

UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON STATUS, RESULTS, AND IMPLEMENTATION
OF B&W REASSESSMENT

Location: ROCKVILLE, MARYLAND

Date: AUGUST 11, 1988

Pages: 1-64

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BRIEFING ON STATUS, RESULTS, AND IMPLEMENTATION OF
B&W REASSESSMENT

PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Thursday, August 11, 1988

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

COMMISSIONERS PRESENT:

LANDO W. ZECH, Chairman of the Commission
THOMAS M. ROBERTS, Member of the Commission
KENNETH M. CARR, Member of the Commission
KENNETH C. ROGERS, Member of the Commission

1 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:
2
3 S. CHILK
4 W. PARLER
5 R. WILSON
6 B. SIMPSON
7 J. TAYLOR
8 D. CRUTCHFIELD
9 F. MIRAGLIA
10 J. CALVO
11 R. JONES
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P R O C E E D I N G S

(10:00 a.m.)

CHAIRMAN ZECH: Good morning, ladies and gentlemen. Today we will hear from the Babcock and Wilcock owners group representatives and the NRC staff concerning the status and results of the safety and performance improvement program conducted by the Babcock and Wilcock owners group.

In addition, the Commission has requested an updated status of the implementation of recommendations that resulted from this reassessment by the Babcock and Wilcock plant licensees. I understand copies of the slides are available at the entrance to the room.

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

COMMISSIONER ROGERS: No.

CHAIRMAN ZECH: If not, I would like to welcome the representatives of the owners group who are with us today. Mr. Wilson, you may proceed with your presentation.

MR. WILSON: Good morning. My name is Dick Wilson. I am the Technical Vice President of GTU Nuclear Corporation and Vice Chairman of the Executive Committee of the B&W owners group. On my left is Mr. Bert Simpson who is Director of Nuclear Operations, Engineering and Projects for Florida Power Corporation and past Chairman of the B&W owners group

1 Steering Committee.

2 We are here today to bring you up-to-date on the
3 current status of the owners group safety, performance and
4 improvement program, which we use the acronym SPIP, which
5 has been under active owners group management for some two
6 and a half years now.

7 By way of introduction, I would like to briefly
8 review the program, the prior meetings we have had with you.

9 Could I have the slide, please? That's slide
10 three.

11 (Slide.)

12 This first view graph shows the three principal
13 phases of the program. At the prior Commission briefing on
14 November 6th, 1986, we reviewed the basis for the program
15 and the breadth of activities encompassed. At that meeting,
16 we find out program objective of reducing trips and complex
17 transients and increasing our plant's level of safety by
18 implementing recommendations yet to come.

19 The program we described included substantial
20 involvement by outside third parties, intensive interaction
21 with the NRC staff, comparative performance assessments
22 relative to other types of PWR units, and a wide-ranging
23 look into operations, maintenance and design issues. Shown
24 on the view graph, the second phase was the integration of
25 that information, the development of insights and

1 conclusions from the data, and assessments as to what should
2 be done. We have reviewed the conclusions of the program
3 with you previously on August 5th of 1987.

4 Today we are well beyond the second phase and into
5 the implementation phase. Since we have previously reviewed
6 the program scope and conclusions, we come today to
7 principally talk to you about where we are in the
8 implementation. Effective implementation is where the
9 benefit will be achieved. Our own Executive Committee, the
10 independent advisory board which was part of the SPIP program,
11 the NRC staff, ACRS, and you, yourselves, have all
12 recognized that implementation is critical to success and
13 maybe the most difficult to achieve.

14 With that very brief introduction, unless you have
15 some introductory questions, Mr. Bert Simpson will review
16 with you in some detail where we, as owners, stand on
17 implementation. Following his discussions, I will have a
18 few concluding remarks.

19 CHAIRMAN ZECH: Thank you very much. Mr. Simpson,
20 you may proceed.

21 MR. SIMPSON: Okay. As Mr. Wilson indicated, what
22 I am going to try to cover today is to focus mostly on the
23 implementation process that we have developed to ensure
24 proper and timely implementation of the SPIP recommendations.
25 I will also cover not only the process but the present

1 status that we have in terms of the implementation of the
2 recommendations and also our status of our efforts towards
3 achieving the goals that we set out when we started the SPIP
4 program.

5 Could I have my first slide, please?

6 (Slide.)

7 The implementing the recommendation is the most
8 critical thing, we think, for the success of the program.
9 We think the SPIP program has been very effective in
10 identifying solutions to many of the problems but if we
11 don't implement them, then the whole effort has been wasted.

12 The implementation is being formally monitored by
13 the executives and the Steering Committee for both quality
14 and timeliness. We have embarked on a couple of key issues
15 here and I am going to talk briefly about both of these.
16 The implementation of quality we will be monitoring from a
17 programatic and a technical standpoint. In my later slides,
18 I will discuss each of those -- the programatic program and
19 also the technical program that we have embarked on.

20 Proper implementation will require consideration
21 of the plant unique configuration, resources and the
22 operating schedules, the various schedules and overlaps of
23 when these things will be installed. Also, the plant design
24 is very crucial and some of the recommendations may or may
25 not apply.

1 The recommendation tracking system report is a
2 management tool. It provides the status, the plan and the
3 schedule for dispositioning of all the recommendations. I
4 will briefly discuss that program, what it looks like, how
5 we are using it and how we are providing the information to
6 the staff.

7 The effectiveness is monitored by comparison of
8 performance against defined goals. When we started the SPIP
9 program, we defined two clear goals that we have been using
10 to try to assess whether or not the program and recommendation
11 implementation is really benefiting the B&W owners group. I
12 will talk a little bit today about that also.

13 Could I have my next slide, please?

14 (Slide.)

15 The first thing I would like to address is the
16 programatic evaluation of the SPIP implementation program.
17 The objective of this effort was when we first started we
18 wanted to make sure that everyone had a consistent
19 understanding of the recommendations, that we had a very
20 controlled process within each utility to consistently
21 evaluate the recommendations, to ensure we had proper
22 management attention to these recommendations, that the
23 resources and priorities were being applied, that adequate
24 documentation on disposition, evaluation and closure of
25 these recommendations was being attained, and that the

1 operations and maintenance and technical people were being
2 involved in the review and implementation of these
3 recommendations.

4 The way we did that was the executives decided to
5 conduct a team inspection, if you would, comprised of the
6 various utility personnel and B&W people, and we had basically
7 eight people comprised of the utility people and members of
8 B&W. We developed an evaluation plan, if you would, some
9 guidelines. We conducted those at each of the operating
10 plants, all the six utilities, and we issued a report.

11 Crucial to that was the executives decided that a member of
12 the Executive Committee would attend and participate at each
13 of the program audits, and that was accomplished. We found
14 that every effective in communicating to the various utility
15 personnel who may or may not have been involved in the actual
16 SPIP effort the importance that the execs were placing on
17 this program.

18 We spent about one man-year of a team effort on
19 that. We had about 140 people involved when you count the
20 utility people who also interacted with the team. A summary
21 report was submitted to the executives and also to the NRC
22 staff.

23 Could I have my next slide, please?

24 (Slide.)

25 The programatic evaluation team conclusions, the

1 principal conclusion was that all the utilities had adequate
2 programs for the SPIP recommendation dispositioning at the
3 time of the evaluation. However, in all cases some
4 improvements were needed to create a fully effective program.
5 What we found was some people had different parts of the
6 program in better shape than others. What we were able to
7 do was take the good parts of a lot of peoples programs and
8 by sharing those through this process with everyone,
9 everyones program improved.

10 So, I know specifically at Crystal River we were
11 able to learn things that other people were doing that was
12 a good idea that we have since implemented. I think as a
13 result all of the programs are better now. That is basically
14 the cross-fertilization to the team members of the respective
15 companies. We were continually to evolve into making
16 additional improvements throughout the evaluation period.
17 Even today, we are finding new things that we can do to
18 improve the program.

19 Can I have my next slide, please?

20 (Slide.)

21 As I mentioned earlier, the involvement of the
22 Executive Committee representative I think contributed
23 greatly to the evaluation quality and the emphasis and the
24 visibility of the program and the goals. We believe because
25 we did this effort that we will have an improvement in the

1 quality of the disposition. We will have consistent
2 reporting. We wanted to make sure that people were having
3 consistent definitions. And, the documentation will be
4 improved which will increase the progress and dispositioning
5 of results. I think we are starting to see that now that
6 we are into the actual implementation phase. We are not
7 arguing over terms or miscommunications.

8 We conducted that in the period between -- I meant
9 to mention that earlier -- we conducted that during the
10 period of December of '87 through March of '88. So, that
11 program is finished.

12 The next piece that the Executive Committee was
13 concerned about was the quality of the implementation; how
14 were we going to assure ourselves that each utility was
15 interpreting the requirements correctly, understood the
16 real intent of the recommendation, and were following it all
17 the way through from the design, if it was a modification,
18 or if it was a procedural change, that we were really getting
19 a consistent quality.

20 What we decided to do in that particular area is
21 do technical evaluations. We started these in February of
22 this year. We just completed the first round of technical
23 evaluations last week. So, we have done all of the six
24 utilities for at least a few of the recommendations. We
25 basically had a four-man team, again comprised of utility

1 people. Each utility would put on a representative to
2 participate in the various audits except when they did
3 their own.

4 We picked five recommendations. We took some of
5 the top five most important recommendations including the
6 known safe state recommendation and the ICS for the initial
7 evaluation. Like I mentioned, we have completed all of the
8 first phase. We developed a detailed evaluation plan and
9 checklist. That is comprised of this book right here. What
10 we did was we basically went through for each of the
11 evaluations -- I mean the recommendations that we picked,
12 the five -- and if it was a design one, we went through in
13 a really detailed methodology what the team should be looking
14 for to assess what is a good quality. So, when the teams
15 went -- because there were different people -- from place to
16 place, we had a consistent checklist and a consistent
17 evaluation process. We found that to be very useful. We
18 found also, by just doing that, we gave better insight to
19 the utilities as to what issues they should consider also.

20 COMMISSIONER ROGERS: How long did each of those
21 visits take?

22 MR. SIMPSON: Approximately a week. I mean it was
23 a couple of days preparation, three days at the plant,
24 sometimes in the home office and the site. We actually went
25 to the site facilities and talked to the operations people

1 and walked through the different parts of it. Then we had
2 to write the report up. So, typically it took about a week.

3 The Steering Committee plans to review the results
4 now that we have finished them all at our September meeting
5 which is about a month away. We are going to review the
6 results of the first round of technical evaluations to
7 determine if there are any additional actions that we need
8 to take. We are also right now evaluating nine additional
9 key recommendations that we want to plan and schedule to
10 do further technical audits, if you would, throughout the
11 process. Right now we are looking at the nine and we are
12 trying to determine based on the utilities schedules when
13 they will be finished with implementation so that we can
14 get a handle on when to conduct this next nine. So, our
15 intent, as we go through these, is to continue this process.
16 We think it will be very beneficial.

17 Could I have my next slide, please?

18 (Slide.)

19 In terms of results of the technical evaluations
20 in general, the quality of implementation for the five
21 recommendations audited were adequate. The team has made
22 some recommendations to specific plants where improvements
23 could be needed. Those were both in the design and in the
24 procedural areas. We also are finding good practices, things
25 that people are doing that we think need to be shared with

1 the other utilities, and we are in fact communicating those
2 things to the other utilities. As we review these reports
3 in September, that is going to be one of the fallout things
4 that we will do. We think, again, that is the way to
5 improve on the implementation process.

6 Before I move into the actual status of where we
7 stand on the recommendations, I would like to talk briefly
8 about the tracking system and process that we have developed
9 due to the large number of recommendations that did come out
10 of this program. What we have put together is a
11 recommendation tracking system report. That is this document
12 right here. It contains each of the 226 recommendations that
13 are currently valid recommendations from the SPIP program.
14 Basically in this report it has a brief description of the
15 recommendation, the benefit or why you would have to do it,
16 the background on trips that it has caused, and it also
17 defines the source documents or, in other words, additional
18 technical documents that you need to go to to refer to to
19 get the total meaning of the recommendation, and at the
20 bottom it has a brief summary status of each of the
21 utilities and where they stand on implementation.

22 We update this book every quarter. Earlier in
23 the stages we were doing on a monthly and now it has got to
24 the point where quarterly makes sense. The Steering
25 Committee meets every two months. We review this as a

1 standard agenda item to determine how the progress is doing
2 and what problem areas anybody has come up with and to make
3 sure all the utilities are in fact moving at about the same
4 pace.

5 The Executive Committee meets three times a year
6 and they also have this on their agenda. In fact they are
7 going to be meeting in September and it is on their agenda
8 to review the next status.

9 CHAIRMAN ZECH: The Executive Committee of the
10 owners group.

11 MR. SIMPSON: Yes. We also provide this document
12 on a quarterly basis to the NRC staff.

13 MR. CHILK: You are tracking 426 or 226?

14 MR. SIMPSON: 226, yes. Basically what we are
15 trying to do is to make sure because of the large volume of
16 information that we are consistently communicating both
17 internally and to the staff and that we are all making
18 progress.

19 May I have my next slide, please?

20 (Slide.)

