to adequately
16 implement a comprehensive program and to make effective changes
17 in a plant, and they wanted us to take that into consideration
18 in determining the effective date of the rule.

19 [Slide.]

20 Page 17, I just want to briefly summarize the working
21 group -- common elements of the working group feedback, and it
22 was, of the four working groups which met independently, it was
23 surprising when we got together after the workshop and
24 discussed what we had heard, that there were a number of common
25 elements among the four working groups, and what I want to do

1 is just briefly summarize the major points that we felt were
2 common elements.

3 Again, it was common in the working groups that there
4 was -- on a performance indicator-based rule, that there was a
5 potential for a negative impact if a reporting requirement was
6 imposed. The industry generally prefers a rule with
7 programmatic guidelines versus one with performance indicator
8 type guidelines.

9 [Slide.]

10 Page 18, they prefer a rule that endorses and allows
11 continuation of the industry initiatives, but such a rule
12 should not be overly prescriptive, such that it would impede
13 these initiatives and the flexibility of utilities to apply
14 these initiatives.

15 [Slide.]

16 Given that brief summary, let me move on to our
17 conclusions and recommendations, where do we go from here,
18 taking into account what we heard at the workshop.

19 What we're trying to do is develop a rule to improve
20 maintenance programs in a timely fashion. Based upon the
21 interactions and discussions at the workshop, we agree that the
22 prescriptive rulemaking options may impede industry initiatives
23 to improve maintenance. We believe that industry recognizes
24 that there are problems and is doing a number of things in the
25 maintenance area, that our rulemaking action should promote

1 their taking the responsibility and ownership for improvement
2 and not detract from this by prescribing solutions.

3 Therefore, we believe the rulemaking should
4 encourage, rather than divert or hinder, industry initiatives
5 directed toward improving maintenance.

6 [Slide.]

7 On page 20, therefore we recommend a rule with
8 general requirements on maintenance which give incentive for
9 industry to develop a standard for a maintenance program which
10 NRC can endorse in a Regulatory Guide. This standard would be
11 along the lines of providing additional details and guidelines
12 for the maintenance program.

13 The key provisions in this approach would be: One,
14 the standard should include provisions for performance
15 assessment. In other words, each licensee should have in its
16 program provisions to monitor his performance and to use this
17 monitoring to improve his program where such improvements are
18 warranted.

19 [Slide.]

20 Secondly, in terms of scope and depth of such an
21 industry standard, the Staff would expect that it would be at
22 least comparable in scope and depth to the INPO maintenance
23 guidelines. Perhaps some upgrade would be needed in some
24 areas, but in general it would be comparable to the INPO
25 maintenance guidelines. We'll discuss this in a little more

1 detail when we get to pages 22 through 25.

2 In addition, we recommend that the NRC performance
3 indicator program should proceed as planned with priority being
4 given to the development of maintenance performance indicators.

5 And finally that the NRC maintenance inspections
6 should proceed as planned to assess operational safety of the
7 plants. Any byproducts of the inspections that could improve
8 the rule or the standard would be factored into the rule or
9 standard.

10 [Slide.]

11 Now on page 22 through 25, we will summarize the
12 framework for the recommended approach to a maintenance rule.

13 First, the form and content of the rule. We believe
14 it should be a general rule requiring each licensee to have and
15 to implement a documented maintenance program. That program
16 should include provision for each licensee to monitor his
17 program effectiveness and to make improvements where warranted.

18 [Slide.]

19 Secondly on page 23, the general rule would require a
20 maintenance program to include the scope and activities as
21 outlined in the Commission's policy statement on maintenance,
22 and each licensee would be required to have his performance
23 monitoring system, which would be subject to NRC review by
24 audit and inspection.

25 The Staff does not recommend reporting of maintenance

1 performance indicators to NRC at this time. We believe this
2 could be added at a later date, if a suitable set of
3 maintenance performance indicators is developed.

4 [Slide.]

5 Compliance with the rule -- over on page 24 --
6 compliance with the rule would be verified by NRC audit and
7 inspection.

8 Regarding implementation of the rule, the basic
9 elements of the rule would be effective in 1989. Within 90
10 days of issuance, each licensee would be required to submit his
11 schedule for implementation of the rule.

12 [Slide.]

13 Comprehensive program requirements in the rule and
14 the standard or Reg Guide that would back up the rule would
15 have to be fully implemented within two years from issuance of
16 the rule, and the Regulatory Guide -- or it would be our intent
17 to develop a Regulatory Guide to endorse an industry standard,
18 if such a suitable standard is developed, or if an industry
19 standard is not developed, to provide -- in the Reg Guide
20 itself, to provide guidance as to what constitutes an
21 acceptable maintenance program.

22 Regarding schedule, we would plan -- we are still
23 planning to have the Notice of Proposed Rulemaking to the
24 Commission by October 3rd. This will include the rule,
25 supporting regulatory analysis, and supplemental information

1 that would provide some general guidance on the scope and
2 content of a suitable industry standard.

3 We plan, if we continue on this approach, we would
4 plan to have a final rule to the Commission approximately in
5 the April or May 1989 timeframe. We would expect an industry
6 standard, if it's to be developed, to be available in
7 approximately a year from issuance of the final rule, such that
8 we can endorse it and have it on the street well in advance of
9 the time that the final rule has to be fully implemented.

10 In parallel, the Staff would be working on a Reg
11 Guide as backup in case the industry standard approach does not
12 materialize, and with the two-year proposal for fully
13 implementing the rule, that means the rule would be fully
14 implemented in approximately the spring of 1991.

15 [Slide.]

16 Page 26, we briefly summarize what we feel are the
17 advantages of this approach.

18 First, we feel it would guide industry initiatives
19 toward an acceptable standard and better define what NRC
20 considers acceptable.

