

ORIGINAL

NRC
AOS
6/4/80
Parker
bfml
t

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
PUBLIC MEETING

ADVISORY COMMITTEE ON NUCLEAR SAFEGUARDS
SUBCOMMITTEE ON REGULATORY ACTIVITIES

- - -

Nuclear Regulatory Commission
Room 1167
1717 H Street, N.W.
Washington, D.C.

Wednesday, June 4, 1980

The Committee met, pursuant to notice, at 8:45 a.m.

BEFORE:

DR. CHESTER SIESS, Presiding

JEREMIAH RAY

DR. DADE MOELLER

JESSIE EBERSOLE

WILLIAM MATHIS

ALSO PRESENT:

SAM DURAISWAMY

8006090127

P R O C E E D I N G S

DR. SIESS: The meeting will now come to order. This is a meeting of the Advisory Committee on Reactor Safeguards, Subcommittee on Regulatory Activities. I am Chester Siess, Subcommittee Chairman.

The other ACRS members present today are: Jeremiah Ray, Dade Moeller, Jessie Ebersole, and William Mathis.

The purpose of this meeting is to discuss the following: One, the proposed revisions to 10 CFR Part 55, "Operators' Licenses" and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities" (Pre Comment).

Two, the Proposed Regulatory Guide 1.23, Revision 1, "Meteorological Programs in Support of Nuclear Power Plants" (Pre Comment).

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act and the Government in the Sunshine Act. Mr. Sam Duraiswamy is the designated Federal Employee for the meeting.

The rules for participation in today's meeting have been announced as part of the notice of this meeting previously published in the Federal Register on Wednesday, May 21, 1980.

A transcript of the meeting is being kept and will be made available as stated in the Federal Register Notice. It is requested that all speakers first identify themselves and speak with sufficient clarity and volume so that they can be readily

bfm3

1 heard.

2 We have received no written comments or requests for
3 time to make oral statements from members of the public.

4 The other item is a proposed Regulatory Guide 1.23
5 Revision 1 on meteorological programs in support of nuclear
6 power plants. The meeting is being conducted in accordance
7 with the provisions of the Federal Advisory Committee Act and
8 the Government in the Sunshine Act. Mr. Sam Duraiswamy is the
9 designated Federal Employee for the meeting.

10 The rules for participation in today's meeting have
11 been announced as part of the notice that was published in the
12 Federal Register. A transcript of the meeting is being kept and
13 will be available as stated in the Federal Register Notice.

14 Because there is a transcript and he is recording it,
15 we will try to pick it up on the microphone, if you can. Of
16 course, each speaker will identify himself first on the record
17 so he will know who is speaking.

18 We have received no written comments from members of
19 the public on either of the matters before the Committee, nor
20 have there been any requests for members of the public to make
21 oral statements.

22 If any requests arise during the meeting, the Chairman
23 will consider them as appropriate. We will take up the two
24 items in the order listed. I should say there will be a third
25 item on the agenda of an administrative nature. We will discuss

bfm4

1 pending activities and future meetings.

2 MR. WENZINGER: Mr. Chairman, I wonder if it would
3 be possible to take up the pending activities and future meetings
4 as a first order of business. There are people here who have
5 other matters to attend to later in the day.

6 DR. SIESS: As you know, as you have been informed by
7 Mr. Duraiswamy, we do not plan to have a meeting of this
8 Committee in July because of pending activities of the ACRS in
9 preparing a report to the Commissioners on the research budget.

10 Actually, the reason for not having the meeting is the
11 pending activity by the Chairman of this Committee on the
12 research budget, since I edit the thing and will be working on
13 it between a research committee meeting on Tuesday, and the full
14 Committee meeting on Thursday.

15 I have before me a list of items that would be ready
16 by August. It is a fairly long list of items. Some of them
17 do not look too difficult, but there is one goody on there
18 which is Reg. Guide 1.97 Revision 2, on which I am sure we will
19 have a considerable number of public comments.

20 There have been a great many submitted in writing.
21 That, also, is an item that we would like to take to the full
22 Committee for what, I think, is obvious reasons since it origina-
23 ted in the full Committee and the full Committee has been beating
24 you over the head -- not you, you wrote the standards; somebody
25 else was supposed to enforce it.

bfm5

1 I know it is not always the best idea to go to the
2 full Committee, essentially the day after or the second day after
3 a subcommittee meeting, but that may be what we will do. Whether
4 we can schedule it for August, I do not know.

5 I will try to schedule that for the full Committee
6 meeting. So, this looks like the August schedule. I think, at
7 one time, I suggested to Mr. Duraiswamy if the workload piled
8 up, we might try to have a meeting in between two of the regular
9 meetings.

10 I just finished talking with Mr. Fraley and he tells
11 me that our travel budget has been severely cut, as has every-
12 body's in the Agency.

13 We got some travel money restored, but we did not get
14 as much as we asked for, which I guess is par for the course. He
15 is discouraging us from holding regulatory meetings at monthly
16 intervals from now until the end of the fiscal year.

17 Recognizing that having a meeting on the Wednesday
18 before the full Committee meeting does not involve any additional
19 travel -- however, if we do not have the reg activities meeting
20 on Wednesday, somebody else can have other meetings on Wednesday,
21 which can reduce travel in between meetings.

22 So, we may have to skip a month -- we will have the
23 meeting in August, I am pretty sure. There is no argument about
24 that. We may have to skip September, if travel is tight and then
25 have one in October.