21 Before I get into actually discussing the results
22 on this slide, what I would like to do is to refresh your
23 memory. I believe they were discussed at the last
24 Commission meeting last year. What we have come up with is
25 four categories or phases, if you would, how the evaluations

1 are being addressed. The first phase is evaluating for
2 applicability. The intent of that phase is to review each
3 of the 226 recommendations to determine if it applies to
4 your power plant. In some cases, due to design differences,
5 it may not as a generic recommendation apply to all the
6 plants.

7 Once you have accomplished that and you determine
8 that it does apply to your plant, then you move to the next
9 phase which is evaluating for implementation. That is what
10 you could call an engineering study phase where you are
11 actually progressing through a design phase to determine
12 what type of alternative solution would you specifically
13 implement at your plant. If it was a procedural type
14 recommendation, a software recommendation, you would be
15 reviewing which procedures have to be changed, what is the
16 extent of the change, what resources do I need and what is
17 the schedule.

18 Once you complete that phase, then you move into
19 the implementation phase. That is where you have already
20 selected your design alternative, you have scheduled your
21 resources, and you are actually into the actual implementation
22 of the design or into implementation in the field of the
23 modification or in fact you are actually implementing the
24 procedural changes or training, whichever it could be.

25 Once you complete that phase, then you move into

1 what we have determined closed. You know, the issue is
2 fully implemented. What we have attempted to depict on
3 this particular view graph is we have taken the 226
4 recommendations, multiplied it by the six utilities, and
5 you basically get 1,331 recommendations. Once that number
6 is totally closed, that means all the recommendations have
7 been dispositioned at all the plants.

8 What we have attempted to show here in terms of
9 progress, if you come to the first bar chart, that's where
10 we were in January of 1988. At that time, we had 540
11 recommendations in the closed category and the various
12 breakdowns in the other sub-categories or phases. The
13 intent here is to move all of the recommendations into the
14 implementing phase and then we will have schedules for
15 everything and will ultimately get everything in the closed
16 category.

17 The middle bar graph reflects the latest
18 information in the recommendation tracking system that was
19 provided to the staff in July. That reflects our data
20 through June. Basically 58 percent of the 226
21 recommendations have been implemented collectively at all of
22 the power plants. We have 210 in the implementing phase.
23 In other words, they are identified, they have schedules, and
24 there is a decision on what has to be accomplished and it is
25 being implemented.

1 There are 304 in the evaluating for implementation
2 in that they have been determined to be applicable but they
3 haven't figured out the actual plant's specific
4 implementation for things that have to be accomplished.
5 That is under way but they have a defined schedule for that
6 phase.

7 Lastly, there are 45 recommendations still in the
8 evaluating for applicability. In other words, do they apply
9 to our power plants or not?

10 What the last two columns show is a projected
11 where we will be in the next two quarters. The way we
12 conducted this process is whichever phase you are in, you
13 have to also identify to the Steering Committee what is your
14 expected completion date of that phase. So, then we know
15 what is expected. At the end of September, we are going to
16 look at this is what we expected to achieve and did we
17 achieve it, and if not, why not, and hopefully we are even
18 going to do better. But the intent here is to give some
19 projection of where we are going and then we can see whether
20 we are making progress or not.

21 If we complete the way we are projected right now,
22 by the end of this year 67 percent is projected to be closed
23 at each of the plants, 332 will be in the implementation phase,
24 only 97 will be in the still evaluation for implementation
25 phase, and seven will be in the EA phase. At that point, we

1 are pretty close to either having everything closed or
2 things scheduled. So, we will be able to talk about end
3 schedules for most of the items with the exception of about
4 104. We continue to evaluate this process and provide this
5 on a quarterly basis to the NRC.

6 COMMISSIONER ROGERS: Excuse me.

7 MR. SIMPSON: Yes.

8 COMMISSIONER ROGERS: Before you do that, I would
9 like to just ask a couple of questions --

10 MR. SIMPSON: Sure.

11 COMMISSIONER ROGERS: -- just so I will understand
12 a little better. The program actually began in January. I
13 mean is that essentially when the program began?

14 MR. SIMPSON: No, we just went back to that period
15 of time on this particular view graph.

16 MR. WILSON: Beginning about in January of '86
17 roughly.

18 MR. SIMPSON: Well, I think he is talking about
19 the tracking system. Is that what your question is?

20 COMMISSIONER ROGERS: Well, I am just trying to
21 understand these numbers.

22 MR. SIMPSON: Yes.

23 COMMISSIONER ROGERS: For example, the number at
24 the top of the column, the 1,218 on the first column.

25 MR. SIMPSON: Right.

1 COMMISSIONER ROGERS: I take it this relates to
2 the 226 recommendations times the number of plants that they
3 applied to; is that correct?

4 MR. SIMPSON: No. Let me -- I didn't clarify one
5 thing. We started the tracking system before all the
6 programs were finished and all the recommendations were not
7 identified since we started the tracking system. At one
8 time, I think about a year ago, if you remember, I think the
9 number was less than 100 or about 150 recommendations. As
10 programs finished, we have now stabilized pretty close
11 around 226. There is a potential seven additional
12 recommendations that we think on some finalizing work that
13 we are doing that may come into the program.

14 COMMISSIONER ROGERS: Of this number then in the
15 third column, the 1,331 --

16 MR. SIMPSON: Yes.

17 COMMISSIONER ROGERS: -- that represents the 526
18 times the number --

19 MR. SIMPSON: 226

20 COMMISSIONER ROGERS: Excuse me. Yes, 226 times
21 the number of plants that you have.

22 MR. SIMPSON: Right.

23 COMMISSIONER ROGERS: And, that's how that grew.

24 MR. SIMPSON: Right.

25 COMMISSIONER ROGERS: Because there were some

1 additions there; is that it?

2 MR. SIMPSON: Right.

3 COMMISSIONER ROGERS: And, you started out on this
4 with 540 in the first column because some of these
5 recommendations didn't apply to all plants.

6 MR. SIMPSON: Right. I think one of the things
7 that I think is significant here, once you get through the
8 evaluation for applicability phase you have made that
9 determination whether it applies or not. I can give you
10 some examples, like on Crystal River. We have closed-
11 operable. They did apply 87 recommendations. We also have
12 closed-not applicable, 28, and we rejected one item out of
13 the 226. But I have completed all of my evaluation for
14 applicability evaluations for the 226. So, I do not
15 anticipate any more going to closed-NA.

16 So, that tells me out of the 226, all but 29 will
17 be implemented at Crystal River. That represents about 13
18 percent. And, if you look at the other plants, they are
19 somewhere in that 13 to 20 percent range depending on design
20 differences. So, once we move everyone out of the EA phase,
21 then it is a matter of they do apply, what is your schedules?
22 When are you getting them done?

23 I know that has been a little bit of a point of
24 confusion as to how that is being done.

25 COMMISSIONER ROGERS: Okay. Thank you.

1 MR. SIMPSON: The next slide --

2 (Slide.)

3 -- is very similar. I won't go into as much
4 detail. The only thing this particular view graph focuses
5 on is the key recommendations. If you recall, we broke the
6 226 into key recommendations and we are trying to focus the
7 progress on those as well. Again, we have 56 of the key
8 recommendations closed and we anticipate 69 percent
9 completed by the end of the year.

10 Could I have my next slide, please?

11 (Slide.)

12 What I would like to do now is briefly discuss
13 our process of evaluating our progress towards reaching our
14 goals that we set when we started this program back in
15 January of 1986. A major objective of the SPIP program was
16 to improve safety, reduce the number of trips and complex
17 transients on the B&W plants, and ensure acceptable plant
18 response during those trips and transients which do occur.

19 To measure that, we establish two goals. The first
20 goal was by the end of 1990 the average per plant trip
21 frequency will be less than two per year. The goal you will
22 see, as we have established it right now, is 1.4. The second
23 goal measured the complexity of the trips. By the end of
24 the year 1990, the number of complex transients, as classified
25 by the measurable parameters as the Category C events, will

1 be reduced to .1 per plant per year based on a moving three-
2 year average. The three-year average tends to take a little
3 longer to see the results.

4 The next two slides do give you an update of the
5 progress we have made.

6 CHAIRMAN ZECH: Before you go on to that, what
7 about plant trips? Plant trips, how do you define that?

8 MR. SIMPSON: Trips at power --

9 CHAIRMAN ZECH: Yes.

10 MR. SIMPSON: We are using the same criteria as
11 the IMPO guidelines.

12 CHAIRMAN ZECH: But an operator that manually
13 trips the plant because of some concern, is that included
14 in your number or not?

15 MR. SIMPSON: Let me think if I remember that. I
16 believe we were including manual trips; is that not correct?

17 MR. WILSON: Yes.

18 MR. O'CONNOR: The only ones that would not count
19 are --

20 CHAIRMAN ZECH: Would you step to the microphone,
21 please, and identify yourself for the reporter.

22 MR. O'CONNOR: My name is Bill O'Connor. I am
23 Vice Chairman of the Steering Committee for the B&W owners
24 group. In answer to your question, Commissioner Zech, the
25 only trips that would not be counted would be a planned

1 reactor trip such as the one Rancho Seco did as part of
2 their re-start program. An actual planned trip would not
3 count. A manual operator trip as a result of some plant
4 transient where he took the action to trip, that would count
5 in our trip frequency.

6 CHAIRMAN ZECH: Well, I guess the point of my
7 question is we do not want to discourage the operators from
8 tripping the plant if he thinks he should, just in order to
9 make a number here.

10 MR. O'CONNOR: We are not discouraging the
11 operators from tripping the plant at any time that they feel
12 it is necessary.

13 CHAIRMAN ZECH: Well, I hope so. Do they understand
14 that?

15 MR. O'CONNOR: They certainly do.

16 CHAIRMAN ZECH: Because if it looks like to the
17 operator in his judgment the plant should be tripped, he
18 ought to trip it. That's a positive safety action, not a
19 negative one, in my judgment.

20 MR. O'CONNOR: It certainly is.

21 CHAIRMAN ZECH: All right. Thank you.

22 (Slide.)

23 MR. SIMPSON: The next slide shows the results of
24 the trip unplanned automatic scrams while critical to the
25 B&W plants as well as the industry average. The SPIP effort

1 started in January of 1986 and we have shown the data. In
2 1987, the B&W owners group trip average was 2.1. What we
3 did in 1988, we have taken the information that we have
4 through July and we have projected it out based on that
5 level of performance continuing the rest of the year. If
6 it does, then we will achieve a trip frequency on the B&W
7 plants of .86. As I mentioned earlier, our goal is 1.4.
8 So, it appears, if the performance continues, that we will
9 be achieving that goal sooner than we anticipated. Right
10 now, the moving 12-month average, from July to July, is 1.2
11 on the B&W plants.

12 CHAIRMAN ZECH: But here you are calling this
13 unplanned automatic scrams while critical. Now, my question
14 again is does an operator-initiated manual scram count in
15 this number or not? It looks like it doesn't to me, if it
16 is unplanned automatic scrams, but you still count manual
17 scrams; is that correct? I guess it is. That's what you
18 are telling me.

19 MR. SIMPSON: (Nodding head up and down.)

20 CHAIRMAN ZECH: You are nodding yes.

21 MR. SIMPSON: Yes.

22 CHAIRMAN ZECH: Again, I want to emphasize then
23 if you are counting those scrams, I hope those operators are
24 not going to be precluded or discouraged from scrambling a
25 plan in order to make these goal numbers. That is important.

1 I hope you emphasize that to your operators.

2 MR. SIMPSON: Yes, we will do that.

3 CHAIRMAN ZECH: All right.

4 COMMISSIONER CARR: And, if a plant is not on the
5 line, is he out of the average?

6 MR. SIMPSON: Well, this particular slide is not
7 based on the per 1,000 hour criteria. We looked at that
8 also using the scram rate data per 1,000 hours critical.
9 Right now at the end of '87, the B&W plants were at .33 per
10 1,000 hours which is the lowest of all the nuclear stations.

11 CHAIRMAN ZECH: All right. Let's proceed.

12 MR. SIMPSON: The next slide --

13 (Slide.)

14 -- indicates our goal toward achieving a trip
15 frequency in Category C transients. Again, this is a three-
16 year moving average. We are projecting that if there are
17 no additional Category C events throughout the rest of this
18 year, we will reach our goal of .1 by the fall -- October or
19 November of this year -- and continue to strive towards
20 driving this approaching zero because that is obviously the
21 objective of the entire SPIP program, not to have Category C
22 transients. We are making progress I think. The program
23 is helping that.

24 The next two slides, I would just like to briefly
25 summarize the assessments by others. If you recall, we had

1 an independent advisory board who participated throughout
2 the program. Some of the conclusions that they reached was
3 that defined action should reduce the transient frequency
4 and improve safety. I think the data that we are starting
5 to see is indicating that that is the case.

6 They indicated also that the ICS and NNI and
7 feedwater reliability deserve special attention. In fact,
8 106 out of the 226 recommendations, for 47 percent, do
9 actually apply to those two systems. That includes
10 emergency feedwater and main feedwater. And, management
11 attention to the implementation quality is very important
12 and I think I have tried to explain that today, that we
13 agree with that and the Executive Committee and the utilities
14 are focusing quite a bit of attention in that area.

15 COMMISSIONER ROGERS: Excuse me. Again, before we
16 leave that, you said that 106 out of 226 applied to two areas.
17 How much of that is ICS/NNI?