21 Utility participation in preparation of an industry
22 standard, build upon industry initiatives, and hopefully
23 continue the incentive and responsibility of industry for
24 improving plant maintenance programs.

25 [Slide.]

1 Continuing on page 27, we believe it would help
2 transfer information from good plant maintenance programs to
3 those that need improvement, provide for tracking the
4 effectiveness of a maintenance program, and ensure improvements
5 are made when warranted.

6 [Slide.]

7 Finally on page 28, we believe it would help set a
8 timetable for maintenance improvements through programs already
9 initiated by the industry, and by approximately the spring of
10 1991, would ensure that all programs are fully implemented.

11 It would permit integration of findings by the NRC
12 maintenance performance indicators program into the rule at an
13 appropriate time.

14 That concludes my summary of the workshop and the
15 position and direction we are proposing to take at this time.

16 CHAIRMAN ZECH: All right. Thank you very much.

17 Do you want to -- okay, go ahead. Proceed, please.

18 MR. JORDAN: Mr. Chairman, I would reiterate that the
19 workshop did provide a good opportunity for us to interact with
20 industry on the maintenance program policy and, of course, the
21 performance indicators. We had very active discussions in the
22 particular session on performance indicators that arrived at
23 some agreement on the ideal attributes for indicators and gave
24 us comments on the indicators that we were including in our
25 trial program.

1 So our discussion is going to be to brief you on the
2 status of our trial program, the data collection process, and
3 we have proceeded with that, despite the feedback from the
4 workshop indicating that the industry didn't need a specific
5 set of indicators that the NRC would be provided as a report.

6 So we feel we've gotten good industry cooperation in
7 collecting this information. The Staff has visited some
8 thirteen facilities to date in order to collect information.
9 We've met with INPO, and we have collected some data and gotten
10 some data analysis regarding extremes of maintenance
11 performance.

12 And with that, I would like to turn to Tom Novak and
13 have him describe the status and schedule and the validation
14 program we're going through.

15 MR. NOVAK: Thank you.

16 My presentation will cover five general areas. We'll
17 just briefly go through the candidate indicators, which
18 represent the kind of data that we went after. We'll talk
19 about the site visits, what we learned from each of them.
20 We'll look at our schedule, and then we'll talk a little bit
21 about the validation that we expect to do from the data.

22 One point I'd like to make going back to the
23 workshop, I had the privilege of co-chairing the workshop on
24 performance indicators with Mr. Robbie Singer of the Staff.
25 The panel was made up of several Maintenance Managers, people

1 who operated the maintenance activity, very knowledgeable
2 people. Vic mentioned Dr. Inaba; he was also on the panel.
3 Gary Peterson from INPO was also on the panel. So I think we
4 had a good cross-section of talent there, except for myself. I
5 was there as a good listener, and I guess one thing in
6 retrospect, talking about the points -- the problems with the
7 candidate performance indicators, I should have had a rule of
8 thumb: If you take one out, you've got to put one back in. But
9 in retrospect, I didn't do that. So we worked along the same
10 indicators that we had looked at.

11 I don't think that the cautionary remarks that came
12 out of the panel were that new to us. We had recognized some
13 of the concerns that were indicated to us on that kind of data.
14 But we felt that the data should be collected, evaluated, and
15 then a judgment made on what we've learned.

16 May I have Slide B-2?

17 [Slide.]

18 What I'll do is just go through these slides quickly
19 to show you the indicators. The point I'm going to just -- and
20 the only thing new there that you might want to look at is, how
21 do we obtain some of the data? I think that's constructive in
22 developing performance indicators, the ease or difficulty with
23 which you find yourself trying to construct an indicator.

24 In total, we went after 13 candidate indicators,
25 three more than what were shown in the strawman rule, and when

1 we get to those three, I'll just mention them briefly.

2 [Slide.]

3 On page B-3 again, they're just the typical kind. In
4 looking at the maintenance turnover rate, for example, that was
5 a very difficult one for us. You have to go back into
6 personnel records, define the definition, and go forward. To
7 some degree, we had very limited success in collecting that.

8 [Slide.]

9 On page 4 again, we looked hard at rework. Depending
10 on the facility and its tracking system of maintenance work
11 requests, we either had some success or very little success.
12 It was a very difficult one for us to come back with. We did
13 bring back some information on maintenance rework.

14 Surveillance again, we used NPRDS whenever we could.
15 If it was an available database and people felt comfortable
16 with it, we would use it. We encouraged that.

17 [Slide.]

18 On page B-5, we went after balance-of-plant
19 equipment. That was an interesting one, and we would sit down
20 and, depending on the tracking system that each utility had, we
21 would come up with a set of components or systems, and then put
22 that in and ask for data. And we looked at instrument air
23 systems, feedwater systems, 480-volt switch gear. Depending on
24 the tracking system and what they had, we would make a
25 selection of components and then ask for that information off of

1 maintenance work requests.

2 Then you would get into another level of difficulty.

3 A number of plants would have a mainframe computer, and if they
4 had the software to go with it, they could download the data
5 that you wanted, and you could take home all your information
6 on a handful of floppies. Others would get a printout, and
7 you'd have to send home three or four cardboard boxes of the
8 same information. So there was a level of detail and
9 difficulty in working each of these, and that was part of our
10 experience, and I thought it was very important, because it
11 tells you also the ease with which a utility can call up that
12 kind of information if they choose to look back at some of
13 their own equipment history.

14 [Slide.]

15 On page B-6, we did add as part of our candidate
16 indicators the safety system function trend. Now we talked to
17 you about that at an earlier briefing, and we used this
18 opportunity to collect that kind of information, because you've
19 asked us to go back and do a retrogressive analysis, and we
20 were there, and we said, all right, let's collect that kind of
21 information.