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfm6

1 We may have to skip two, I do not know. But there is
2 no way I can offer you a meeting, say, on the 25th of June, when
3 I just cancelled another meeting and had to be here, or mid-July
4 or anything like that. Anything in between meetings is just
5 about out.

6 So, what we will stick with as far as we are concerned,
7 we will take as much of this stuff in August as we can. I think
8 we can probably get through a fair amount of it. It is not
9 mandatory that we give a full hearing on the pre-comment items.
10 We might just take a look at some of them and, say, with a little
11 mail poll or telephone poll of the subcommittee and, say, send
12 it out. What is item five on there; proposed amendment to Part
13 50, Appendix A.

14 That is the QA Appendix.

15 MR. WENZINGER: I can explain it if you like.

16 DR. SIESS: There is a description here. Is that just
17 editorial?

18 MR. WENZINGER: No, it is not just editorial.

19 DR. SIESS: Sneaky, eh?

20 MR. WENZINGER: It is not just editorial, at all.

21 DR. SIESS: Appendix A is a general design criteria.
22 Appendix B is the QA. That's a goody, isn't it?

23 MR. WENZINGER: Yes.

24 DR. SIESS: It will not take an awful lot of time, will
25 it? I mean, the pre-comment stage.

bfm7

1 MR. WENZINGER: That depends on the public interest
2 shown. One other, I think, is important to bring up is personnel
3 selection and training, 1.8.

4 It is not insignificant at all.

5 DR. SIESS: First, I was going to see if there were
6 any pre-comment items to send out.

7 MR. WENZINGER: On one of them, you might want to do
8 that on.

9 DR. SIESS: Is that endorsing ANSI?

10 MR. WENZINGER: Yes.

11 DR. SIESS: We might try to do that and see if we can.
12 50.54, that is what? You already have something out on that as
13 part of TMI Lessons Learned, haven't you?

14 MR. MILHOAN: Yes, we do, Mr. Chairman. The proposals
15 to 50.54 would be a clarification of the Lessons Learned require-
16 ments for control room staffing and for working hours. It would
17 reflect the Commission's decisions made on the TMI Action Plan
18 in this particular area.

19 MR. MATHIS: This is the one on overtime?

20 MR. MILHOAN: On overtime, and also the staging of an
21 SRO and RO in a control room during all times of operation of
22 a facility.

23 DR. SIESS: On the Appendix A and B to Part 50, I guess
24 since there is plenty of notice on it, if it is out, we could
25 get some public comment at the pre-comment stage.

bfm8

1 It is always a lot better, I think, to get it in
2 writing and have a chance for the staff to absorb it and so forth.
3 I think the Committee finds it much easier to understand the
4 pros and cons when we look at it at that stage of the process.

5 So, I think we definitely want to look at that one be-
6 fore it goes out. If that is all we are going to do is look at
7 it, then there is not much comment. I do not see any problem
8 with covering this material in August.

9 We have all day. We have a lot of meetings that did
10 not last all day, but we will simply have an all day meeting;
11 and 1.97 is going to take a good chunk of it because I am sure
12 there will be public comment.

13 It will depend on how well it is organized. If industry
14 comments are pretty well coordinated, we can probably arrange it
15 so we do not have eight utilities coming in and giving us the
16 same story.

17 Sometimes they do get together and present a unified
18 viewpoint. Sometimes they present a unified viewpoint when
19 they have not all gotten together officially. I've seen letters
20 that look like they were written by the same person.

21 The material for concrete containments, I doubt if
22 that is real complicated. I am the expert on that.

23 MR. DURAISWAMY: We looked at it a long time ago.

24 DR. SIESS: Did we get many comments on that one, 1.36?
25 We probably don't have anybody here on that.

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfm9

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 MR. DURAISWAMY: No.

2 DR. SIESS: 1.XXX, that one keeps coming back, doesn't
3 it? You got our message.

4 MR. WENZINGER: Did you get our response?

5 DR. SIESS: No.

6 MR. SURAISWAMY: No, we have not gotten it.

7 MR. WENZINGER: There was a response dated the 22nd
8 of May.

9 DR. SIESS: The Committee went on the record last month
10 expressing extreme dislike for the lack of a numerical designation
11 of proposed guides, except for a task number; and suggests that
12 they be assigned numbers when they start through the process,
13 at least as far as we are concerned. If you have to skip a
14 couple, I do not care. That was expressed in a letter to the
15 EDO, I guess.

16 MR. WENZINGER: Yes, it was. Mr. Hill is here, who
17 prepared a reply to that, which I guess you have not seen.

18 DR. SIESS: Let me have a copy of it and we will take
19 it up later.

20 MR. WENZINGER: Today?

21 DR. SIESS: If necessary. If you agree with us, fine.
22 If we don't we will write you another letter.

23 (Laughter.)

24 I have a very closed mind on the subject. There are no
25 arguments that are going to change it.

bfml0

1 (Laughter.)

2 On purely procedural things I can be very bigoted.

3 MR. WENZINGER: We only suggest that those both will
4 take considerable period of time.

5 DR. SIESS: Yes, I think so, yes. We will figure on
6 having all day. We will warn the people that are here that we
7 do not line up any other subcommittee meetings on that day.

8 MR. WENZINGER: I think Jim might want to make some
9 other comment on this.

10 MR. MILHOAN: Mr. Chairman, it would depend on the
11 Committee's interest in hearing on Reg. Guide 1.8 which endorses
12 with quite a number of exceptions the draft ANS 3.1 standard.