18 MR. SIMPSON: The ICS/NNI are 52 recommendations.

19 COMMISSIONER ROGERS: Okay.

20 MR. SIMPSON: The next slide, the assessment by
21 the NRC.

22 (Slide.)

23 Basically the NRC is in general agreement with the
24 scope and overall results of our program. The NRC stated
25 that the SPIP recommendations totalling over 200 are

1 appropriate and we agree with that. Of these, they have
2 comments on eight and guidance on 33. We are presently
3 reviewing their comments. In some cases, we have actually
4 changed or implemented things differently to incorporate
5 their comments. We will continue to review those at our
6 upcoming meeting in September.

7 With regards to the ACRS, we have had several
8 meetings with them also on this particular program. They
9 have indicated that they agree with the staff findings on
10 SPIP. They also agree there are no additional regulatory
11 requirements but they also agreed to urge prompt
12 implementation of the recommendations. Again, I think we
13 agree that that is a fundamental part of our program.

14 CHAIRMAN ZECH: There are a couple recommendations
15 I believe that the ACRS made. One of them was regarding the
16 loss of non-class -- one, the instrumentation control power
17 system that the staff recommended. I wasn't certain whether
18 the owners group had considered this recommendation of the
19 ACRS. Have you?

20 MR. SIMPSON: Was that on the -- I'm not quite
21 clear on that.

22 CHAIRMAN ZECH: The integrated control system.

23 MR. SIMPSON: Oh, the ICS loss of power.

24 CHAIRMAN ZECH: Yes, and the staff had made a
25 recommendation regarding that system. My question really is

1 has the owners group looked at that ACRS recommendation
2 supporting the staff recommendation and what are you doing
3 about it?

4 MR. SIMPSON: In the area -- I think if you are
5 talking about loss of power to the ICS -- I think that was
6 the question.

7 CHAIRMAN ZECH: Yes.

8 MR. SIMPSON: What we are doing in that regard is
9 a number of the recommendations are aimed at improving the
10 reliability in that regard and we are also implementing what
11 we call some of the recommendations the known safe state
12 process which, in event there is a loss of power, the plant
13 goes to a pre-determined known state that has been evaluated
14 as an acceptable plant response. The advance control
15 system effort that we have underway is actually a follow
16 onto this SPIP effort and is intended as a long-term
17 solution to those types of issues.

18 CHAIRMAN ZECH: Yes, but I guess my question is
19 are you reconsidering the staff recommendation and the ACRS
20 support of that recommendation regarding the loss of power
21 to that system? Are you doing that or have you just rejected
22 it?

23 MR. SIMPSON: Well, I don't think we rejected. I
24 guess we felt like we had addressed it I guess.

25 CHAIRMAN ZECH: Will you take another look at that?

1 MR. SIMPSON: Yes.

2 CHAIRMAN ZECH: I appreciate it. Also, the ACRS
3 recommended that the B&W owners group valve task force
4 results indicated a need to test the valves against the full
5 spectrum of transit and accident conditions.

6 MR. SIMPSON: Yes.

7 CHAIRMAN ZECH: What has the owners group done
8 regarding that recommendation?

9 MR. SIMPSON: At our last meeting in July, we
10 instructed the valve task force to complete their present
11 scope which is going to be finished this month, and we have
12 expanded their scope to include I think motor-operated
13 valves and check-valves and to evaluate them against the
14 spectrum of brakes.

15 CHAIRMAN ZECH: So, you are addressing that
16 recommendation.

17 MR. SIMPSON: Yes, we are.

18 CHAIRMAN ZECH: All right. Thank you very much.
19 You may proceed.

20 MR. SIMPSON: Right now, I guess I would like to
21 turn it back over to Mr. Wilson. He has a few concluding
22 remarks.

23 MR. WILSON: I would simply like to conclude with
24 a few summary observations. First, some comments and some
25 insights from the program which we have had underway for two

1 and a half years and then, secondly, some program specifics
2 which we think are important.

3 (Slide.)

4 This first view graph summarizes some of the
5 program elements that we believe are important. First, the
6 majority of the recommendations in critical areas are
7 focused on balance of plant, rather than on what is
8 classically thought of as a safety-related or a nuclear
9 steam supply part of the plant. This is not a new insight.
10 It has clearly been recognized by the industry. I think,
11 by yourselves, that this program clearly confirms what we
12 all felt to be true and that is the degree of importance of
13 balance of plant. Some 1,995 or 95 percent plus of the
14 recommendations deal with that area of the plant.

15 Second, the consistent history of accumulating
16 and assessing plant performance and plant transient data in
17 the long-term is extremely valuable. The approximate eight
18 years worth of detailed data on over some 250 B&W plant trips
19 and transients since 1980 was invaluable. It provided the
20 basic technical insights needed for the program and was
21 crucial to all phases of the program. The owners group
22 intends to continue collecting such data on our plants and
23 such a practice we believe would be beneficial to all the
24 various operating nuclear stations.

25 Third, the SPIP program confirms the value of a

1 dedicated group effort on common concerns. The interaction
2 of the various utilities clearly provided both depth and
3 breadth to the work. It yielded insights which would not
4 have come from any one utility and, in the end, will enhance
5 the ability of each operator to implement the lessons that
6 have been learned.

7 The SPIP program value has been strongly enhanced
8 by all of the many inputs including those of the NRC staff
9 and others external to the owners group. While we, as
10 owners, do not always agree with third parties, the discourse
11 does cause everyone to question, to reassess, and ultimately
12 the higher level of assurance in the quality of the end
13 product.

14 Last, we believe as a group that the program value
15 is increased by strong utility executive involvement and
16 that executive involvement is critical to assure meaningful
17 implementation within each utility. The overall SPIP program
18 goals have been totally consistent with the basic individual
19 utility mission.

20 The last chart, please.

21 (Slide.)

22 Some specifics we would like to leave with you --
23 we have spent significant resources and will continue to
24 expend resources on the program. By the end of 1988, the
25 owners will have invested some approximate \$3,000,000 in

1 program development and, in addition, will have collectively
2 spent some additional approximate \$20,000,000 to \$25,000,000
3 in individual support for the program and implementation of
4 program recommendations. In the future, we will spend many
5 millions of dollars more.

6 We believe the scope of the program assessment was
7 proper and in focus. It developed some approximate 226
8 safety and performance and improvement recommendations.
9 These recommendations span virtually every facet of utility
10 activity including operations, maintenance, plant design,
11 design modifications, training and human performance. Each
12 individual utility and the owners group as a whole has
13 instituted tracking systems to ensure the formal and timely
14 disposition of all recommendations. Each utility has an
15 internal process for management review to help ensure
16 quality.

17 The owners group itself provides the visibility to
18 each of us as to how well and at what rate all of the others
19 are moving. We believe that implementation of recommendations
20 to date has already resulted in individual benefits. We
21 expect implementation to continue for several years. While
22 individual utilities have not all endorsed or set a date
23 for implementation of an advanced control system, that action
24 which is expected to be probably the last task will be at
25 least several years away. Our preliminary conclusion at

1 GPUN is that advanced ICS implementation could not take
2 place before 1994 at the earliest.

3 During this entire implementation phase, utility
4 management has audited and monitored performance and I want
5 to assure you that the owners group and the individual
6 owners will continue that auditing and monitoring to
7 completion of the program. As part of our monitoring,
8 individual plant schedule information is made available to
9 the NRC staff and the staff has indicated they will followup
10 both individually and collectively with the owners group.

11 Finally, I would like to emphasize and re-emphasize
12 staff interaction during the program has been positive and
13 helpful. Much of the insights provided by the staff have
14 been useful and in many areas are complimentary to the work
15 performed by the owners group. The long-term success of the
16 program will be in part due to these activities of the staff.

17 The owners group commitment to the program has
18 been a strong one. It will continue to be strong until final
19 implementation is complete.

20 I would like to thank you for making your time
21 available to allow us to tell you about this program. If we
22 can answer any general questions or specific questions, we
23 will be happy to do so.

24 CHAIRMAN ZECH: All right. Thank you very much.
25 Any questions from my fellow Commissioners. Commissioner

1 Roberts.

2 COMMISSIONER ROBERTS: No.

3 CHAIRMAN ZECH: Commissioner Carr.

4 COMMISSIONER CARR: No.

5 CHAIRMAN ZECH: Commissioner Rogers.

6 COMMISSIONER ROGERS: Yes, I would just like to
7 hear a little bit about a couple of things. What is the
8 status of the human factors recommendations that staff
9 suggested? Apparently they didn't make it into the final
10 round. Could you say something about that?

11 MR. SIMPSON: We have reviewed the staff's
12 recommendations on human factors. We went back and assessed
13 whether or not we felt it would be prudent or beneficial to
14 hew back over all the old TAP reports which is one of their
15 suggestions. We didn't feel like that would be a beneficial
16 thing to do. We felt that the program, although it didn't
17 focus clearly as a specific mission on human factors, did
18 include human factors at different points where we thought
19 it was appropriate.

20 We indicated that position back to the staff and
21 I believe they also now agree with that.

22 In the area of using human factors experts
23 throughout the process, while we didn't do that as a
24 consistent basis throughout the actual program, there were
25 individual cases where human factors activities -- in some

1 cases they were outside of the SPIP program, like in the
2 control room efforts -- but they were considered when we did
3 some of our reviews.

4 We do agree though that the followup work, the
5 work that we are doing right now in the implementation of
6 some of the changes to our existing ICS, definitely warrants
7 the use of standard human factors. Some of the good
8 practices that have come out of our technical reviews,
9 basically say where people have used I guess you want to
10 call them expert human factors individuals in the design of
11 their automatic signal selection process, we think those
12 types of things are beneficial to the future and things
13 that we are going to do in our control systems. Our advanced
14 control system will have very strong human factors interface
15 in it. So, that is the position I guess where we are at
16 with the staff.

17 MR. WILSON: Maybe I can add a quick word to that.
18 All utilities implement things in slightly different ways.
19 In the case of GPU, we do have human factors engineers on
20 the staff. All procedural changes, all modifications in the
21 plant go through the human factors review as a normal course
22 of implementation.

23 COMMISSIONER ROGERS: On this advanced
24 instrumentation system, you say that 1994 is the earliest
25 date at which that would be implemented.

1 MR. WILSON: At GPUN. I cannot speak for the other
2 owners. I think if you examine the phases of that program,
3 one, that instrumentation system is expected to use advanced
4 digital technology, self-checking circuits, automatic
5 rejection of false input signals, advanced techniques for
6 allowing the operator to understand failure and fault modes
7 in the system and so forth.

8 The program really calls for a specification
9 phase in terms of specifying the system. That is underway
10 now and will be completed I think sometime in early '89.
11 Then there is the potential -- not the potential -- but the
12 next phase is the development, procurement of development
13 hardware. There will be then a test phase of that
14 development hardware. At least in our case, we would like
15 to go so far as even seeing if we can't hook that up to a
16 plant simulator.

17 Since this system is so integral with the plant,
18 I would anticipate that out of that test phase there are
19 going to be changes, modifications, a desire to improve it
20 and correct problems that surface in it. Then there is the
21 final specification procurement of hardware. In addition
22 to that, then each utility has to uniquely design the
23 installation into their plant and then schedule that
24 implementation at a major refueling outage. Since refueling
25 outages vary quite widely, some plants are on two-year

1 refueling cycles, but our view for TMI, we just could not
2 put it in before then at the very earliest.

3 COMMISSIONER ROGERS: Can you represent to us the
4 schedule of the other owners plans?

5 MR. SIMPSON: I don't think we can say for sure
6 right now I guess until we get through the SPEC developments
7 so that we have a clear understanding of the total scope of
8 the effort and what they are doing which will be done in '89.
9 I think we will be in a better position then to plan out the
10 remaining phases. But I would imagine it is going to be in
11 that window of a '93/'94 timeframe. It's hard to say.

12 CHAIRMAN ZECH: The HANCE system that is not fully
13 tested yet; is that what you are talking about?

14 MR. WILSON: It isn't even designed yet.

15 MR. SIMPSON: Basically what this is, we are trying
16 to use the lessons learned that we found in our particular
17 program. We have looked at the foreign control systems that
18 are out there. We are doing the detail human factors. We
19 have been talking with members from NASA and EPRI and other
20 things who do a lot of digital control work obviously. In
21 the space program we are going to have improved control
22 techniques, increased reliability. Basically it will be
23 fault-tolerant and fault-resistance and will be single
24 failure proof. It will also do the predict failures, detect
25 failures, the on-line self-checking, if you would. And,

1 like Mr. Wilson implied, this is the "brain" of the plan.
2 One of the key pieces of this effort too is the installation.
3 It needs to be well thought out and planned.

4 Being at one of the utilities that installed an
5 emergency feedwater instrument control system, we learned
6 a lot from that exercise in starting that system up. I
7 think what we did learn was you really on a control system
8 need to really have it well planned out and check it out on
9 a simulator. It makes everything work out and the training
10 of operators. So, it is not something that we just want to
11 rush into. That is why we have really focused on the interim
12 fixes to the existing ICS to try to make it as fault-tolerant
13 as possible.