22 Again, you can have quite a bit of difficulty in
23 collecting that kind of information, if you go down to the
24 detail of having to page through control room log sheets to
25 look up LCO actions and so forth. So we did learn something

1 about that activity.

2 [Slide.]

3 On B-7, we added the the unplanned trips due to
4 maintenance. This was not originally one of the candidate
5 indicators. It's normally supplied to INPO. It was easy for
6 us to obtain, and so we asked for it.

7 We also added the one there that's titled "number of
8 failed post-maintenance tests." We added that as kind of a
9 surrogate to the maintenance rework effort. You get a feeling
10 for the success or failure or how good your rework is depending
11 on what you see from post-maintenance tests.

12 For example, the idea, though, came out of the
13 workshop. Someone was -- as we went through the candidate
14 indicators, they suggested, well, one way of getting at rework
15 is to look at how you do on post-maintenance testing. So we
16 did take that recommendation in hand.

17 [Slide.]

18 On B-8, you see the first listing of the plants that
19 we visited. We started out with the idea of getting a spectrum
20 of plants, the better performers and the weaker performers, so
21 as to get a good cross-section. I also wanted to be sure that
22 we at least visited one plant in each of the Regions.

23 Also we wanted to get the feedback from the pilot
24 inspections that are going on. NRR had planned to visit three
25 sites, and so we said, it would make sense for us to go to

1 those same sites, coordinate our activities so that if there
2 were some things that were determined from the inspections, you
3 could see if any of your indicators would have suggested those
4 same kinds of things. So we thought there was a good feedback
5 in doing that.

6 And we did get some volunteers from the workshops.
7 Some people asked us: Come on up and talk to us. And so we
8 took them up on their invitations.

9 In some of our candidates, if we ran into a problem
10 where there was a major inspection activity or something or
11 going into a refueling, then we would back off. So we tried
12 not to be too much of a problem, but yet get the information as
13 we did.

14 So in summary, as Ed mentioned, we did look at 13
15 sites, and that gave us about 22 operating reactor units.

16 Our experience would tell us that if you are really
17 going to validate a PI, you'd like to have some more data. I
18 think what would happen is, as we get -- as we feel more
19 comfortable about a certain specific performance indicator,
20 then you could go back and selected information.

21 One thing, in going to these plants, you become much
22 more attuned as to how to get the data in the most efficient
23 way. Typically we started out by sending three to four people
24 to each site and spending a week there, but as that same team
25 went to the next site, they were better prepared. They could

1 talk to the plant people, and we were able to come back in
2 maybe two to three days. So we became more efficient as we
3 went through those site visits.

4 [Slide.]

5 Well, what are we learning? On page B-10, I've tried
6 to give you just a thumbnail. As it was mentioned earlier,
7 each time you sit down and talk with people at the operating
8 station, they will tell you, they do use some sort of
9 maintenance-related indicator as a management tool. They
10 generally are all going to fairly sophisticated maintenance
11 management systems, where they can use a system, and they apply
12 it across perhaps all of their operating plants -- nuclear and
13 fossil and even hydro. We've seen an indication of that.

14 So there is a clear direction towards developing
15 solid maintenance management tools, and where that was there
16 and we could get the information, it was very efficient for us
17 to pick up the kinds of data we were looking for.

18 As part of our work, we will describe the specific
19 types of information we obtained from each plant. I think it
20 gives you a flavor for what each plant is doing in terms of
21 tracking its own maintenance information.

22 Historical data for some PIs were very difficult.
23 Going back and trying to develop a rework set of data from
24 maintenance work requests, we would do it; we recognize there
25 is an uncertainty factor.

1 One example, if you found a maintenance rework which
2 suggested, for example, there was additional rework on a valve,
3 one would have to at least recognize, was the initial
4 maintenance work requests as complete as it should have been?
5 We found some cases where the first request could be for
6 packing, but then when they went back and operated it, it
7 wasn't successful, and they had to reseal the valve.

8 Well, is that a failure to do the first job? You
9 want to recognize those differences and understand them.

10 And, of course, we found, I think, a very positive
11 view that NPRDS is gaining enthusiasm by the utilities. They
12 are using it. We went to it several times to obtain data, and
13 we were very encouraged by their knowledge and use of NPRDS.

14 [Slide.]

15 With regard to the milestones on page 11, I think the
16 only thing I would mention to you -- I show here, we finished
17 our last site visits last Friday. Now by the end of the week,
18 we would just -- we're going to cut off our data entry.

19 Basically what I mean by this is, we've got a lot of
20 data we've brought back. We may not be able to get it all into
21 PCs and onto our databases, so we're just going to cut off what
22 we have and then begin our validation program on the 22nd of
23 August.

24 Some of this cutoff, again, as I mentioned earlier,
25 was due to the various ways we got the data. Just to mention a

1 few extremes, we went to one site; we came back with 21 floppy
2 disks. It represented 100,000 maintenance work requests, but
3 it isn't too difficult, because putting it back up on our PCs,
4 we could select what we wanted and let the computer do all the
5 work for us, and we were getting our information the same day
6 we put it in. So a lot of data, if properly handled, was very
7 efficient.

8 The other side of the coin, we have three or four
9 cardboard boxes of maintenance work requests, some 30,000 jobs,
10 and our difficulty there would be to read them, put them into
11 the computer, and then process it. So I just had to decide to
12 put a cutoff date for now on looking inside some of those boxes
13 and begin our validation program, so that we could meet the
14 schedule of trying to tell you exactly what we've learned from
15 these visits and this work by early October.

16 [Slide.]

17 On B-12, I've shown that we would complete our
18 validation -- I think "complete" is a fairly strong word; I
19 think we'll give you a reading of what we know by the 26th.
20 As always happens, there's something more you'd like to go out
21 and learn, and that wouldn't surprise me.