13 There are a number of exceptions to the standard that
14 will be taken into the Reg Guide. The Reg Guide will also
15 describe the relationship between the ANS 3.1 standard, the Reg
16 Guide position and the number of other efforts that are under
17 way within the NRC staff, which either overlap with Regulatory
18 Guide 1.8 or which interfaced with Regulatory Guide 1.8, because
19 as you are aware, there are a number of efforts that have been
20 under way in this area of upgrading qualifications of personnel.

21 You are going to hear today the Part 55 revisions which
22 directly interface with Reg Guide 1.8. You have had, I think,
23 forwarded to you by the NRR staff the utility management and
24 organization criteria document.

25 DR. SIESS: I have not seen that.

bfml1

1 MR. MILHOAN: In our submittal package, we can send
2 you another copy of that. There are a number of efforts like that.
3 I think seven or eight different efforts which we can describe to
4 the subcommittee. It would take a good length of time, or it
5 might be in the interest of time to submit you most of the
6 reference documents there.

7 I think it would be a judgment of the subcommittee as
8 to how much you would want to hear on the other efforts that are
9 under way within the staff on the area of personnel selection
10 and training.

11 DR. SIESS: I think we definitely ought to get the
12 documents in advance. I think we will have time -- I would think
13 that if we have an all day meeting, we could devote a fair amount
14 of time to that.

15 After all, it is pre-comment -- that is post-comment.
16 I'm sorry.

17 MR. MILHOAN: This will be another pre-comment guide we
18 are issuing because of the number of revisions that have been
19 made. On item four, we will go back to comment --

20 DR. SIESS: You have to because you cannot endorse
21 a draft ANSI standard -- ANS standard in a final guide.

22 MR. WENZINGER: That's right.

23 DR. SIESS: You have to delay that thing until that
24 standard is final, don't you?

25 MR. MILHOAN: We have permission from ANS to use the

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfml2

1 draft standard. It would be expected that by the time the
2 guide goes out for public comment, we resolve public comment
3 that --

4 DR. SIESS: If this were post-comment, then you would
5 be, in effect, issuing it within three or four months after this.
6 That still might be a draft. You just cannot do that.

7 MR. MILHOAN: We have done this in the past with the
8 permission of the society, when the society grants us permission
9 to do that and has documents -- copies of the draft documents --

10 DR. SIESS: It is not just a question of the permission
11 of the society. You are endorsing something that you do not
12 know what it is going to look like.

13 MR. MILHOAN: We are endorsing a specific draft. We
14 are not blanket endorsing future revisions of the standard. It
15 will be a specific draft.

16 DR. SIESS: Okay. Legally, I guess that is all right.
17 All out, that is confusing because nobody has the draft but you.

18 MR. WENZINGER: At the present time, we only have
19 premission to endorse the draft for public comment. We would
20 need additional permission to --

21 DR. SIESS: Which would probably work in this case,
22 because most of the people that would be using it would have
23 access to the draft.

24 MR. WENZINGER: The ANS has made copies available.

25 DR. SIESS: They have to make copies available to the

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfm13

1 Public Document Room for anybody who wanted it.

2 You recognize it is not desirable.

3 MR. WENZINGER: Yes, we recognize that. I think it
4 might be worthwhile just pointing out one thing. On Reg Guide
5 1.97, there have been a lot of comments.

6 Al Hintze is here. If youlike, he can describe just
7 briefly the extent of the comments we received.

8 DR. SIESS: I think we will wait because you might have
9 more by August. Somewhere along the line on 1.97, I assume you
10 are not going to make it pre-comment, again, are you?

11 MR. HINTZE: We hope not. It depends on the outcome
12 of the ACRS meeting. If we still have a bunch of comments, we
13 might have to do it like we did when we initially issued it. We
14 do not want to do that.

15 DR. SIESS: At this stage of the game, I guess it would
16 be nice if the ACRS could help you reach a final resolution and
17 come out with --

18 MR. HINTZE: They did a fine job when they came out
19 for Revision 1. We appreciate the same kind of service.

20 DR. SIESS: I will want the full Committee involved.
21 If this is going to be the last round, they darned well better
22 be. That is a fair amount of Committee time which they should be
23 able to devote --

24 MR. WENZINGER: There is a safety data committee which
25 has been set up in NRR of which I am a member. We have made a

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfml4

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 tentative agreement that for the various uses of data, both within
2 the plant and on site, technical support center for the nuclear
3 data link, the safety vectors and other things of a similar nature
4 where we are talking about information from the plant to be
5 used by people on site, as well as off-site, that there is a
6 general agreement that has been reached now; that the list of
7 data in Reg Guide 1.97 will be used as a base for all those
8 activities.

9 So, that tends to increase the importance of the 1.36
10 that is in 1.97.

11 DR. SIESS: That is a pretty broad base. You could
12 build just about anything you wanted to on that. Anything else
13 about August?

14 MR. WENZINGER: I think that is about all.

15 DR. SIESS: I don't think I am being too optimistic
16 about getting all this done in August. I am giving it adequate
17 time. I will -- well, I see two major items.

18 I do not expect 1.36 to take too much time. Item three,
19 on valve assemblies, I don't know. What is your judgment on
20 that?

21 MR. WENZINGER: It is pre-comment, again. I don't
22 think that is going to be a big deal. Jim, would we expect to
23 have 1.33 down by then?

24 MR. MILHOAN: Yes, we would.

25 MR. WENZINGER: The 1.33 revision has to do with QA

bfml5

1 for operations. This is also an endorsement of a draft ANS
2 standard on QA for operations.