14 The couple critical things area is to improve the
15 reliability of power supplies and also the automatic signal
16 selection which will -- one of the key things in the ICS
17 failure is not the ICS system itself but it has been getting
18 bad data to the system. So, by putting in the automatic
19 signal selection, which I think all of the utilities are
20 doing that, will reduce that problem to a low probability
21 event such that we will improve the interim reliability of
22 the system because we realize, the timing of this, we need
23 to not just accept what we have right now.

24 COMMISSIONER ROGERS: Well, I guess I was just a
25 little concerned about those 52 recommendations, ICS

1 recommendations, as to whether they are or what the status
2 of their attack is and whether they are being postponed in
3 some way to be dealt with by this advanced --

4 MR. SIMPSON: Those 52 are almost -- the things
5 that I just talked about are dealing with those types of
6 issues and we really see those as the things that we need
7 to implement on the existing hardware.

8 MR. WILSON: I think one or two of those 52 relate
9 to the advanced system and the rest are basically fixes and
10 changes --

11 MR. SIMPSON: Right.

12 MR. WILSON: -- to the current planned systems.

13 MR. SIMPSON: Right.

14 COMMISSIONER ROGERS: What is your projected
15 schedule for completion of the overall program?

16 MR. SIMPSON: One of the slides that I showed you
17 earlier, once all of the recommendations are in the
18 implementation phase, we will then be able to answer that
19 question. Until that time, it is hard for me to say. I
20 would say by the end of this year we are going to know
21 pretty close with the exception I think there was about 15
22 recommendations per plant. You know, the 97 you had divided
23 by six. It is actually only about 15 recommendations per
24 plant would not have a schedule for implementation.

25 So, by the end of the year, we should have a pretty

1 good idea that it is, you know, 91 or 89 or whatever the
2 various states are. You know, total closure.

3 COMMISSIONER ROGERS: Could you say something
4 about the problems of severe degradation of the steam
5 generator tubes situation? There is a greater concern here
6 with the generators. How do you plan to address that
7 problem in the future? Is that part of this overall program
8 or is it --

9 MR. WILSON: The steam generator issues I think
10 you are referring to are pretty much outside of the SPIP
11 program. There are two really classes of issues with the
12 steam generators. One is issues of various types of tube
13 degradation. Secondly there is the issue of pressure drop
14 buildup on the secondary side which is a performance issue
15 in terms of the steam generator not being able to pass the
16 design rate feed flow. If you are referring to the latter --

17 COMMISSIONER ROGERS: No, I am thinking of the
18 erosion/corrosion problem.

19 MR. WILSON: Then on the first set, there are a
20 number of mechanisms that operate in the steam generator
21 that have caused two problems in the past. Some have been
22 on the primary side. A classic example is TMI where there
23 was extensive cracking on the primary side, inner grain or
24 stress corrosion cracking, due to the introduction of active
25 sulphur species into the coolant while the plant was shutdown

1 in 1980 or 1981.

2 That mode of attack on the tubes has really been
3 arrested. We have three inspections of the generators since
4 the plant went back into service in '85. It is arrested.
5 It has stopped. The primary system is cleaned and that
6 issue is behind us, although we did end up plugging a
7 significant number of tubes.

8 Other plants, all plants, have suffered various
9 modes of erosion. Some attack on secondary sites at tubes,
10 particularly what is called the lane of the steam generator.
11 Some of that is thought to be water carried up that lane
12 where you don't get the same amount of heat transfer. That
13 is continuing at some slow rate. People have moved to
14 protect against that. For example, by sleeving of those
15 tubes which puts in a barrier on the inside of the sleeve
16 such that it allows the tube degradation to proceed, yet not
17 impact leakage or steam generator performance.

18 COMMISSIONER ROGERS: But that is not being
19 attacked in a programatic way across the board.

20 MR. SIMPSON: No, not by this program.

21 MR. WILSON: Not by this program but it is tracked
22 very carefully by the owners group and common parts of that
23 are being looked at collectively, yes, as a group.

24 MR. SIMPSON: One of the committees of our owners
25 group is a Steam Generator Committee who is evaluating all

1 different types of issues regarding our once-through steam
2 generators.

3 COMMISSIONER ROGERS: And, I wonder if you could
4 say something about where things stand with emergency
5 operating procedures as part of a severe accident management
6 program for incoming plants?

7 MR. SIMPSON: We are doing -- as part of the SPIP
8 effort -- we did have a followup effort. We have an EOP
9 review. One of the ongoing efforts from our SPIP review was
10 we have an Operator Support Committee and they are in the
11 process of doing the review of the emergency operating
12 procedures. That review is still ongoing and it is going to
13 be completed August of next year. That is the only effort,
14 other than the initial reviews that were done during the SPIP
15 effort.

16 I know each of the utilities are in the process of
17 going through various discussions with the staff on an
18 individual basis on the EOP's.

19 COMMISSIONER ROGERS: But that particular review
20 is still in the works.

21 MR. SIMPSON: Yes, yes, right. We intend -- we
22 have a schedule to close that in August of '89 and provide
23 that information to the staff.

24 COMMISSIONER ROGERS: And, I guess just one other
25 point. I think you may actually have touched on it in your

1 earlier presentation but I just wanted to check. That is
2 that the SPIP goals for the B&WOG, the operating goals, are
3 they consistent with the IMPO goals?

4 MR. SIMPSON: Yes.

5 COMMISSIONER ROGERS: Are they the same?

6 MR. SIMPSON: Actually the trip goal probably is
7 more aggressive even than what --

8 COMMISSIONER ROGERS: It sounded to me like it was.

9 MR. SIMPSON: I think when we added them all up, it
10 was slightly less when we took all the plants IMPO goals, and
11 we have since reduced that and the execs are asking us to
12 reevaluate them again now that we are going to achieve them
13 before 1990.

14 COMMISSIONER ROGERS: Okay. Thank you.

15 CHAIRMAN ZECH: It is my understanding that the
16 B&W owners group acted promptly on the schedule to implement
17 most of the recommendations and you have told us the progress
18 you are making. However, there has been -- your various
19 utilities are operating to my understanding a little bit
20 differently. Some are accomplishing them a little faster
21 than others.

22 Do you believe that there is a real commitment on
23 the part of the various utilities to accomplish these
24 recommendations at a reasonable and aggressive pace?

25 MR. WILSON: I really believe that is true. The

1 Executive Committee reviews the status of each utility. We
2 meet roughly three times a year at least. There is a lot of
3 dialogue at that time. From my conversations with people,
4 I know that resources are being made available to do it.
5 There is a lot of peer pressure at those meetings.

6 I think if you look at the statistics for
7 individual utilities, and I will make the exception of TVA
8 because it is not an operating plant and I'm not quite sure
9 what is going to happen there in the long-term, I think you
10 will find that most of the six other operating plant
11 utilities are roughly comparable within ten percentage points
12 or something of the rate of completion, and you recognize
13 also that the rate of completion depends upon each schedule
14 of the plants.

15 For example, TMI went down for refueling in June
16 of this year. It is coming back hopefully in five or six
17 days. But we will have implemented 30 modifications and
18 changes in the plant during this refueling outage. They are
19 not reflected in the statistics for June that you saw. So,
20 there are step changes. It isn't just a smooth transition.

21 CHAIRMAN ZECH: Mr. Wilson and Mr. Simpson, we
22 thank you very much for your presentation. We encourage you
23 to continue your leadership role on the Babcock and Wilcock
24 owners group organization and encourage your colleagues to
25 continue the efforts that they have obviously made to date.

1 We thank you very much.

2 MR. WILSON: Thank you.

3 MR. SIMPSON: Thank you.

4 CHAIRMAN ZECH: We will ask for the staff to come
5 forward if they would.

6 (Brief pause.)

7 Mr. Taylor, you may proceed.

8 MR. TAYLOR: Good morning, Mr. Chairman. With me
9 are members of the NRR staff to present the staff's overview
10 of the B&W owners group work. On my right, Frank Miraglia
11 and Bob Jones; on my left, Denny Crutchfield and Jose Calvo.
12 The staff's overview and review will be presented by Denny
13 Crutchfield.

14 MR. CRUTCHFIELD: Good morning.

15 CHAIRMAN ZECH: Good morning. Please proceed.

16 MR. CRUTCHFIELD: Thank you. Could I have the
17 second slide, please?

18 (Slide.)

19 Briefly, the agenda is going to discuss some of
20 the background, our findings, recommendations, the status of
21 recommendations and the plans we have relative to the
22 implementation activities.

23 Could I have the third slide, please?

24 (Slide.)

25 The background has been briefly discussed before

1 by Mr. Simpson and Mr. Wilson. I won't go through it.
2 Suffice it to say, we began this program in January of '86.
3 The program has expanded and contracted to some extent based
4 on our findings from that program. We have issued safety
5 evaluations and supplements to the safety evaluation report.
6 The staff's view is I think we are just about completed with
7 the program.

8 Could I have the fourth slide, please, where we
9 go to the staff's findings?

10 (Slide.)

11 In general, I think the sensitivity of the B&W
12 plants, our views are that generally we agree with the B&W
13 owners group findings. They are somewhat more sensitive to
14 feedwater upsets than comparable other PWR's. There is a
15 greater reliance placed on the emergency feedwater system.

16 The operator burden is not necessarily a whole lot
17 greater for reactor trips that are normal reactor trips or
18 transients. For those where there are ICS or NNI upsets,
19 there is a greater burden on the operator.

20 The once-through steam generator question was
21 examined and, although they do have a smaller inventory,
22 when feedwater and emergency feedwater are properly controlled,
23 the post-trip response is not that much different and found
24 to be acceptable.

25 Could I have the next slide, please?

1 (Slide.)

2 Relative to risk assessment are sensitivity studies
3 and other evaluations that found that the B&W plants do not
4 possess or pose a core damage risk that is measurably greater
5 than other PWR's. As I indicated earlier, they are a little
6 more sensitive to feedwater upsets. In our sensitivity
7 studies and things like that, it is very difficult to model
8 some of these situations where you have more than one
9 failure, multiple failure situations. So, they do not pose
10 a greater risk to the public health and safety as far as the
11 staff is concerned.

12 Could I have the next slide, please?

13 (Slide.)

14 Recommendations have been discussed with you, the
15 tracking system that is in place. In general, I think the
16 staff is satisfied with the progress that the recommendations
17 are being implemented. There has been a great deal of
18 progress made in the applicability evaluation where the
19 utilities have decided which ones are applicable. They are
20 making very good progress also in the engineering design of
21 which ones ought to be there and how they ought to look and
22 the schedules, et cetera.

23 The next slide, please.

24 (Slide.)

25 We have seen major improvements in the ICS/NNI.

1 There are a number of recommendations out there as
2 Commissioner Rogers has identified that are being
3 implemented on the plants. We think they will make
4 substantial improvements in the performance of the
5 facilities.

6 We are looking forward to their advance design
7 with eagerness and anxious to get our hands on the design
8 to make sure we think there are indeed improvements there.
9 The schedules that Mr. Wilson has indicated probably aren't
10 unreasonable.

11 Our focus was greatly on the balance of plant
12 systems and we think there have been changes and
13 improvements in other areas -- the feedwater system, the
14 instrument air system, et cetera. We think those
15 improvements will benefit the plant and reduce the
16 likelihood of complex transients in the future.

17 The items and the numbers that the owners group
18 and the goals that they have set of reduction in scrams and
19 Category C transients, the staff does not endorse those
20 numbers. We haven't really commented on them, whether we
21 agree with them or not agree with. We are concerned also
22 that we don't want to discourage anybody from tripping the
23 plant when it is necessary to do so.

24 There are some issues that required further staff
25 attention, as identified in our SER's and SER supplement.

1 The human factors area was one of them. Very early, we
2 asked them to consider using human factors professionals
3 in the process. They were somewhat reluctant to do that.
4 We looked at the overall program that was going on, the
5 changes that were made, the evaluations and the operator
6 burden question, the interviews that were taking place with
7 maintenance and operators and things like that. We felt
8 reasonably comfortable with the program.

9 Our view is that had human factors professionals
10 been applied to the process, there may have been some
11 additional recommendations that would have come out. We
12 don't foresee that those recommendations would have had a
13 significant change in the process and the progress that we
14 have made. They have indicated that in future activities
15 they will apply human factors resources.

16 The staff feels that with the other programs that
17 we have ongoing, the DCRDR reviews, SPDS procedure reviews,
18 that we have made improvements in the operator error and
19 identification of operator burden concerns. So, overall,
20 the staff feels that the operator in the human factor area
21 has been adequately addressed.

22 CHAIRMAN ZECH: Well, my understanding is that
23 your statement about the human factors personnel not being
24 used perhaps as much as they might have been but will be in
25 the future is correct is my understanding of the situation.

1 But also my understanding is that although human factors
2 personnel weren't used necessarily, that there was input
3 from the operators themselves.

4 MR. CRUTCHFIELD: Yes, sir.

5 CHAIRMAN ZECH: Is that right?

6 MR. CRUTCHFIELD: Yes, sir.

7 CHAIRMAN ZECH: Because they can also make a
8 contribution in the area of human factors. But are you
9 confident that the operators themselves had a significant
10 input to this program?

11 MR. CRUTCHFIELD: As one of the early parts of
12 their program, they went out and did operator interviews of
13 licensed operators, senior operators, shift supervisors.