22 [Slide.]

23 The validation program on 14 basically is standard.
24 I think it follows a lot of what we did as part of the trial
25 program on PIs. We'll have to clearly define what we try to

1 look for in terms of a maintenance performance indicator. We
2 would perform the standard tests for trending. When we talk
3 about variation across plants, we want to recognize design
4 differences. We'd like to recognize new versus old plants.

5 Data density is pretty straightforward. Skewness,
6 we'd be concerned if a particular component in a set overrides
7 the total. We've seen that, where one component could
8 determine the value of the indicator. So you'd like to
9 recognize that and decide whether you want to keep that
10 specific component in that set or throw it out.

11 Redundancy among PIs, this is because of the way
12 we've collected our data. Some of the candidates overlap. For
13 example, balance-of-plant equipment can be captured under your
14 NPRDS database. So when we look at the PIs, we'll see, are we
15 counting the same pieces of equipment twice, and so we'll be
16 looking to recognize that difference and get it out.

17 [Slide.]

18 Finally, as I mentioned earlier, part of the
19 validation on page 15 would be to go back and look at
20 inspection findings. There were three plants that an
21 inspection was performed as part of the trial inspection
22 program on maintenance, and we would be sitting down with NRR,
23 understanding what they've learned, and then going back and
24 seeing if any of the information we collected from our own
25 performance indicator program would give you any insights that

1 those findings might have been expected in some sense.

2 [Slide.]

3 Obviously we will continue -- on page 16, there are
4 some correlations that we would be doing with the existing PIs,
5 with availability factors and capacity factors, and we are
6 seriously looking at what we can learn from NPRDS. I think
7 that's a valuable database, and we're going to be looking at
8 it.

9 It may be premature at this time to select it as a
10 maintenance indicator, but I think as an attribute, as an
11 accessory to what we know on equipment failures, we ought to
12 always look at NPRDS.

13 [Slide.]

14 Lastly, in terms of a validation, I would be cautious
15 in terms of our ability to give an early reading to a SALP.
16 Clearly they could be attempted from different ways. But
17 trying to understand what we have learned from an indicator and
18 then seeing if, in fact, it is useful, reflecting a particular
19 a trend, would be available.

20 So those are the comments very briefly from our
21 program today. We've been very active since the workshop, and
22 we will be continuing to work at that pace until early October
23 when we owe you a status report on where we are.

24 Thank you.

25 MR. STELLO: That concludes our briefing this

1 afternoon, Mr. Chairman.

2 CHAIRMAN ZECH: Thank you very much.

3 Commissioner Rogers?

4 COMMISSIONER ROGERS: Yes. I'm just a little curious
5 as to why there is so much resistance to reporting maintenance
6 performance indicators to NRC at this time. It seems to me
7 that it really depends on what we do with them that should be
8 the concern.

9 I would imagine that in the early stages of a
10 program, that NRC could play a very important role in
11 comparative value of performance indicators as they relate to
12 different plants when one looks at the total spectrum across
13 the nation of plants, and that if these just reside at the
14 plant and they're not looked at from the same point of view
15 that AEOD looks at things now, from a broad trending point of
16 view, that some very valuable time is lost.

17 I see the caveat, "At this time, Staff does not
18 recommend reporting MPIs at this time." Presumably you might
19 think that would be suitable at some other time. And yet I
20 would imagine that in the early stages of this business of
21 trying to grope to a program that really is a good one, that
22 NRC's review of -- comparative review and study of performance
23 indicators across the family of plants in the nation could be a
24 very valuable way of adjusting which performance indicators
25 seem to be working and which don't, perhaps should be adjusted

1 or substituted for or what have you.

2 So that it seems to me that I can understand why
3 there might be some reluctance from industry to report them
4 immediately, but I don't understand why Staff doesn't recommend
5 -- is recommending against that, because it would seem to me it
6 would be a very useful time to constructively evaluate, very
7 early, so that some adjustments could be made in how we carry
8 out this program.

9 MR. STELLO: Go ahead.

10 MR. JORDAN: Commissioner Rogers, the answer there, I
11 think, is that the Staff doesn't yet have candidate indicators
12 that we feel would withstand the scrubbing of the process to
13 justify the burden on the utilities at this time. So until we
14 have gotten a set of indicators that we feel strongly are
15 worthy, would be safety beneficial, then we really can't
16 recommend it. And so that's why the "at this time" is on
17 there.

18 And data collection is, of course, a problem. It's
19 an expense to the utilities to provide, and it's an expense to
20 the Staff to process. So until the trial program is further
21 along, we really don't have a recommendation.

22 COMMISSIONER ROGERS: Well, it just seems to me,
23 their data, their raw data, they may -- may or may not wind up
24 to be final candidates or final winners in the candidate
25 competition, but it's useful -- would be useful, I would think,

1 early on to see just how they are relating to your own thinking
2 about validating any performance indicators.

3 So it's really a question of what one does with them,
4 and if they're not used really for regulatory action, but are
5 used just to provide some comparative data at an early stage of
6 the game, I would think that would be a very useful function
7 for them to serves.

8 And they're just buried out in the plants. You'd
9 have to go out and dig them out again if you want to use them
10 for comparative purposes. That just seems to me an unnecessary
11 activity, if we could in some way assure licensees that these
12 performance indicators very early on are really just being
13 looked at to help us to evaluate a final kind of -- a final
14 spectrum of PIs, it would be useful to have them.