3 DR. SIESS: That will be post-comment?

4 MR. WENZINGER: This is similar to 1.8, although it
5 has already been issued. The ANS has prepared a significant
6 revision to the standard.

7 DR. SIESS: That is 1.1.33?

8 MR. WENZINGER: No. 1.33.

9 DR. SIESS: That is QA for operations?

10 MR. WENZINGER: That endorses ANS draft standard 3.2
11 on the same subject. Here again, there is a rather large
12 number of comments, regulatory positions, if you will, on the
13 standard.

14 We are attempting to get together, however, with the
15 standards committee and get some of those resolved before we
16 send it to you. Whether we will be successful or not, at that
17 I do not know.

18 That conceivably could take a lot of time, as well.

19 MR. MILHOAN: I think what we may find is we will get
20 together with the Committee. We will resolve them and we have
21 permission, however, to use the earlier draft of the standard.
22 The guide coming down will probably have a great number of
23 exceptions taken to the draft standard that is sent down.

24 We will be discussion with the Committee the guide
25 positions. Probably in future drafts of the standards, there will

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfml6

1 be -- and the regulatory guide that endorses the standard. There
2 will be a reduced number of regulatory positions because of
3 the incorporation in the draft standard.

4 MR. WENZINGER: We will try and get these other stan-
5 dards and guides to you as soon as we can. We would appreciate
6 some feedback if you do not intend to take them up.

7 DR. SIESS: Okay. You do that. You give us something
8 that orders priorities on these. We will do the best we can in
9 August. We will take as long as we need. I do not know how late
10 we can go, but I have a meeting after this one that is scheduled
11 to go until 8:00.

12 I guess we can do that, too, if we can stand it. We
13 will look at what we get. If there is anything, it looks like
14 we can say, "Okay, issue it and we will take a look at it after-
15 wards."

16 We have discussed that as a possibility. There is
17 nothing in our procedures that say we -- nothing in yours that
18 say we must review and pre-comment, except for advice.

19 MR. WENZINGER: Do you still want to see them physically
20 before you make that decision?

21 DR. SIESS: Yes, that is a decision we will make after
22 looking at it. YOU give us priorities and we will schedule them
23 and take them up in the order of the priorities at the meeting.
24 If something takes too long and we run out of time -- that is
25 why I want priorities.

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfml7

1 In setting those priorities, don't count on a meeting
2 in September. We will have one if we can. We will know better
3 what our travel problems are, and what our priorities are.

4 Right now, I will not guarantee you a meeting in
5 September.

6 MR. MILHOAN: I would assume the subcommittee would
7 have the option of going ahead and letting us release them for
8 public comment; during the public comment period you take them
9 up at a later meeting.

10 DR. SIESS: I have assumed we have that option. I
11 have discussed it briefly with the full Committee. I think they
12 are in agreement.

13 As I believe you know, our subcommittee approval for
14 you to issue something to comment is not something we ask the
15 full Committee to confirm. They have essentially delegated that
16 authority to us. I report to the full Committee what we have
17 done, but we do not ask for their approval.

18 We recommend concurrence. That requires full Committee
19 approval, as you know. We don't even write a letter to EDO
20 that says we have approved it for comment. That is up to the
21 subcommittee.

22 We will exercise that option of not reviewing it if
23 it looks like it is reasonable and sort of required by the
24 schedule. Whether we can do it here, I do not know.

25 It may not help. We may exercise it only on items we

bfml8

1 can spend 15 minutes on, anyway.

2 MR. MILHOAN: Or you could review it while it is out
3 for public comment at a later meeting.

4 DR. SIESS: It is an idea. It may not save any time.
5 That is the only thing, but we will certainly take it into
6 account.

7 MR. WENZINGER: How soon would you like our listing
8 on priority on the reg guides?

9 DR. SIESS: Whenever you can get them, get the to Mr.
10 Duraiswamy and he can get them to me.

11 MR. WENZINGER: Okay.

12 DR. SIESS: Are you ready to take up the proposed
13 amendments to 10 CFR 50 and 55? Is that order acceptable to
14 you?

15 MR. WENZINGER: Yes. Mr. Joel Wiebe will present those.

16 DR. SIESS: Mr. Wiebe?

17 MR. WIEBE: All right. The proposed revision to 10
18 CER Part 55 and Part 50 was based on the SECY 79-330E letter,
19 which gave staff recommendation for improvements in the operating
20 licensing program.

21 The letter gave 16 recommendations for consideration
22 that only those applicable to this present rulemaking will be
23 discussed in the presentation.

24 The other recommendations are given in Enclosure C to
25 the letter that we sent to ACRS. SECY 79-330F, the followup

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfm19

1 letter to 330E gave the recommendations for implementation of
2 SECY 79-330E. That is discussed in the Enclosure B to the
3 letter -- the memorandum we sent to ACRS.

4 In response to the 330E letters, a memorandum of
5 November 27, 1979 gave the Commissioners' approval of SECY 79-
6 330E and 330F with significant comments to the recommendations.

7 Background discussion of the comments are given in
8 Enclosure B and we will also be running over this today as we
9 discuss each recommendation.

10 The proposal will be discussed by first giving the
11 recommendation -- first stating the recommendation. Then, we
12 will review the Commissioners' actions on the recommendation.
13 Then, we will discuss the limitation of utilization of the
14 recommendation.