14 CHAIRMAN ZECH: Good.

15 MR. CRUTCHFIELD: So, we feel that the operators
16 had an activity input into the program.

17 CHAIRMAN ZECH: Good. Thank you.

18 MR. CRUTCHFIELD: Could I have the ninth slide,
19 please?

20 COMMISSIONER ROGERS: Excuse me. Just before you
21 leave that, are there any identifiable aspects that you can
22 trace back to operator recommendations? I mean it is one
23 thing to consult with them and ask them what they think.
24 It's another thing to do something on the basis of what they
25 recommend. Those aren't necessarily the same. Can one trace

1 in the recommendations anything that is attributable to
2 operator comments and expressions of opinion?

3 MR. JONES: There was a recommendation in the
4 tracking system dealing with delays, for example, in the
5 saturation margin or substantive margin meter which were
6 identified by the operators at one of the plants. There
7 were also some concerns about isolation of RCP seal services
8 which require additional operator actions following most
9 actuations. Those were examples of some of the
10 recommendations which came out of the operator or the
11 operator burden tasks.

12 MR. CALVO: There was one more. The tuning of the
13 ICS was kind of sluggish. The operator was perturbed there
14 was not enough attention given to the tuning of the ICS. So,
15 that was another operator recommendation for that.

16 COMMISSIONER ROGERS: Where do the implementation
17 of those particular recommendations stand in the general
18 scheme of where things are being done or how they are being
19 done?

20 MR. CALVO: I believe that -- I know the place
21 but I am not quite familiar with it. The recommendations
22 on the tracking system, I cannot say whether they have been
23 implemented in all the plants or not. Maybe the owners
24 group would be in a better position to tell us that. We
25 will know next month. We are going to do some plant audits

1 and we are going to determine how this recommendation has
2 been implemented in each of the plants.

3 COMMISSIONER ROGERS: It will be rather interesting
4 to see just how much attention those particular ones that
5 are attributable to the operators are actually getting in
6 the final implementation.

7 MR. CALVO: Right. Okay.

8 MR. CRUTCHFIELD: We will be sure that that is a
9 part of the audit, to specifically look at the recommendations
10 that they made.

11 CHAIRMAN ZECH: Let's proceed.

12 MR. CRUTCHFIELD: Could I have the ninth slide,
13 please?

14 (Slide.)

15 The instrumentation and control review, as you
16 recall the last time we briefed you, was going to take a
17 little longer. We finished that up in the early part of
18 this year and there were a couple of issues that came out
19 of there. One of them was the question of INE Bulletin
20 79-27. Chairman Zech, I believe you asked that question.

21 The owners group indicated to us that it was the
22 very plant's specific implementation question and they
23 decided and recommended that they not do it as part of the
24 owners group program. Our intent is when we go out and do
25 these plant specific audits to specifically look at the

1 implementation of 79-27. So, we will capture it there on
2 an individual plant basis rather than generically.

3 We have provided a number of other comments to
4 the owners group and suggestions and the owners group is
5 also considering those recommendations to improve their
6 process. I don't think they are of such magnitude that we
7 need to require them. They have been relatively
8 cooperative with us so far.

9 CHAIRMAN ZECH: And, on the loss of power situation,
10 as you well know, the ACRS agreed with your suggestion on
11 that.

12 MR. CRUTCHFIELD: Yes, sir.

13 CHAIRMAN ZECH: And, I think it is important that
14 you follow through on that and the owners group follow
15 through on that too, as they have committed to do I believe
16 here this morning.

17 MR. CRUTCHFIELD: Yes, sir.

18 CHAIRMAN ZECH: All right. Let's proceed.

19 MR. CRUTCHFIELD: Slide ten, please.

20 (Slide.)

21 Overall, the staff has concluded that with proper
22 implementation of the recommendations, we should see a
23 reduction in reactor trips and a reduction in complex
24 transients that previously had occurred in B&W plants. It
25 should also increase the safety at B&W plants. With the

1 changes that have been made, especially in the feedwater
2 and emergency feedwater area, we should reduce the risk
3 component in that activity and they should overall be
4 comparable to other PWR's.

5 Our intent is to get out there through '89 and
6 into '90 to implement individually each of those plants.
7 Several of the plants have had partial implementation
8 evaluations by the staff as part of the restart efforts for
9 Rancho Seco and Davis Besse.

10 Could I have the next slide, please?

11 (Slide.)

12 The status of implementation has been discussed
13 previously with you. I would only indicate on this slide
14 that there are percentages indicated rather than absolute
15 values. The evaluation category, which is the far right
16 column, includes the two categories of evaluation for
17 applicability as well as do any actual engineering design,
18 et cetera, before implementation.

19 May I have the twelfth slide, please?

20 (Slide.)

21 CHAIRMAN ZECH: Are you satisfied with the progress
22 of implementation?

23 MR. CRUTCHFIELD: Yes. There for awhile it wasn't
24 going as fast as we thought it should. I believe over the
25 past six months or so the owners group has applied more

1 resources and are completing more evaluations and factoring
2 into the implementation columns.

3 CHAIRMAN ZECH: All right. Thank you.

4 MR. CRUTCHFIELD: As I indicated, we will be doing
5 audits to verify the implementation. The staff will follow
6 the overall progress after these individual audits via the
7 project managers. The items that will be in this program
8 will be tracked. So, the staff is generally satisfied with
9 the implementation phase that is going on.

10 In general, I think if I had to look at the bottom
11 line, we feel that the program has satisfied Mr. Stello's
12 letter of January of 1986. We have reassessed the overall
13 design basis of the B&W facilities. We feel there have been
14 improvements that have been made by the recommendations that
15 have already been implemented and that further improvements
16 in their performance will occur as those recommendations are
17 completed. Thank you.

18 CHAIRMAN ZECH: Thank you very much. Any comments
19 or questions of my fellow Commissioners. Commissioner
20 Roberts.

21 COMMISSIONER ROBERTS: No.

22 CHAIRMAN ZECH: Commissioner Carr.

23 COMMISSIONER CARR: I would just comment that from
24 my short experience here, it looks to me like this program
25 has proceeded faster than most programs. You have both done

1 a good job in this. Obviously you have spent a lot of time
2 and effort on it.

3 CHAIRMAN ZECH: Commissioner Rogers.

4 COMMISSIONER ROGERS: Yes, a couple of things. I
5 don't have even the time with the Commission that Commissioner
6 Carr does but it does look like it is moving along well, and
7 that is very encouraging.

8 Just a couple of points. I want to come back to
9 this advanced ICS system that is out there. There are two
10 concerns that I have. One is whether -- well, in the first
11 place, I take it that this really is to be a quite
12 sophisticated system.

13 MR. TAYLOR: Yes.

14 COMMISSIONER ROGERS: And, that is a great
15 difference from what commonly exists in control rooms today.
16 Most of the control systems are really still pretty
17 primitive in my view. That isn't to mean that they aren't
18 effective but their design is really very old-fashioned.
19 We are talking here to something that sounds to me like a
20 very sophisticated system. I have a couple of questions
21 about that.

22 One is whether anyone is viewing it as an
23 opportunity for standardization? We are moving here into
24 something that is quite different from what exists in
25 current plants for the most part. I would really be very

1 concerned about winding up with a half a dozen or so
2 totally different very sophisticated and complex control
3 systems that are all developed independently of each other
4 in some sense. I don't know that that's the case but I just
5 would be very worried about it if that is the approach that
6 is going to be taken.

7 MR. MIRAGLIA: May I make a comment on that and
8 then the staff can amplify it. When the Rancho Seco event
9 occurred and response to that Rancho Seco event occurred, our
10 concern was with the owners of the B&W plant to call them in
11 and say how would your plant respond in those circumstances?
12 There are at least two different vintages of ICS systems in
13 the B&W plants and there are certain plant specific
14 differences that I think from an overall control philosophy
15 and design point of view you might be able to standardize.
16 However, I think the application of that in each of the
17 plants would necessarily have differences because of specific
18 design differences regarding MSIV's and --

19 COMMISSIONER ROGERS: Yes, there will be an
20 interface between --

21 MR. MIRAGLIA: Yes.

22 COMMISSIONER ROGERS: -- the system and the plant.

23 MR. MIRAGLIA: Yes.

24 COMMISSIONER ROGERS: And, that may have to be
25 tailored for each situation.

1 MR. MIRAGLIA: The sense that I had from the
2 owners group presentation is that it is going to be a
3 coordinated plan by the owners group with respect to
4 agreeing on the specifications and the procurement kind of
5 thing but I think there will be individual differences in
6 the application of that next design and the facility.

7 COMMISSIONER ROGERS: As it has to connect into
8 the different plants, I am sure that is a problem, but I
9 would see it as an opportunity to look at the possibility
10 for more commonality in design across a class of plants now.
11 I urge you to consider that as a desirable feature.

12 The other thing is whether we really ourselves
13 have the kind of technical capability for really evaluating
14 this kind of a new sophisticated control system. It is
15 different from what we have had to deal with in the past. I
16 am not making judgment on that but I would suggest that we
17 look very carefully to see that by the time six years out
18 when this thing comes on that we will have had aboard the
19 right kind of people to look in the right way at the
20 sophisticated complexities of what looks to me like a very
21 interesting and exciting system but one that is quite
22 different from anything that we have done before. I really
23 think that it requires a new look and some new capabilities
24 to analyze its potential for problems, new problems, as well
25 as solving old ones.

1 MR. MIRAGLIA: I think that is a very fair comment,
2 Commissioner Rogers, and I think the staff, particularly the
3 staff in that technical discipline, has gotten a flavor of
4 some of these advance concepts and, in talking about advance
5 reactor designs, have noted that this is going to be a large
6 step forward into technology and that we need to make sure
7 that we have the tools available to evaluate such a thing.
8 So, the staff is aware of that and sensitive to that concern.
9 It is a valid one.

10 COMMISSIONER ROGERS: The ACRS letter of June 7th
11 that has been referred to several times here during the
12 course of this meeting points out that one should be careful
13 not to draw any new conclusions from this work concerning
14 the overall safety or response of B&W plants in accident
15 situations. At the beginning of your presentation you made
16 a statement that B&W plants do not possess a core damage
17 risk greater than other PWR's.

18 Does that represent a new statement with respect to
19 this? Does that fall under this category of a new conclusion
20 or not?

21 MR. CRUTCHFIELD: I think if you preface the
22 statement that you read from the ACRS letter, there was
23 discussion about not looking at design basis accidents such
24 as small and large break --

25 COMMISSIONER ROGERS: Right.

1 MR. CRUTCHFIELD: As part of the original efforts
2 early in '86, we looked at some of the Chapter 15 transients
3 and accidents. We compared them with the Category C events
4 that we were seeing and evaluating as well as the complex
5 Category B's. When we looked at those, we felt they didn't
6 change our previous findings with the utilization of
7 techniques that we had to evaluate Chapter 15 accidents and,
8 therefore, we felt that they were satisfactory and we
9 wouldn't dealve into them in any more depth as a continuing
10 part of the program.

11 So, our assessment was with what we had looked at
12 before, the techniques that we had in place to do the Chapter
13 15 local analysis, et cetera, we didn't see a need to expand
14 the SPIP program beyond where we were heading.

15 COMMISSIONER ROGERS: We don't have, do we, PRA's
16 on these plants?

17 MR. CRUTCHFIELD: There are PRA's I believe on all
18 but one.

19 MR. CALVO: I believe all except Rancho Seco and
20 the other ones are sponsored by the NRC also, the NRC and
21 the utility.

22 COMMISSIONER ROGERS: We do have them --

23 MR. CALVO: That is correct.

24 COMMISSIONER ROGERS: -- for all except Rancho
25 Seco.

1 MR. CALVO: Rancho Seco.

2 MR. MIRAGLIA: They are different vintages,
3 different ages. Some were in the IREP program which goes
4 back several years. Some have been upgraded and some
5 haven't. But there was PRA information available to the
6 staff.

7 COMMISSIONER ROGERS: But there is no B&W plant
8 in new reg 11-50.

9 MR. MIRAGLIA: That is correct. There is one
10 planned in the future but I am not quite sure exactly what
11 the timing of that is. 11-50 did not look at a B&W plant
12 but there is one on the horizon on that and I couldn't tell
13 you the schedule for that.

14 COMMISSIONER ROGERS: Thank you.

15 CHAIRMAN ZECH: I just have one question regarding
16 unresolved safety issue A-47, safety implications of control
17 systems in light water reactor plants. I understand that the
18 B&W plants are being treated separately. Could you tell me
19 how this is being coordinated with the owners group?

20 MR. MIRAGLIA: I think the concern there is that
21 A-47 did deal with electrical systems interactions and since
22 there was a considerable number of things that the staff was
23 looking at in the SPIP program, we coordinated the resolution
24 of A-45 with the staff's evaluation --

25 CHAIRMAN ZECH: A-47.

1 MR. MIRAGLIA: A-47, to ensure there was
2 consistency within the context of the process.

3 CHAIRMAN ZECH: So, in a sense they were
4 accomplishing the same results.

5 MR. MIRAGLIA: To make sure that we were heading
6 to the same objectives and we weren't finding things in the
7 context of this program that might have impacted or fed into
8 the conclusions the staff was going to make relative to
9 recommendations on A-47.