15 MR. JORDAN: I wouldn't want to argue with you. The
16 industry has been very cooperative when we go to their sites,
17 and, in fact, in the interaction with INPO, as far as to have
18 the necessary data from which to make our recommendations, but
19 to impose a requirement on the utilities to provide it for
20 forever more, if you will, through a regulation is --

21 COMMISSIONER ROGERS: I'm not suggesting that. I'm
22 suggesting that, you know, you take a more relaxed view towards
23 that, but try to have the data -- it's a question again of what
24 you do with it -- and put that in a box that's only to be used
25 for comparative purposes and internal evaluations of how well

1 PIs are serving and not to be used for regulatory purposes, I
2 would think you might allay some of those fears.

3 After all, if they are being collected internally for
4 their own use, they're being collected, so the argument that it
5 takes more time and effort to collect them doesn't apply at
6 all, because they are doing it. It's a question of whether
7 they send them to us or not and then what we do with them.

8 MR. STELLO: Well, let me try. I think, as you say,
9 if the data were just there, and we only had to go pick it up
10 and then somehow analyze it. But it's not.

11 You have to go through a lot of paper and logs, as
12 Mr. Novak described earlier, to pull out that information. And
13 I think what Mr. Jordan is saying is, well, before we tell the
14 utility they have to develop that particular information
15 tracking system, how many hours of rework, that sounds to me
16 like that's probably --

17 COMMISSIONER ROGERS: Well, I guess what we're
18 talking about are two different things here. I think maybe I
19 see what the problem is.

20 What you're saying is that you're not recommending
21 that there be a set of performance indicators that are dictated
22 by NRC for which data must be collected and sent to us at this
23 time.

24 MR. STELLO: That's correct.

25 COMMISSIONER ROGERS: And what I'm suggesting is that

1 if people are collecting -- have generated their own
2 maintenance performance indicators, that those be collected at
3 this time and used, not that we issue an order that they be,
4 but if they are being done, that somehow they're data that
5 could be used for comparative purposes.

6 MR. JORDAN: And they have made that accessible to
7 us.

8 MR. STELLO: And we are getting it.

9 MR. JORDAN: And we're getting it.

10 MR. STELLO: And we are going to use it, just to try
11 to understand where we ought to go from here. So for those
12 purposes, we are.

13 COMMISSIONER ROGERS: All right. I guess I
14 understand now better. What you're saying here is really that
15 you're not recommending that there be a mandated set of MPIs
16 that are reported at this time.

17 MR. STELLO: Yes, sir.

18 COMMISSIONER ROGERS: Well, I have a couple of other
19 things, but I think we might just go on.

20 CHAIRMAN ZECH: Well, first of all, just let me say I
21 think the Staff has done an excellent job in attempting to
22 develop some maintenance performance indicators. Everyone
23 knows how difficult it is. And I appreciate the cooperation
24 you've received from INPO and from the utilities. I think it's
25 important that we try to get our arms around a very difficult

1 problem.

2 Just let me make a couple comments. First of all, I
3 think maintenance is very important. It does impact on safety.
4 It does impact on reliability. It does impact on the economic
5 running of the plant. It impacts on overall performance.

6 Now we can measure a lot of performance functions of
7 the plant, and by many measures, we can tell that the utilities
8 are improving. We've talked about unplanned SCRAMs, automatic
9 actuations, and many other indicators. By every measure, it
10 looks like things are improving, and that's encouraging.

11 However, maintenance is very difficult to get a
12 handle on, and that's why it is hard for us to develop
13 performance indicators.

14 I, too, was interested in this report that the Staff
15 received from Dr. Inaba, and he says -- that you referred to,
16 Mr. Stello, earlier on and you referred to during the
17 presentation -- he makes a couple points that I think are very
18 important.

19 And, one, he says that the NRC has industry's
20 attention. Well, I hope so. It looks perhaps like we have.
21 It's been rather discouraging, frankly, for me for the number
22 of years that I've been recently crawling around these nuclear
23 power plants of ours to -- in talking about maintenance, but I
24 do think now, especially from the presentation that we had from
25 NUMARC here last week, that there is a recognition that

1 maintenance must be improved and must be emphasized. So that
2 is encouraging.

3 And we are serious about it at NRC, and Dr. Inaba
4 refers to that in his report, too. So it looks like we are
5 making progress, even though it is kind of late. But
6 maintenance needs improvement, I think, across the board, and I
7 think the industry has recognized that now, too, and the
8 capacity factor itself can be improved when we improve
9 maintenance, as well as safety across the board, as I've
10 mentioned earlier.

11 We do have a policy statement in effect, and the
12 proposed rule which is to come to the Commission the 3rd of
13 October according to your schedule, I would encourage you to
14 continue with that schedule and bring that proposed rule to the
15 Commission.

16 We are making progress at the NRC. I think the
17 utilities, the industry, is also making progress. It's a very
18 important area to be emphasizing. We want to do what's right.
19 We don't want to complicate things. We don't want to take a
20 step backwards. But I'm encouraged that we're taking a fairly
21 good-sized step forward now across the board.

22 Only because it's so difficult, we shouldn't be
23 discouraged from wrestling with this difficult maintenance
24 problem. It is a difficult problem to wrestle with, and
25 perhaps that's why it's so hard and has taken so long to get

1 our arms around it.

2 But it does seem to me we're making progress now, and
3 I would encourage the Staff to continue the efforts you're on,
4 to continue the schedule that you're on.

5 Commissioner Carr, do you have anything else?

6 COMMISSIONER CARR: No, Mr. Chairman.

7 CHAIRMAN ZECH: Commissioner Rogers?

8 COMMISSIONER ROGERS: Yes, I'd like to add a couple
9 more things.

10 I was at the wrap-up session of the workshop and was
11 very interested to hear the outcomes at that time. And it
12 seems to me a comment is perhaps in order.

13 The Staff was pressed quite hard at that whole
14 meeting as to why it's necessary to have a rule and questioned
15 as to what percentage of the plants out there really have
16 substandard maintenance programs that would be affected by this
17 rule. And we all recognize there are some very good
18 maintenance programs in place.