15 The first recommendation, Recommendation number one,
16 is the experience requirements regarding power plant operations
17 for senior operating applicants should be increased. They
18 recommended four years of power plant experience, two years of
19 experience may be fulfilled by academic or related technical
20 training.

21 Two years must be nuclear power plant experience, and
22 six months must be at the facility for which he seeks a license.

23 (Slide.)

24 MR. RAY: Should he not have any qualification by
25 academic or related technical training, does this imply then

bfm20

1 that of the four years experience that is needed, only two need
2 be nuclear or must all four then be nuclear?

3 MR. WIEBE: I would like to put off questions in this
4 area until I go through recommendations one, two, and three,
5 because recommendations one, two, and three include the experience,
6 academic training, and training on the plant.

7 MR. RAY: Okay.

8 MR. WIEBE: We will take that up as soon as we are
9 done with this. Commissioners' actions on recommendation
10 number one; it was accepted as an initial step.

11 They also stated that they expect new requirements be
12 proposed consistent with NUREG-0585, which is Lessons Learned
13 Task Force final report.

14 DR. SIESS: They accept what as initial step?

15 MR. WIEBE: Recommendation one that I gave before.

16 DR. SIESS: Oh, okay.

17 (Slide.)

18 MR. WIEBE: Okay. The present proposal on 10 CFR Part
19 55 is, first, that we are requireing three years of power plant
20 experience. I would like to point out here that we propose that
21 no academic or technical training be allowed to be substituted
22 for the experience. We will be running over the training require-
23 ments, the academic training requirements in a little bit.

24 Again, two years of this must be nuclear power plant
25 experience. Another change is that one year of this experience

bfm21

1 must be as a licensed operator at the facility for which he
2 seeks a senior operator's license.

3 MR. MATHIS: That has now been changed. Your new
4 recommendation is six months on that last item?

5 DR. SIESS: It is now one year.

6 MR. WIEBE: This is the recommendation. The is the
7 proposal that we sent to the ACRS.

8 MR. MATHIS: Okay.

9 MR. RAY: Still for senior operator?

10 DR. SIESS: Still for senior operator.

11 MR. WIEBE: Yes.

12 (Slide.)

13 DR. SIESS: At what stage during the life of the
14 plant can an operator be licensed? Can he be license prior to
15 startup at cold license?

16 MR. WIEBE: Yes, he can. Mr. Collins can explain that.

17 MR. COLLINS: About two months before fuel loading is
18 when we administer the first examinations and issue the first
19 licenses for that facility.

20 DR. SIESS: So, a man could not get an SRO on a plant
21 until about ten months after fuel loading?

22 MR. COLLINS: I was going to wait until he has finished
23 recommendations one, two, and three. There is an exception for
24 this.

25 DR. SIESS: All right.

bfm22

1 MR. MATHIS: You have to have some way of getting in
2 the game.

3 DR. SIESS: I know. I remember that.

4 MR. WIEBE: Recommendation two of SECY 79-330E, the
5 staff recommended established requirements for applicants for
6 senior operator licenses after the plant achieves criticality,
7 to be licensed as an operator for six months.

8 The Commissioners' action on this item is they required
9 twelve months versus six months as a licensed operator. As I
10 stated earlier, the proposal -- the present proposal requires
11 twelve months as a licensed operator at the facility for which
12 he seeks a senior operator's license.

13 (Slide.)

14 MR. MATHIS: That has exceptions too, which you will
15 come to later?

16 MR. WIEBE: Yes. That too has exceptions. Recommen-
17 dation three of SECY 79-330E recommended to establish requirements
18 for participation in plant shift operations prior to licensing.
19 The details of that were that the operator have three months
20 continuous on the job training for hot operator applicants as
21 an extra man on shift in the control room.

22 For a senior operator, it recommended three months
23 continuous on the job training for hot senior operator applicants,
24 as an extra man on shift in training.

25 The Commissioners' action on this item was that the

bfm23

1 recommendation was accepted.

2 (Slide.)

3 Our proposal in this area goes into more detail on this
4 training. First of all, the operator should have three months
5 shift training. He should have no other concurrent duties. This
6 training should be at the facility for which he seeks a license.

7 The training will include manipulating the facility
8 controls and performing duties he would perform as a licensed
9 operator. He must be under the observation and control of a
10 licensed operator.

11 DR. SIESS: Item four is really just the definition of
12 "on the job training," isn't it?

13 MR. WIEBE: Right. We want to make sure he's actually
14 performing those duties. The senior operator requirements are
15 similar. Three months of shift training.

16 DR. SIESS: Excuse me a minute. Under the observation
17 and control of a licensed operator, I can visualize two functions
18 there.

19 One is a safety function that he is not allowed to do
20 things without simply looking over his shoulder. The other is,
21 I can visualize, an educational function that the licensed
22 operator is acting as a teacher, or mentor. Which was behind
23 this?

24 MR. WIEBE: They were both.

25 DR. SIESS: Both?

bfm24

1 MR. WIEBE: They should be both. The senior operator
2 requirements are similar. Three months of shift training, no
3 other concurrent duties at the facility for which he seeks a
4 license, except that he supervises the manipulation of the
5 facility controls and performs the duties he would perform as
6 a senior licensed operator.

7 Again, he must be under the observation and control of
8 a senior licensed operator.

9 (Slide.)

10 Okay, the matter in which we incorporated these
11 recommendations into the proposal before the ACRS is first of
12 all, in paragraph 55.10(a) of 10 CFR Part 55. It references
13 Appendix B for the minimum acceptable qualifications of commer-
14 cial nuclear power plant operators.