10 CHAIRMAN ZECH: All right.

11 MR. MIRAGLIA: So, it was a coordinated effort
12 between the reassessment review staff and the research staff
13 that was following through on the resolution of A-47.

14 CHAIRMAN ZECH: All right. Thank you very much.
15 Before we conclude, I would like to ask Mr. Wilson or Mr.
16 Simpson if they have any comments, specifically perhaps on
17 the standardized advance control system? Would you like to
18 make a comment on that or anything else before we conclude?

19 MR. WILSON: I would like to make a comment on two
20 things. On the advance control system, the direction from
21 the executive group is make it common unless there are
22 planned specific differences. Just don't allow it. We
23 haven't gone far enough to know whether that is true or not
24 but, clearly, through the specification, design and
25 development phase, it will be a common approach.

1 The second thing I would add to the discussion on
2 PRA's, three plants have modern PRA's in place. The fourth
3 plant is completing theirs in the next month or so. One
4 plant has an earlier version PRA. The sixth plant is
5 evaluating whether to start one.

6 COMMISSIONER ROGERS: Those three that you have
7 referred to that have the modern PRA's, have they been
8 submitted to the NRC?

9 MR. WILSON: I believe the NRC has them all but I
10 cannot confirm that. I know they have TMI's. Crystal River
11 they have. The Duke PRA, I think they have that too. So,
12 they have them.

13 COMMISSIONER ROGERS: Thank you.

14 CHAIRMAN ZECH: Thank you very much. Let me, first
15 of all, thank Mr. Wilson and Mr. Simpson for being with us
16 today and for their efforts on the leadership of the owners
17 group organization and for others who are participating with
18 them. It certainly does appear that the B&W safety and
19 performance improvement program is making progress and I
20 think we are all encouraged to care about the commitment to
21 continued progress.

22 I would encourage the B&W owners group to continue
23 their coordination efforts and their meetings with not only
24 the staff but also the ACRS as you continue your progress
25 and your attempts to resolve any recommendations that may

1 come forward from the staff and the ACRS.

2 I would also like to thank the staff for not only
3 your briefing here this morning but your continued oversight
4 and involvement in this important program. It certainly
5 does appear that we are making progress. I would encourage
6 the staff too to keep involved with not only the owners
7 group but with the ACRS to make sure that we are conducting
8 a coordinated effort in order to follow through on the many
9 recommendations that have been made for the B&W plants.

10 So, with that, unless my colleagues have any
11 final comments --

12 (No response.)

13 -- we will stand adjourned. Thank you very much.

14 (Whereupon, at 11:25 a.m., the Commission meeting
15 was adjourned.)

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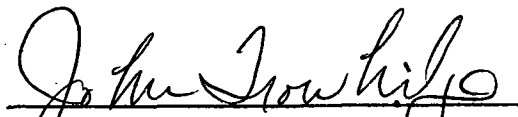
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CERTIFICATE OF TRANSCRIBER

**This is to certify that the attached events
of a meeting of the U.S. Nuclear Regulatory Commission
entitled: NRC Staff Review of the B&WOG Plant Reassessment
Program**

TITLE OF MEETING: Public Meeting
PLACE OF MEETING: Washington, D.C.
DATE OF MEETING: August 11, 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.**


JOHN TROWBRIDGE, CVR

Ann Riley & Associates, Ltd.

NRC STAFF REVIEW
OF THE
B&WOG PLANT REASSESSMENT PROGRAM
PRESENTED BEFORE THE
COMMISSION
ON
AUGUST 11, 1988

AGENDA

- PROGRAM
 - BACKGROUND
 - STAFF FINDINGS
 - B&WOG RECOMMENDATIONS
 - MAJOR IMPROVEMENTS
 - ISSUES FOR FURTHER ATTENTION
 - OTHER ISSUES
 - OVERALL STAFF ASSESSMENT
- IMPLEMENTATION
 - STATUS FOR EACH PLANT
 - AUDITS TO VERIFY IMPLEMENTATION

BACKGROUND

PROGRAM INITIATED AS A RESULT OF STAFF
CONCERNS WITH B&W PLANT OPERATING
HISTORY - B&WOG ASSUMED RESPONSIBILITY

PROGRAM BROADER/GREATER DEPTH THAN INTENDED

OPERATING EXPERIENCE FORMED A MAJOR
BASIS FOR THE B&WOG PROGRAM

EMPHASIS PLACED ON BALANCE OF PLANT SYSTEMS

STAFF REVIEWED AND EVALUATED B&WOG PROGRAM -
ISSUED SER AND SUPPLEMENT

PERFORMED INDEPENDENT WORK IN CERTAIN AREAS

- ° RISK EVALUATION (BROOKHAVEN)
- ° HUMAN FACTORS (SAI)
- ° LIMITED THERMAL HYDR. ANALYSIS (INEL)
- ° LIMITED OPERATING EXPERIENCE REVIEW

STAFF FINDINGS

SENSITIVITY OF B&W PLANTS - STAFF GENERALLY
AGREED WITH B&WOG FINDINGS

- ° CONFIRMED MORE SENSITIVE TO FEEDWATER UPSETS
- ° PLACE GREATER RELIANCE ON EFW
- ° OPERATOR BURDEN:
 - NOT GREATER FOR NORMAL REACTOR TRIP
 - GREATER FOLLOWING ICS/NNI FAILURES
- ° ALTHOUGH OTSG HAVE SMALL WATER INVENTORY
IF SYSTEMS THAT INTERACT WITH OTSG
CONTROLLED (E.G., ICS/NNI AND EFW)
POST-TRIP RESPONSE WILL BE ACCEPTABLE

STAFF FINDINGS (CONT.)

RISK ASSESSMENT

- B&W PLANTS DO NOT POSSESS A CORE
DAMAGE RISK GREATER THAN OTHER PWRs
- COMPLEX TRANSIENTS CONSTITUTE A SMALL
CONTRIBUTION TO CORE DAMAGE FREQUENCY
AT B&W PLANTS, HOWEVER, IMPLEMENTATION
OF THE B&WOG PROGRAM RECOMMENDATIONS
WILL REDUCE THAT RISK

B&WOG RECOMMENDATIONS

- ° 226 OF APPROXIMATELY 235 RECOMMENDATIONS
CONTAINED IN PROGRAM FOR UTILITY IMPLEMEN-
TATION APPROVED TO DATE BY B&WOG
- ° B&WOG PROGRAM IDENTIFIED 75 KEY
RECOMMENDATIONS
- ° STAFF EVALUATED B&WOG RECOMMENDATION
APPROVAL PROCESS AT B&W IN OCT. 1987
AND FOUND IT ACCEPTABLE

MAJOR IMPROVEMENTS

- IMPROVED RESPONSE TO CONTROL SYSTEM FAILURES (ICS/NNI)
- IMPROVED RELIABILITY TO BALANCE OF PLANT SYSTEMS AND COMPONENTS
 - MAIN FEEDWATER SYSTEM
 - EMERGENCY FEEDWATER SYSTEM
 - SECONDARY SIDE PRESSURE CONTROL
 - INSTRUMENT AIR SYSTEM
 - MOTOR-OPERATED VALVE PERFORMANCE

ISSUES FOR FURTHER ATTENTION

HUMAN FACTORS (HF)

- STAFF DETERMINED THAT B&WOG RECOMMENDATIONS WILL REDUCE OPERATOR BURDEN/ENHANCE OPERATOR PERFORMANCE
- B&WOG EVALUATIONS LIMITED BECAUSE HF PROFESSIONAL NOT UTILIZED IN THE REVIEW
- OTHER ONGOING HF PROGRAMS (E.G. DCRDR & EOP REVIEWS) HAVE RESULTED IN SUBSTANTIAL HF IMPROVEMENTS, FURTHER HF REVIEW OF THE B&WOG PROGRAM NOT LIKELY TO RESULT IN SIGNIFICANT IMPROVEMENTS
- HF IMPLICATIONS WILL BE CONSIDERED BY THE STAFF AS PART OF ITS CONTINUED ASSESSMENT OF OPERATING EVENTS AT B&W PLANTS

ISSUES FOR FURTHER ATTENTION (CONT.)

INSTRUMENTATION AND CONTROL

- ° B&WOG DID NOT ADDRESS IEB 79-27 "LOSS OF NON-CLASS 1E INSTRUMENTATION AND CONTROL POWER SYSTEM BUS DURING OPERATION" AS PART OF THE ICS/NNI REVIEW
- ° STAFF WILL VERIFY THE ADEQUACY OF THE IMPLEMENTATION OF IEB 79-27 AS PART OF PLANT SPECIFIC AUDITS

OTHER ISSUES

- ° THE STAFF PROVIDED COMMENTS ON THE B&WOG PROGRAM IN THE SER'S AND ENCOURAGED THE B&WOG TO FACTOR THEM INTO ITS ONGOING PROGRAMS

OVERALL STAFF ASSESSMENT

- ° PROPER IMPLEMENTATION OF B&WOG RECOMMENDATIONS BY THE B&W UTILITIES SHOULD:
 - ACHIEVE A REDUCTION IN REACTOR TRIP FREQUENCY AND TRANSIENT COMPLEXITY.
 - RESULT IN AN INCREASE IN THE LEVEL OF SAFETY AT B&W PLANTS WHICH IS COMPARABLE TO OTHER PWR'S.
- ° STAFF WILL VERIFY PROPER IMPLEMENTATION THROUGH PLANT SPECIFIC AUDITS

STATUS OF APPROVED RECOMMENDATIONS
FOR EACH PLANT

(% FOR EACH UTILITY AS OF JUNE 1988)

	<u>CLOSED</u>	<u>IMPLEMT.</u>	<u>EVAL.</u>
ARKANSAS 1	56	12	32
CRYSTAL RIVER	52	16	32
DAVIS BESSE	49	12	39
OCONEE 1-3	62	17	21
RANCHO SECO	65	19	16
TMI-1	64	20	16

AUDITS TO VERIFY IMPLEMENTATION

STAFF AUDITED IMPLEMENTATION OF B&WOG
RECOMMENDATIONS AT RANCHO SECO AND
DAVIS BESSE PRIOR TO RESTART

STAFF WILL CONTINUE TO VERIFY IMPLEMEN-
TATION OF B&WOG RECOMMENDATIONS THROUGH
PLANT SPECIFIC AUDITS TO BE PERFORMED AT
B&W OPERATING PLANTS

STAFF WILL FOLLOW PROGRESS OF IMPLEMENTATION
OF RECOMMENDATIONS BY UTILITIES THROUGH
B&WOG TRACKING SYSTEM AND PROJECT MANAGER

**B&W OWNERS GROUP
SAFETY AND PERFORMANCE IMPROVEMENT
PROGRAM**

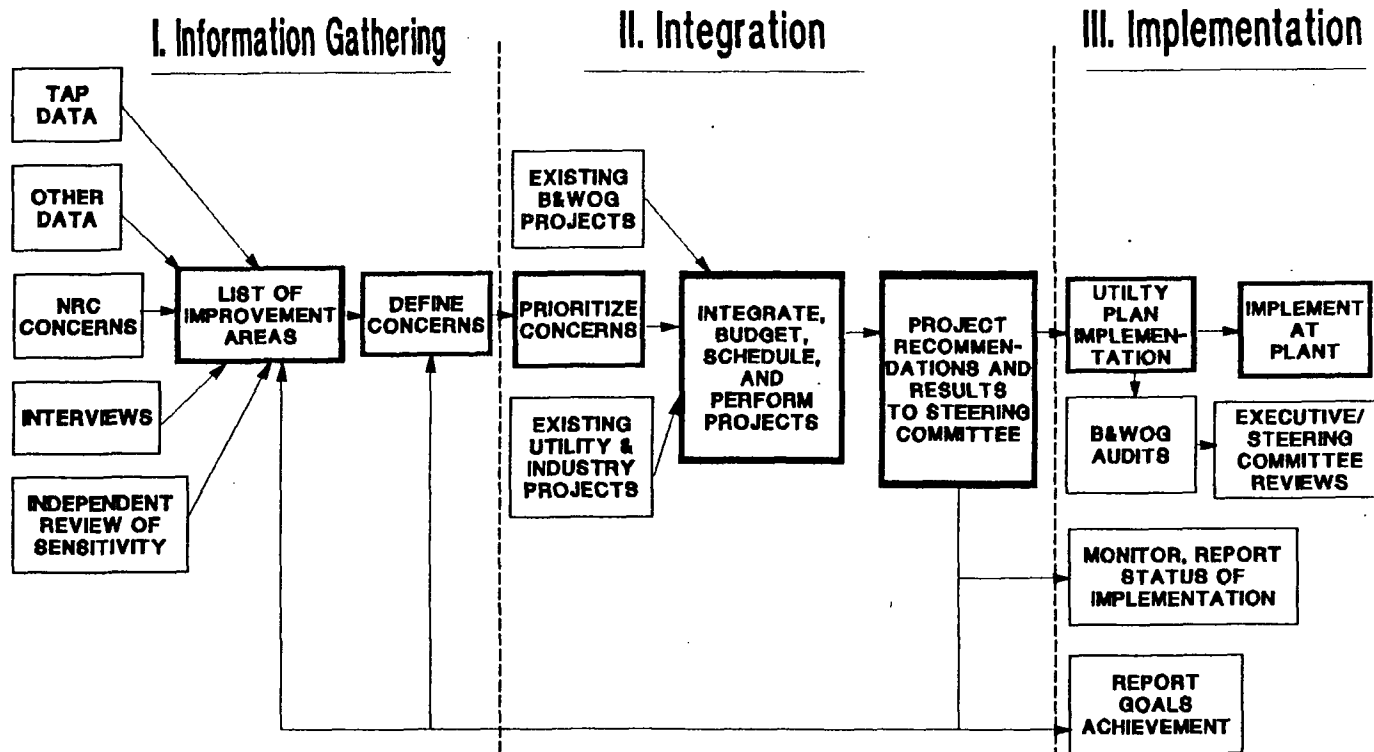
**PRESENTATION TO NRC COMMISSIONERS
AUGUST 11, 1988**