19 And there was a speculation of a percentage. I won't
20 even bother to deal with the number, because it doesn't matter.

21 I think the point is that we've all seen that good
22 performers can wind up at the bottom of the heap at some time
23 later in their history. They don't always stay to be good
24 performers, and some of the plants in trouble today were at the
25 top of their performance in the early parts of their history.

1 And therefore I think that that percentage is an
2 irrelevant number -- that is, whether it's 10 percent or 50
3 percent or whatever of the plants out there now that don't have
4 good maintenance programs, that the necessity for a rule is to
5 see that we don't have that number, and that the rule is not
6 addressed just to those plants. It's addressed to anybody in
7 the future that starts to backslide on maintenance. It's to
8 hold up a standard across the board and not allow even a small
9 percentage to fall into that. It doesn't matter that it's a
10 small percentage, because that small percentage could at some
11 time in the future include any of the good performers now, if
12 somehow there isn't a requirement that they don't slip down
13 into that.

14 So I think that's the key point on why a rule is
15 necessary, not that it's only a small percentage that we're
16 dealing with. We don't want any percentage to be in that
17 category.

18 So I think the rule is necessary to guarantee that,
19 and that's why I'm interested, and I suspect that's why my
20 other Commissioners are.

21 With respect to some of the comments of Dr. Inaba and
22 other findings from earlier studies here, it seems to me that
23 there's a great deal to be learned yet about how to construct
24 performance indicators. Some really good ideas, I think, came
25 out of Dr. Inaba's little report. But I think that the

1 important thing that I gleaned from it was the notion that this
2 is an industry that has failed to recognize that out there is
3 an established body of experience in a fairly sophisticated way
4 of developing maintenance programs, that has established a
5 commonality of sorts.

6 That isn't to say that every plant should have
7 exactly the same approach to maintenance. I don't believe that
8 at all. I think that there are a variety of approaches that
9 we've seen overseas that work very, very well and quite
10 different, and yet they are working very well. And we've seen
11 the same thing in our own country, I think, that several plants
12 that have different approaches to maintenance do a very good
13 job, but they do it differently.

14 So I think flexibility indeed is important, but at
15 the same time there is a kind of level of professionalism in
16 setting up maintenance programs and how to measure them, that I
17 think we've been woefully ignorant of in this industry, and Dr.
18 Inaba pointed that out, and I think it was very important that
19 he did, because I think it suggests that we really do take a
20 very hard look at this performance indicator question and try
21 to get at it from some of the points of view that he expressed
22 in his report, and I won't try to duplicate those here, but
23 certainly the notion of a hierarchy of areas to look at, of
24 performance indicators.

25 So I think that we're making very good progress here.

1 I'm very much encouraged. But I do think that it is time for
2 us to look even harder at what we're doing to see if we aren't
3 -- if we really are availing ourselves of everything that's
4 known in other industries and other disciplines with respect to
5 superior maintenance programs. I think we have something to
6 learn, and I want to make sure that we do take that knowledge
7 and feed it into our own programs here.

8 CHAIRMAN ZECH: All right. Thank you very much.

9 Well, let's continue with the development of the
10 maintenance performance indicator program and continue
11 developing the schedule for the proposed rule.

12 And thank you very much for an excellent briefing.
13 We stand adjourned.

14 [Whereupon, at 3:05 o'clock, p.m., the Commission
15 meeting was adjourned.]

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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 MAINTNANCE WORKSHOP

PLACE OF MEETING: Washington, D.C.

DATE OF MEETING: TUESDAY, AUGUST 16, 1988

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.

A handwritten signature in cursive script, reading "John Trowbridge", is written over a horizontal line.

Ann Riley & Associates, Ltd.

NRC STAFF
BRIEFING FOR THE COMMISSIONERS
ON RESULTS OF PUBLIC WORKSHOP
FOR NRC RULEMAKING ON MAINTENANCE
OF NUCLEAR POWER PLANTS

AUGUST 16, 1988

OUTLINE OF PRESENTATION

- ° ORGANIZATION OF WORKSHOP
- ° SUMMARY OF RULEMAKING OPTIONS
- ° PUBLIC COMMENTS AND FEEDBACK
 - GENERAL COMMENTS
 - COMMENTS ON STAFF PROPOSED OPTIONS
INCLUDING SUMMARY OF OPTIONS
- ° STAFF CONCLUSIONS AND RECOMMENDATIONS

COMMISSION DIRECTION AND
WORKSHOP OBJECTIVES

- ° WORKSHOP CONDUCTED TO SOLICIT EARLY
PUBLIC AND REGULATED INDUSTRY
PARTICIPATION IN THE FORMULATION OF
THE PROPOSED RULE

- ° DESCRIPTION OF RULEMAKING OPTIONS AND "STRAWMAN" RULE FOR PREFERRED OPTION PUT IN PDR PLUS SENT TO OVER 100 INTERESTED PARTIES PRIOR TO WORKSHOP TO MAXIMIZE BENEFIT OF WORKSHOP
- ° WORKSHOP DISCUSSIONS FOCUSED TO OBTAIN FEEDBACK ON A PREFERRED RULEMAKING OPTION BASED ON PERFORMANCE INDICATORS

WORKSHOP PARTICIPATION

- ° MAJOR INTEREST IN WORKSHOP TO DETERMINE
NRC OBJECTIVES AND TO PROVIDE INPUT
TO RULEMAKING:
 - OVER 300 PARTICIPANTS
 - 80 ORGANIZATIONS REPRESENTED
 - 45 UTILITIES REPRESENTED BY ABOUT 150
PARTICIPANTS
 - NSSS VENDORS, A/ES AND OTHER DESIGN
ORGANIZATIONS REPRESENTED

WORKSHOP AGENDA

1 ST DAY.

GENERAL SESSION: NRC OPENING REMARKS,
OVERVIEW OF APPROACH AND RULEMAKING
OPTIONS, INDUSTRY PRESENTATIONS (NUMARC,
INPO, EPRI, UTILITY REPRESENTATIVES)

2 ND DAY.

WORKING GROUPS: MAINTENANCE ACTIVITIES
IN COMMISSIONS POLICY STATEMENT ORGANIZED
INTO 4 FUNCTIONAL AREAS. GROUPS CONSISTED
OF MEMBERS FROM OVER 80 ORGANIZATIONS,
INCLUDING 45 UTILITIES.