15 In other words, you must refer to Appendix B to ensure
16 that the operators and the senior operators do meet those
17 minimum qualifications. Since this does not apply to operators
18 of test and research reactors, we have provided a new definition
19 in paragraph 55.4(h), which defines what a commercial nuclear
20 power plant is.

21 We reference commercial nuclear power plant operators
22 in Appendix B. Okay. Appendix B is strictly for commercial
23 nuclear power plant operators and senior operators. In there,
24 we give the experience requirements, the training requirements,
25 education requirements for both operators and senior operators.

bfm25

1 SECY 79-330E only provides recommendations for the
2 senior operators. We have extended that to the licensed opera-
3 tors also.

4 In addition, Appendix B clarifies paragraph 55.10(a) --
5 it should be (a)(6), not (a)(b), by stating that the minimum
6 requirements for education and training certification requirements
7 in SECY 79-330F recommended clarifying this paragraph.

8 Appendix B is intended to do so.

9 (Slide.)

10 Okay. Since we have sent this to the ACRS, we have
11 made some corrections to Appendix B. First of all, the first
12 corrections was that we required 30 semester hours of academic
13 training for the senior operator applicants, and that should
14 state 60 semester hours to be consistent with the Commission
15 direction in this area.

16 MR. MATHIS: That one I find a little difficult to
17 buy. I do not see how you can expect a lot of these people to
18 have 60 semester hours of technical training.

19 MR. WIEBEL This is consistent with the Lessons
20 Learned Task Force recommendation.

21 DR. SIESS: Is it 60 --

22 MR. MATHIS: They bounced all around on that, as I
23 remember. It was one of those things that was nice to have, but
24 let's join the real world. Where are you going to find these
25 people?

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

end t3

bgn t4

bfm26

1 MR. MILHOAN: In the Lessons Learned Task Force report,
2 NUREG-0585, one of the recommendations, I think recommendation
3 1.16 involved senior operators and shift supervisors.

4 In the recommendation for senior operators, it said
5 you should recognize the difference made between in actual
6 practice between a senior operator and shift supervisor.

7 Part 55 addresses senior operators. It says they
8 should have the same education as recently articulated for the
9 shift technical advisor, which in the letters to the applicants
10 and licensees, specify that should be 60 semester hours in basic
11 technical subjects.

12 DR. SIESS: That is essentially a bachelor's degree.
13 Am I right?

14 MR. MILHOAN: From a technical education standpoint.

15 DR. SIESS: Have you looked at a BS program in nuclear
16 engineering to see if there are 60 hours in these areas? Can
17 the average BS in nuclear engineering qualify for these 60 hours
18 in these particular subjects?

19 MR. MILHOAN: I think you would have to say there might
20 have to be one or two courses beyond the BS degree in the under-
21 graduate nuclear engineering curriculum.

22 DR. SIESS: If the applicant looked at BSs, he might
23 have to supplement their education, send them to a nearby school
24 or give them some additional courses. They do not have to take
25 those at an accredited college, do they, or do they?

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfm27

1 Do they have to enroll as a student, or can it be a
2 course that the university gives for that purpose?

3 MR. MILHOAN: In Regulatory Guide 1.8 -- we are going
4 to clarify the subject of education conducted at the college
5 level. It will be defined as education conducted at an accre-
6 dited -- conducted at or by an accredited collegiate instution
7 pending further development of this subject of accreditation of
8 training institutions.

9 That way we will define the level of training that
10 we think is intended.

11 DR. SIESS: You don't -- we are going through a three-
12 tier thing. You are changing the regulations, then you are
13 going to write a reg guide to explain the regulations. Then
14 you are going to write something else to explain the reg guide.
15 Is that right?

16 Because accredited -- I happen to be a former profes-
17 sor. There are two kinds of accreditation. Out where I live,
18 you can be accredited by the Northcentral Association of
19 something -- schools and colleges. Engineering curriculum is
20 accredited in most engineers minds when they are accredited for
21 what used to be called the ECPB.

22 Now, it is called the EBT or something. ECPB has a
23 new name now. It got changed recently about six months ago.

24 It is the same thing. It just has a different name.
25 That is an accredited engineering curriculum, incidentally, not

bfm28

1 an accredited engineering school. Departments are accredited,
2 nuclear engineering would be accredited.

3 When you use the word "Given by an accredited institu-
4 tion" I don't know whether you mean one that is accredited by the
5 Northcentral Association, or one that is accredited by ECPB. Do
6 you prove credits of curriculum as well as the staff and so
7 forth?

8 They look at those things and you are getting into a
9 particular area where a particular extension course that was
10 given off campus over at Decatur, Illinois, for Illinois Power
11 Company. You would have to define whether that was accredited.

12 MR. MILHOAN: I certainly agree. We are getting into
13 a new area. I do not think we can avoid getting into the new
14 area. The reg guide, I think, is going to be very controversial
15 in this area.

16 We are going to receive a lot of public comments in
17 this area. We have to start, I think, in that area of defining
18 what we mean by college level work; the equivalent work that we
19 are talking about.

20 DR. SIESS: I guess what bothers me is your regulations,
21 some of them are very specific. Some of them get written, like
22 the Constitution. I guess we have been through that on the
23 general design criteria.

24 We think they are broad enough to cover everything.
25 We continually are interpreting them. We do not have a Supreme

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfm29

1 Court. You are starting off with a regulation and you say
2 "College level education" which I guess, you know, I know what
3 area you are talking about. I think I can buy that little detail
4 in here.