**ARKANSAS POWER & LIGHT COMPANY
DUKE POWER COMPANY
FLORIDA POWER CORPORATION
GPU NUCLEAR CORPORATION
SACRAMENTO MUNICIPAL UTILITY
DISTRICT
TENNESSEE VALLEY AUTHORITY
TOLEDO EDISON COMPANY
BABCOCK & WILCOX COMPANY**

PRESENTATION OUTLINE

INTRODUCTION	R.F. WILSON/GPUN
RECOMMENDATION IMPLEMENTATION	E.C. SIMPSON/FPC
PROGRESS TOWARD SPIP GOALS	E.C. SIMPSON
ASSESSMENTS BY OTHERS	E.C. SIMPSON
CONCLUDING REMARKS	R.F. WILSON

SPIP PROGRAM PROCESS



NRC BRIEFING 11/6/86

NRC BRIEFING 8/5/87

NRC BRIEFING 8/11/88

SPIP RECOMMENDATION IMPLEMENTATION

- IMPLEMENTING RECOMMENDATIONS - CRITICAL FOR SUCCESS
- IMPLEMENTATION IS BEING FORMALLY MONITORED BY B&WOG EXECUTIVES AND THE STEERING COMMITTEE FOR BOTH QUALITY AND TIMELINESS:
 - IMPLEMENTATION QUALITY WILL BE MONITORED FROM A PROGRAMMATIC AND TECHNICAL STANDPOINT
 - PROPER IMPLEMENTATION WILL REQUIRE CONSIDERATION OF PLANT UNIQUE CONFIGURATION, RESOURCES, AND OPERATING SCHEDULE
 - RECOMMENDATION TRACKING SYSTEM REPORT IS MANAGEMENT TOOL; PROVIDES STATUS, PLAN, AND SCHEDULE FOR DISPOSITIONING OF ALL RECOMMENDATIONS
- EFFECTIVENESS IS MONITORED BY COMPARISON OF PERFORMANCE AGAINST DEFINED GOALS

PROGRAMMATIC EVALUATION OF SPIP

RECOMMENDATION IMPLEMENTATION

- EXECUTIVES CONVENED EVALUATION TEAMS TO CONDUCT EVALUATIONS AT EACH UTILITY
 - TEAM TYPICALLY CONSISTED OF EIGHT INDIVIDUALS
 - EVALUATION PLAN DEVELOPED
 - EVALUATIONS HAVE BEEN COMPLETED AT ALL UTILITIES
 - REPORT ISSUED TO EACH UTILITY
- EXECUTIVE INVOLVEMENT IN EACH EVALUATION
- ONE MANYEAR OF TEAM EFFORT
- ONE HUNDRED FORTY OWNERS GROUP PERSONNEL WERE INVOLVED
- SUMMARY REPORT ENDORSED BY B&WOG EXECUTIVES AND PROVIDED TO NRC

PROGRAMMATIC EVALUATION TEAM CONCLUSIONS

THE EVALUATION TEAM REACHED THE PRINCIPAL CONCLUSION THAT ALL UTILITIES HAD ADEQUATE PROGRAMS FOR SPIP RECOMMENDATION DISPOSITIONING AT THE TIME OF THE EVALUATION. HOWEVER, IN ALL CASES, SOME IMPROVEMENTS WERE NEEDED TO CREATE A FULLY EFFECTIVE PROGRAM.

THE FOLLOWING ADDITIONAL CONCLUSIONS WERE REACHED BY THE EVALUATION TEAM:

- EXCELLENT "CROSS-FERTILIZATION" OCCURRED THROUGH THE TEAM MEMBERS TO THEIR RESPECTIVE COMPANIES. UTILITY PROGRAM FEATURES WERE CONTINUALLY BEING IMPROVED THROUGHOUT THE EVALUATION PERIOD AS A DIRECT RESULT OF THE EVALUATION PROGRAM.

PROGRAMMATIC EVALUATION TEAM CONCLUSIONS
(CONTINUED)

- THE INVOLVEMENT OF EXECUTIVE COMMITTEE REPRESENTATIVES CONTRIBUTED GREATLY TO THE EVALUATION QUALITY, THE EMPHASIS ON THE IMPORTANCE OF SPIP RECOMMENDATION DISPOSITIONING, AND THE INCREASED VISIBILITY OF THE SPIP AND ITS GOALS.
- FUTURE IMPROVEMENTS IN THE QUALITY OF DISPOSITIONING, REPORTING, AND DOCUMENTATION, AND INCREASED PROGRESS IN DISPOSITIONING ARE EXPECTED AS A RESULT OF ACTIONS TAKEN BY THE UTILITIES.

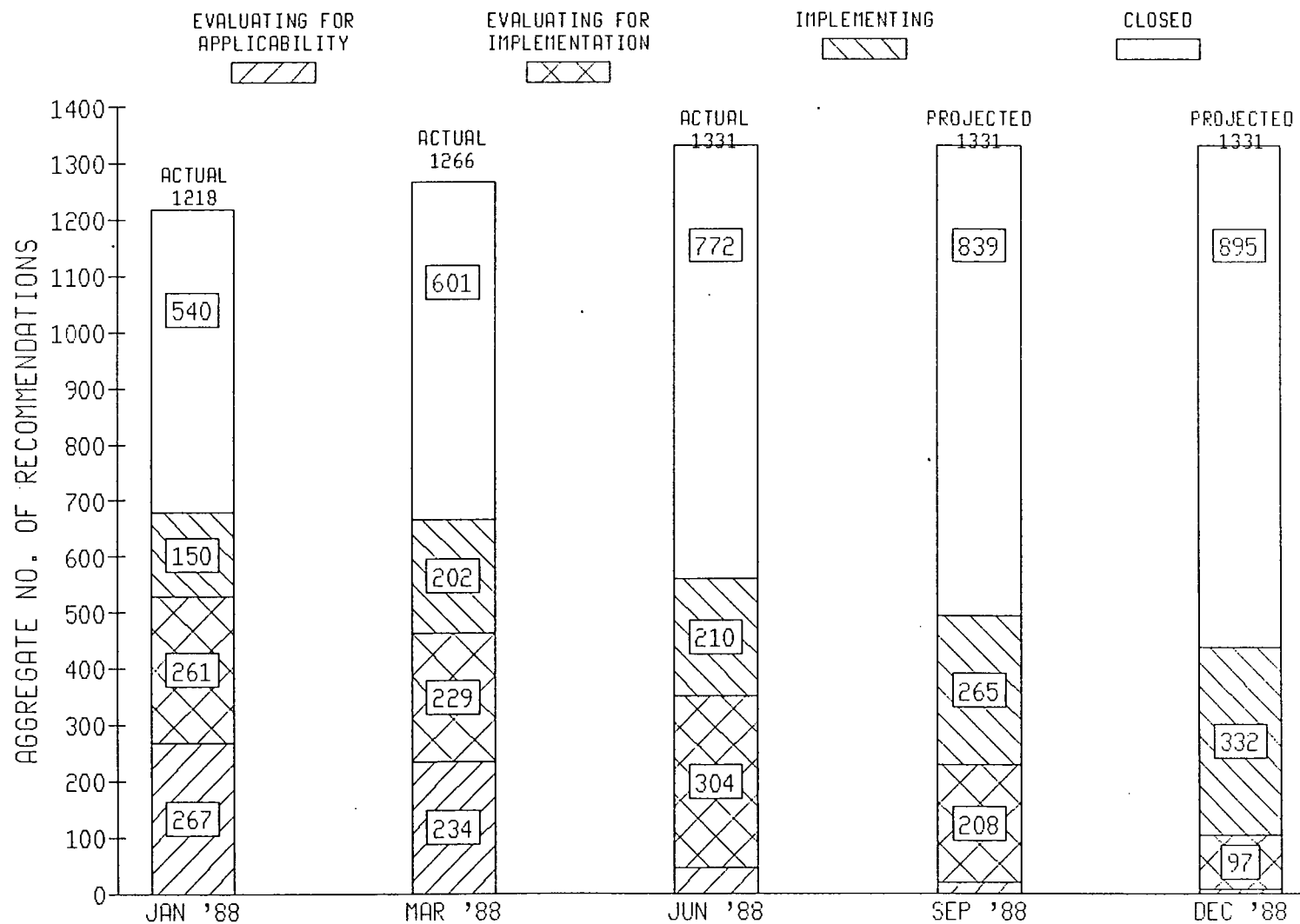
**TECHNICAL EVALUATION OF SPIP
RECOMMENDATION IMPLEMENTATION**

- TECHNICAL EVALUATIONS STARTED AND CONTINUE
 - FOUR-MAN TEAM FORMED TO CONDUCT EVALUATIONS
 - FIVE RECOMMENDATIONS INCLUDING ICS (KNOWN SAFE STATE) SELECTED FOR INITIAL EVALUATION
 - INITIAL EVALUATIONS COMPLETED AT ALL OPERATING PLANTS
- DETAILED EVALUATION PLANS AND CHECKLISTS USED
- STEERING COMMITTEE WILL REVIEW RESULTS
- TECHNICAL EVALUATIONS OF ADDITIONAL RECOMMENDATIONS WILL CONTINUE

RESULTS OF TECHNICAL EVALUATIONS

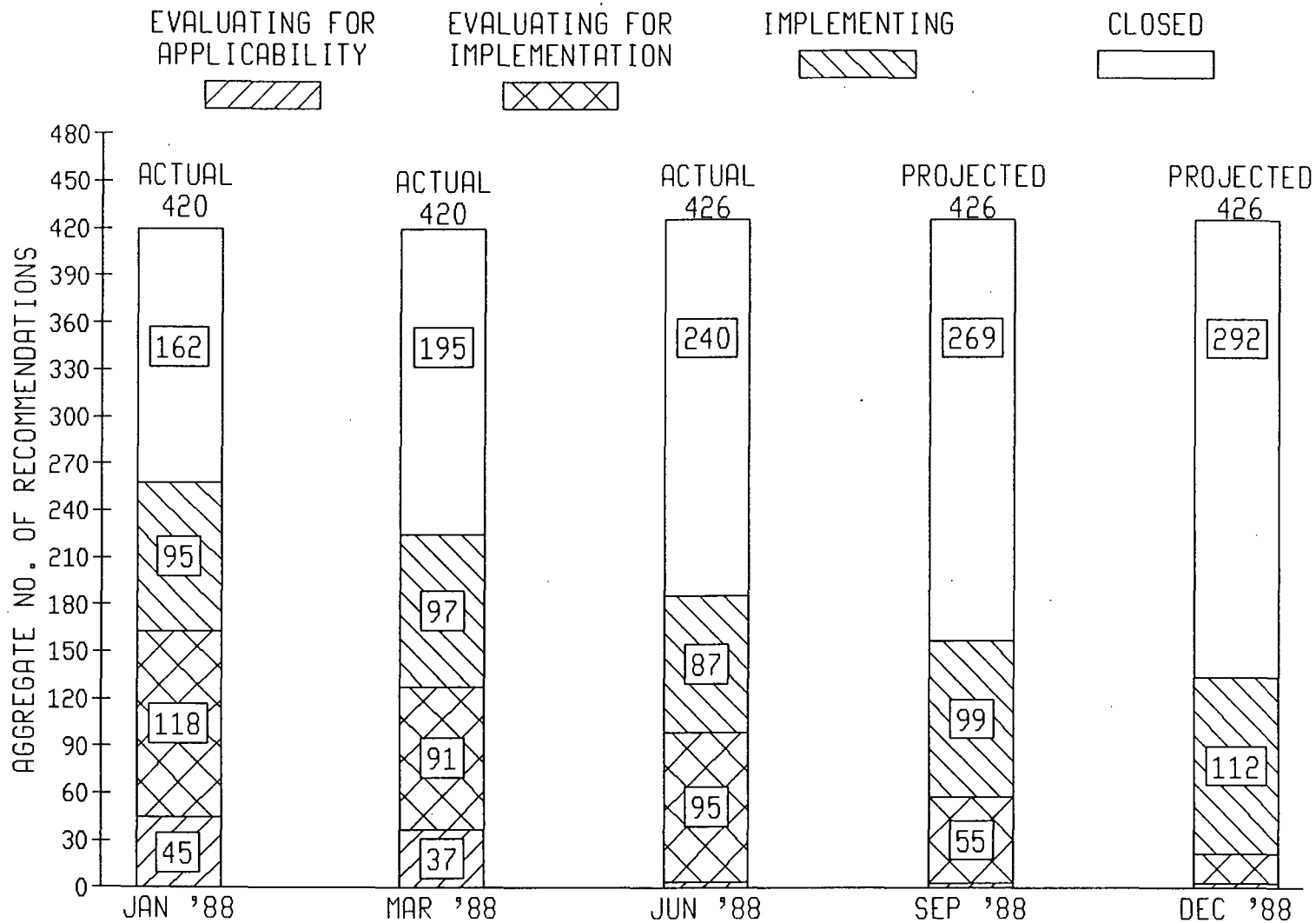
- **IN GENERAL, THE QUALITY OF IMPLEMENTATION FOR THE FIVE RECOMMENDATIONS AUDITED WERE ADEQUATE.**
- **THE TEAM MADE SOME RECOMMENDATIONS TO SPECIFIC PLANTS WHERE IMPROVEMENTS WERE NEEDED.**
- **THE TEAM COMPILED GOOD PRACTICES OBSERVED AT EACH PLANT AND CONVEYED THESE TO THE OTHER PLANTS FOR APPLICABILITY.**