3 RD DAY.

SUMMARY SESSION: RESULTS OF WORKING
GROUP DISCUSSIONS

SUMMARY OF WORKSHOP DISCUSSIONS

I. GENERAL FEEDBACK

- ° INDUSTRY RECOGNIZES THE IMPORTANCE OF
MAINTENANCE AND IS INTERESTED IN IMPROVED
EFFECTIVENESS
- ° SIGNIFICANT INDUSTRY MAINTENANCE
INITIATIVES AND INNOVATION UNDER WAY

- ° INDUSTRY IS NOT HOMOGENEOUS IN ITS APPROACH TO MAINTENANCE (E.G., DIFFERENT SCOPE/DEFINITIONS OF MAINTENANCE ACTIVITIES AND DEGREES OF ADHERENCE TO INPO GUIDELINES)
- ° NEED FOR INTEGRATING EXISTING NRC REGULATIONS AND ACTIVITIES WITH MAINTENANCE RULEMAKING; EXISTING REQUIREMENTS SUCH AS APPENDIX B AND TECH. SPECS. MAY BE A BASIS FOR MAINTENANCE PROGRAM REQUIREMENTS

° INDUSTRY PREFERS NO RULE, HOWEVER,
GIVEN A RULE IT SHOULD:

- NOT REQUIRE EXCESSIVE
DOCUMENTATION
- NOT SHIFT RESOURCES FROM
CONDUCTING MAINTENANCE TO
MEETING REGULATORY REQUIREMENTS

- PROVIDE FLEXIBILITY FOR THE
CONDUCT OF MAINTENANCE
- NOT CONFLICT WITH OTHER
REQUIREMENTS

- ° APPLICATION OF RULE TO BOP AND OTHER
EQUIPMENT IS UNCLEAR

SUMMARY OF RULEMAKING OPTIONS

PERFORMANCE - BASED OPTIONS:

1. GENERAL RULE REQUIRING THAT EACH LICENSEE DEVELOP AND PERIODICALLY REPORT MAINTENANCE PERFORMANCE INDICATORS (MPIs) TO THE NRC.
(NRC STRAWMAN)
2. SPECIFIC RULE PRESCRIBING MPIs TO BE REPORTED PERIODICALLY TO NRC.

PROGRAM-ELEMENT BASED OPTIONS:

3. GENERAL RULE WITH FLEXIBILITY FOR A REGULATORY GUIDE TO ENDORSE AN INDUSTRY STANDARD ON MAINTENANCE.
4. GENERAL RULE WITH A REGULATORY GUIDE DEFINING AN EFFECTIVE MAINTENANCE PROGRAM.
5. PRESCRIPTIVE RULE DEFINING AN EFFECTIVE MAINTENANCE PROGRAM.

SUMMARY OF WORKSHOP DISCUSSIONS

II. INDUSTRY COMMENTS ON RULEMAKING OPTIONS

PERFORMANCE-BASED OPTIONS (1 & 2):

(REPORTING OF MAINTENANCE PIS TO NRC)

- ° INDICATORS ARE NOT AN END BUT A MEANS,
A TOOL USED BY PLANT MANAGEMENT TO
EVALUATE THE PROCESS

- ° PROCESS PERFORMANCE INDICATORS ARE
USEFUL FOR INTERNAL PLANT PLANNING,
BUT SUBJECT TO MISINTERPRETATION
WHEN REVIEWED EXTERNALLY
- ° PIS IN A RULE MAY DRIVE A MAINTENANCE
PROGRAM, RATHER THAN PROVIDE INPUT
TO IT

- ° PROCESS PIS CAN BE MADE AVAILABLE AT PLANTS FOR RESIDENT INSPECTORS, BUT SHOULD NOT BE REQUIRED TO BE SUBMITTED TO THE NRC
- ° OVERALL PIS ARE A BETTER MEASURE OF MAINTENANCE EFFECTIVENESS THAN PROCESS PIS

- ° POTENTIAL EXISTS FOR MANIPULATION OF
PI DATA TO MEET OBJECTIVES IF REQUIRED
TO BE SUBMITTED TO NRC
- ° CONCERN THAT PIs WILL BE USED BY NRC
TO MANAGE PLANTS

COMMENTS ON RULEMAKING OPTIONS (CONT'D)

PROGRAM - ELEMENT BASED OPTIONS (3, 4 & 5):

- ° THESE OPTIONS WOULD ESTABLISH CRITERIA
AND GUIDANCE ON WHAT CONSTITUTES A
GOOD AND ADEQUATE MAINTENANCE PROGRAM
MORE EFFECTIVELY THAN THE PERFORMANCE
BASED OPTIONS

- ° PRESCRIPTIVE RULE (OPTION 5) WOULD
IMPEDE INDUSTRY INITIATIVES
- ° RULEMAKING OPTION THAT WOULD ENDORSE
INDUSTRY INITIATIVES/STANDARDS
PREFERRED (OPTION 3 OVER 4)
- ° INDUSTRY ORGANIZATIONS (INPO AND EPRI)
HAVE ALREADY DEVELOPED MAINTENANCE
GUIDELINES