5 It is sort of an objective. Then, I hear you say
6 you are going to write a reg guide to explain it. I -- that
7 sounded pretty good, but then you said you are going to write
8 something else to explain the reg guide. I think three-tiers
9 is getting pretty far down the line.

10 MR. MILHOAN: I said we will provide background infor-
11 mation and a discussion of the regulatory position to explain
12 more of the regulatory position, or background behind development
13 of the regulatory position.

14 There would not be another document.

15 DR. SIESS: I hate to look for the definition of
16 "accredited" in part B of a reg guide. It is going to be a
17 pretty specific thing. I mean, I & E is going to go out and
18 look at this stuff.

19 If they do not satisfy the letter of position C, they
20 are going to get fined, or something else. I do not know. The
21 way these things are being enforced, they have to be specific.
22 I do not think it belongs in the discussion part of a reg guide.

23 MR. MILHOAN: The definition you are talking about will
24 be in the regulatory guide. It is just that additional infor-
25 mation will be in the discussion session and the value impact

bfm30

1 section on the background of the regulatory position.

2 DR. SIESS: I do not have any real serious problem.
3 maybe Mr. Mathis does with the fact that a BS in nuclear engin-
4 eering could not qualify by education for an SRO without further
5 instruction.

6 He is qualified to design these plants. He works for
7 Westinghouse and GE, I guess, but he is not qualified to start
8 the process of being a senior reactor operator. This is only
9 the beginning, because education is just the first step. He has
10 training and experience and so forth.

11 I wonder if the people who are teaching nuclear
12 engineering, which is not my business, are that far off. If
13 you come up with a list of subject that you think people ought
14 to know just to run a plant, then somebody else thinks they
15 don't even have to know to design one.

16 I would have been a lot happier if you had said BS
17 should have reactor physics, mathematics, fuel mechanics, heat
18 transfer, electircal and reactor control theory, and so forth.

19 MR. MATHIS: There is one other part of this, Chet.
20 That is, there is no consideration given here for on the job
21 training, which could be the equivalent of college work.

22 This is the way most plants really operate. Most of
23 the training that people have received has been electric courses
24 and this sort of thing from the design engineers. There are other
25 technically trained associates in the plant.

bfm31

1 There is no credit in here, as I interpret this, for
2 that sort of thing. I think in the real world, you are going to
3 have to get back to that.

4 You have to have an avenue of progression in the
5 first place, if you are going to have a solid, real good organiza-
6 tion.

7 DR. SIESS: Really, the on the job training should
8 be under the heading of training and experience.

9 MR. COLLINS: Excuse me a second. On the next page,
10 on page 20, when we discuss training item 3-B, we do indicate
11 that under the training a portion of this instruction may be
12 used to fulfill the education requirements specified in para-
13 graph one, the 30 credit hours.

14 Some of this can be given credit towards this in their
15 training program.

16 MR. MATHIS: That is fine. That is the way it should
17 be, but if you read this just as it comes on to begin with, it
18 is black or white.

19 MR. COLLINS: The caveat is on the next page.

20 DR. SIESS: It is not all that black and white, because
21 as I read 2.1(b) "Technical subjects, such as." Now "such as" is
22 a pretty sloppy language for regulations. So we will write
23 a reg guide to explain what we mean.

24 As far as I am concerned, mathematics is -- what is
25 college level mathematics? I hate to think of what it is today.

bfm32

1 We get people who have not had analytical geometry getting into
2 college. I do not know whether it means differential integral
3 calculus, differential equations. I assume it is whatever you
4 need to study thermodynamics, heat transfer, and some of these
5 other things.

6 It almost follows, you know, materials -- Gee, I don't
7 think you need concrete to be a reactor operator. I don't know
8 whether you mean nuclear materials or steel or stainless steel
9 or what.

10 Some of it -- some of it here bothers me. Unless you
11 want differential equations specifically, and you don't need
12 differential equations to study heat transfer -- it is a funny
13 list. It just does not seem to me -- did you guys make it up
14 or did the Commissioners?

15 MR. MILHOAN: As far as the subjects are listed there?

16 DR. SIESS: Yes.

17 MR. MILHOAN: The subjects that are listed there are
18 really corresponding to the subjects that were treated in the
19 shift technical advisor discussion, which was contained in the
20 September 13, the September 27th letters and followon letters
21 issued to applicants and licensees.

22 DR. SIESS: As I recall -- I could be wrong so correct
23 me -- that there were some words in those letters to the effect
24 that the shift technical advisor should have a bachelor's degree
25 or equivalent in engineering, or science.

bfm33

1 Now, it has some loose words like "science." In other
2 words, it could be a degree in physics or biology. I think it
3 said natural sciences, physical sciences, maybe.

4 MR. MILHOAN: That was contained in the NUREG-0578
5 discussion. In the lengthy discussion of the shift technical
6 advisor that was contained in the Office of Nuclear Reactor
7 Regulation, the followon letters define the general technical
8 education in the specific terms of these general subjects and
9 said these should be approximately 60 semester hours.

10 So, as far as the BS degree or equivalent of 0578 that
11 was further explained in the followon NRR letters to applicants
12 and licensees.

13 In there, is also said that a person who had a BS
14 degree might not necessarily have all of the education necessary
15 because a BS degree in some physical science would not necessarily
16 treat all the subjects that are listed in your Part 55.