AGGREGATE IMPLEMENTATION STATUS FOR ALL OPERATING PLANTS SPIP RECOMMENDATIONS



AGGREGATE IMPLEMENTATION STATUS FOR ALL OPERATING PLANTS

KEY SPIP RECOMMENDATIONS



**B&W OWNERS GROUP SAFETY AND PERFORMANCE
IMPROVEMENT PROGRAM**

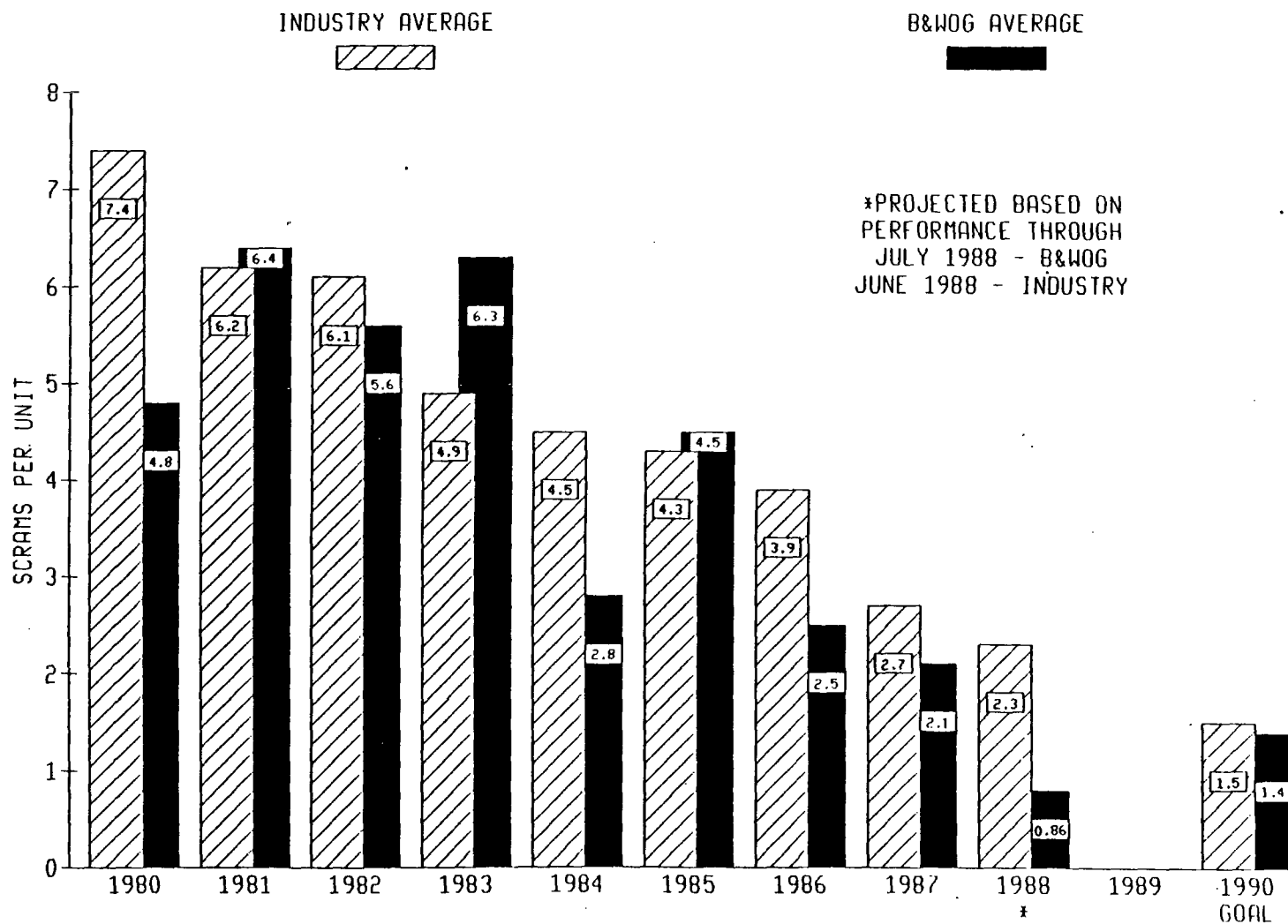
OBJECTIVE

IMPROVE SAFETY, REDUCE THE NUMBER OF TRIPS AND COMPLEX TRANSIENTS ON B&W OWNERS GROUP PLANTS, AND ENSURE ACCEPTABLE PLANT RESPONSE DURING THOSE TRIPS AND TRANSIENTS WHICH DO OCCUR.

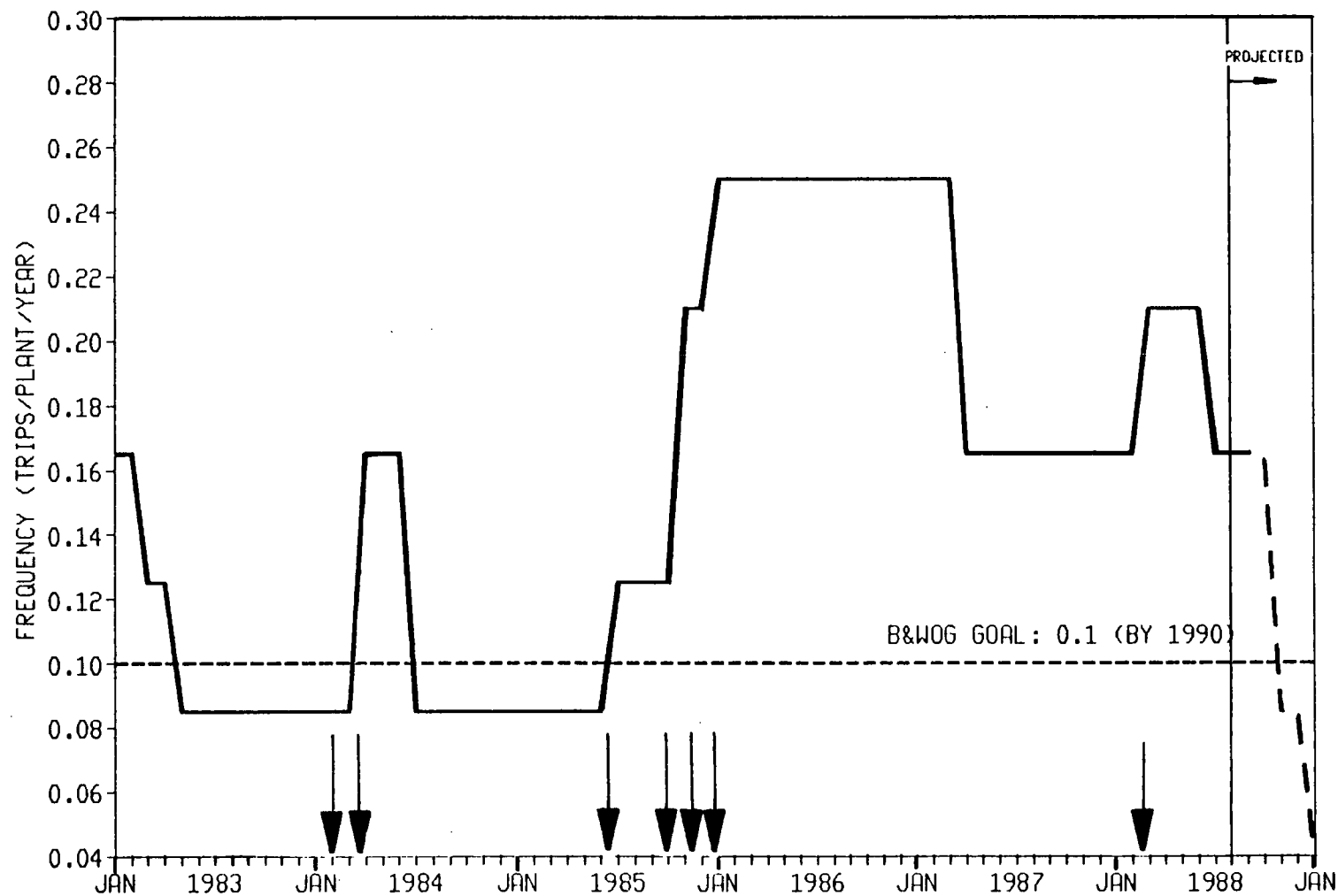
GOALS

1. BY THE END OF 1990 THE AVERAGE PER PLANT TRIP FREQUENCY WILL BE LESS THAN TWO PER YEAR.
2. BY THE END OF 1990 THE NUMBER OF COMPLEX TRANSIENTS AS CLASSIFIED BY MEASURABLE PARAMETERS (CATEGORY "C") WILL BE REDUCED TO 0.1 PER PLANT PER YEAR BASED ON A MOVING THREE YEAR AVERAGE.

UNPLANNED AUTOMATIC SCRAMS WHILE CRITICAL



FREQUENCY OF CATEGORY C TRANSIENTS
(BASED ON A 3-YEAR MOVING AVERAGE)



ASSESSMENTS BY OTHERS
SUMMARY HIGHLIGHTS

INDEPENDENT ADVISORY BOARD

- **DEFINED ACTIONS SHOULD REDUCE TRANSIENT FREQUENCY AND IMPROVE SAFETY**
- **ICS/NNI AND FEEDWATER RELIABILITY DESERVE SPECIAL ATTENTION**
- **MANAGEMENT ATTENTION TO IMPLEMENTATION QUALITY IS IMPORTANT**

ASSESSMENTS BY OTHERS
SUMMARY HIGHLIGHTS

NRC

- NRC IN GENERAL AGREEMENT WITH SCOPE AND OVERALL RESULTS
- NRC STATED THAT THE SPIP RECOMMENDATIONS TOTALING OVER 200 ARE APPROPRIATE; OF THESE THEY HAD COMMENTS ON 8 AND PROVIDED GUIDANCE ON 33 OTHERS

ACRS

- AGREED WITH STAFF FINDINGS ON SPIP
- NO ADDITIONAL REGULATORY REQUIREMENTS
- URGED PROMPT IMPLEMENTATION OF RECOMMENDATIONS

OVERALL SPIP VALUE

- FOCUSED GREATER ATTENTION ON BOP
- REINFORCED VALUE OF A QUALITY PLANT EXPERIENCE (TAP) DATA BASE FOR PROBLEM ASSESSMENT AND ASSISTANCE IN DEFINING CORRECTIVE ACTIONS.
- FURTHER CONFIRMED VALUE OF A DEDICATED GROUP EFFORT ON COMMON CONCERNS
- PROGRAM VALUE HAS BEEN ENHANCED BY DIVERSE INPUT EXTERNAL TO B&WOG
- PROGRAM VALUE INCREASED BY STRONG UTILITY EXECUTIVE INVOLVEMENT - CRITICAL TO IMPLEMENTATION
- SAFETY AND PERFORMANCE HAVE ALREADY BEEN IMPROVED AND WILL CONTINUE TO BE IMPROVED
- OVERALL PROGRAM AND ITS GOALS CONSISTENT WITH BASIC UTILITY MISSION

CLOSING COMMENTS

- SAFETY AND PERFORMANCE HAVE BEEN AND WILL CONTINUE TO BE IMPROVED AT B&WOG PLANTS
- SIGNIFICANT RESOURCES HAVE BEEN AND WILL CONTINUE TO BE DEVOTED TO REASSESSMENT AND IMPLEMENTATION
- ASSESSMENT SCOPE WAS PROPER
- DEVELOPED 226 SAFETY AND PERFORMANCE IMPROVEMENT RECOMMENDATIONS
- UTILITIES DEVELOPED SYSTEM TO ENSURE FORMAL AND TIMELY DISPOSITION OF ALL RECOMMENDATIONS
- IMPLEMENTATION OF SOME RECOMMENDATIONS HAS ALREADY RESULTED IN BENEFIT (TRIP AVOIDANCE)

CLOSING COMMENTS
(CONTINUED)

- IMPLEMENTATION WILL GO ON FOR SEVERAL YEARS
- UTILITY MANAGEMENT WILL MONITOR FUTURE PERFORMANCE TO ENSURE IMPROVEMENT IS ATTAINED
- NRC STAFF INTERACTIONS HAVE BEEN HELPFUL
- NRC CAN READILY MONITOR INDIVIDUAL PLANT PROGRESS
- B&WOG COMMITMENT TO SPIP WILL CONTINUE TO BE STRONG