- ° INDUSTRY EXPERIENCE IS THAT SIGNIFICANT TIME IS REQUIRED TO ADEQUATELY IMPLEMENT A COMPREHENSIVE MAINTENANCE PROGRAM

SUMMARY OF WORKSHOP DISCUSSIONS

III. OVERALL INDUSTRY COMMENTS ON RULEMAKING
OPTIONS

- ° THERE IS POTENTIAL FOR NEGATIVE IMPACT
IF A PI BASED RULE WITH A REPORTING
REQUIREMENT IS IMPOSED
- ° INDUSTRY PREFERS RULE WITH PROGRAMMATIC
GUIDELINES TO ONE WITH PERFORMANCE
OBJECTIVES THAT HAVE THE WEIGHT OF A RULE

- ° INDUSTRY PREFERS RULEMAKING OPTION
THAT WOULD ENDORSE AND ALLOW CONTINUATION
OF ITS INITIATIVES
- ° PRESCRIPTIVE RULE MAY IMPEDE INDUSTRY
INITIATIVES TO IMPROVE MAINTENANCE

STAFF CONCLUSIONS AND RECOMMENDATIONS
TAKING INTO ACCOUNT WORKSHOP DISCUSSIONS

- ° PRESCRIPTIVE RULEMAKING OPTIONS HAVE
MINIMUM FLEXIBILITY AND MAY IMPEDE
INDUSTRY INITIATIVES TO IMPROVE
MAINTENANCE
- ° RULEMAKING SHOULD ENCOURAGE RATHER
THAN DIVERT OR HINDER INDUSTRY INITIA-
TIVES DIRECTED TOWARD IMPROVING
MAINTENANCE

- ° STAFF, THEREFORE, RECOMMENDS A RULE WHICH GIVES INCENTIVE FOR INDUSTRY TO DEVELOP A STANDARD FOR A MAINTENANCE PROGRAM, WHICH NRC COULD ENDORSE IN A REGULATORY GUIDE

- THE INDUSTRY STANDARD SHOULD INCLUDE PROVISIONS FOR PERFORMANCE ASSESSMENT

- THE STAFF EXPECTS THE INDUSTRY
STANDARD TO BE COMPARABLE IN
SCOPE AND DEPTH TO THE INPO
MAINTENANCE GUIDELINES
- ° NRC PI PROGRAM SHOULD PROCEED AS
PLANNED WITH PRIORITY GIVEN TO
DEVELOPMENT OF MPI'S
- ° NRC MAINTENANCE INSPECTIONS SHOULD
PROCEED AS PLANNED

FRAMEWORK OF RECOMMENDED APPROACH
TO MAINTENANCE RULE

- ° FORM AND CONTENT OF RULE:
 - GENERAL RULE REQUIRING EACH LICENSE TO HAVE AND IMPLEMENT A DOCUMENTED MAINTENANCE PROGRAM WHICH INCLUDES PROVISION FOR THE LICENSEE TO MONITOR ITS EFFECTIVENESS AND MAKE IMPROVEMENTS WHERE WARRANTED

- GENERAL RULE WOULD REQUIRE
MAINTENANCE PROGRAM TO INCLUDE
THE SCOPE AND ACTIVITIES IN POLICY
STATEMENT
- EACH LICENSEE WOULD BE REQUIRED TO
HAVE HIS OWN MONITORING SYSTEM
WHICH WOULD BE SUBJECT TO NRC REVIEW
- STAFF DOES NOT RECOMMEND REPORTING
OF MPIs TO NRC AT THIS TIME

- COMPLIANCE VERIFIED BY NRC AUDIT
AND INSPECTION

- ° IMPLEMENTATION:

- BASIC ELEMENTS OF RULE EFFECTIVE
IN 1989
- WITHIN 90 DAYS OF ISSUANCE EACH
LICENSEE MUST SUBMIT HIS
SCHEDULE FOR IMPLEMENTATION

- COMPREHENSIVE PROGRAM REQUIREMENTS
IN RULE FULLY IMPLEMENTED IN 2
YEARS
- A REGULATORY GUIDE WILL BE DEVELOPED
WHICH WILL ENDORSE AN INDUSTRY
STANDARD OR PROVIDE PRESCRIPTIVE
GUIDANCE IF INDUSTRY DOES NOT
DEVELOP AN ADEQUATE STANDARD

ADVANTAGES OF RECOMMENDED APPROACH

- ° GUIDES INDUSTRY INITIATIVES TOWARDS
AN ACCEPTABLE STANDARD
- ° UTILITY PARTICIPATION IN PREPARATION
OF AN INDUSTRY STANDARD WILL PROVIDE
ADDITIONAL INCENTIVE AND RESPONSIBILITY
FOR IMPROVING PLANT PROGRAMS

- ° TRANSFERS INFORMATION FROM GOOD PLANT MAINTENANCE PROGRAMS TO THOSE THAT NEED IMPROVEMENT
- ° RULE REQUIRES THAT LICENSEES TRACK INDICATORS OF THE EFFECTIVENESS OF A MAINTENANCE PROGRAM AND MAKE IMPROVEMENTS, WHEN WARRANTED

- ° PLANT IMPROVEMENT PROGRAMS ALREADY INITIATED (THROUGH INPO) TO CONTINUE UNTIL APRIL 1991 WHEN ADEQUATE EFFECTIVENESS OF ALL PROGRAMS SHOULD BE ENSURED BY FULL IMPLEMENTATION OF RULE
- ° PERMITS INTEGRATION OF FINDINGS OF NRC MPI PROGRAM INTO NRC MAINTENANCE RULEMAKING AT AN APPROPRIATE TIME