17 Therefore, that individual would probably have to take
18 additional courses to have the subject areas that we desire be
19 covered; that a BS degree was not necessarily the answer.

end t4

jl flws
t5

20
21
22
23
24
25

1 DR. SIESS: The exception that said -- Let's see,
2 it is 3(b). Okay. I am sorry. These are not necessarily
3 successive. He has to have this cumulative by the time he
4 gets his SRO. Is that right?

5 DR. WIEBE: That is correct.

6 DR. MILHOAN: I think Dr. Mathis had a question. I
7 did not answer, and I think he brought it up about, where
8 are we going to get these SRO's. I think that is a valid
9 concern. In the Lessons Learned Task Force, it was
10 recognized that this is something that could not be done
11 overnight, and we recommended in that report a five-year
12 phased effort for an upgrade over a five-year period of
13 time, but then you also have to consider the persons
14 presently filling the positions, and the fact that we have
15 some very valuable people out there filling the positions,
16 and you do have to give due credit to satisfactory
17 performance in that position, on making determinations for
18 the present people filling these positions, and it is a
19 valid concern.

20 DR. MATHIS: Have you conducted a review to see
21 among the senior operating people today and the shift
22 supervisors how many of existing staffs in the reactors
23 could satisfy this requirement?

24 DR. MILHOAN: The only thing that I am aware of --
25 and it did not go down to the senior reactor operator level,

1 is, back last year we took a survey for utility and
2 management capabilities. That survey of the education,
3 experience, training capabilities of the people that are
4 presently occupying the positions in the plants, that survey
5 did not go down to the SRO level. It does go down to the
6 shift supervisor level. We do have some valuable input for
7 the present -- for the present people that are filling the
8 shift supervisor's spots.

9 DR. MATHIS: Do you have a ball park number,
10 percentagewise, as to what number of that group would
11 satisfy this requirement?

12 DR. MILHOAN: The answer is no, not today, we do
13 not. I suspect when we discuss Reg. Guide 1.8 with you in
14 August, that I could provide further information in that
15 area.

16 DR. MATHIS: I wish you would, because you are
17 going to find out it is a low number.

18 DR. SIESS: I am a little concerned about one
19 thing. I have seen advertisements for shift technical
20 advisors in a magazine called Engineering News Record, and I
21 doubt if three or four people other than civil engineers
22 ever read that, and that bothers me. I don't think civil
23 engineers would qualify for that job. I know I would not,
24 so I think it is going to be tough, but this is pretty
25 common, gentlemen, and if nobody else has the concerns, we

1 do.

2 DR. RAY: I have a question. What would be the
3 policy on license renewal of present operators, senior
4 operators, if they cannot meet this requirement, if they do
5 not have this background?

6 DR. COLLINS: At the time -- there was no provsion
7 in here for grandfathering the present people on shift, and
8 as Jim pointed out, we are not going to implement this or
9 attempt to implement it overnight. It is going to be a
10 long-term program for the full implementation of these
11 educational requirements.

12 DR. RAY: I do not think that answers the
13 question. There is a core of experienced operators out
14 there in industry that are operating these plants. Are you
15 going to tell me because of this they are immediately
16 ineligible?

17 DR. COLLINS: The answer is no.

18 DR. RAY: At the end of five years, must they
19 qualify in this respect? Is that what you are saying?

20 DR. COLLINS: We are indicating to the industry
21 that they had better take the people that are on shift and
22 give them this special training if they want to keep them.

23 DR. RAY: I am talking about the 60 semester
24 credits of college.

25 DR. COLLINS: That is what I am talking about,

1 too. Yes, sir. They would have to develop programs so
2 these people would get this.

3 DR. SIESS: They would not have to go out and get
4 it. There are very few nuclear power plants that are not
5 located where a university would not come in and give them
6 courses.

7 DR. RAY: They could organize in-plant programs
8 that would be the equivalent.

9 DR. MATHIS: On-the-job training is going to have
10 to do a lot of it.

11 DR. COLLINS: Yes.

12 DR. MILHOAN: In establishing on-the-job training,
13 there has to be a method of determining the equivalency of
14 the on-the-job training or the accreditation as we view
15 these training programs.

16 DR. MATHIS: These are very important words.
17 Something has to be put in here.

18 DR. SIESS: I think it is fairly common practice
19 for the utilities to arrange with the universities for
20 courses. I know it has happened in my neighborhood.
21 Illinois Power Company, the University of Illinois has
22 actually been giving a master's degree program to their
23 personnel, bringing them only to the campus for training on
24 a trigger reactor, to get that kind of background, and I am
25 sure most of the utilities are doing this, aren't they?

1 DR. COLLINS: Yes.

2 DR. SIESS: So I do not see any real problem in
3 upgrading people to meet these criteria.

4 DR. MATHIS: As long as the criteria is understood.

5 DR. MILHOAN: I can see one problem from the aspect
6 of the availability of qualified instructors to provide this
7 training, not only for the people who are presently out
8 there, but for the availability of qualified people to
9 provide all of the training in the period of time that we
10 are recommending.

11 DR. MATHIS: Your shift technical advisor may in a
12 great many cases, anyway, be qualified to give that kind of
13 training.

14 DR. SIESS: Not the academic training, not if they
15 define accreditation the way they are going to.

16 DR. MILHOAN: No.

17 DR. COLLINS: No.

18 DR. MATHIS: "Accreditation" is one of the words
19 that has to be defined in here, and you have to have some
20 equivalency somewhere, I think, to make this practical.

21 DR. SIESS: Have you visualized the university -- a
22 nuclear power plant or a utility actually trying to go out
23 and hire two or three people to give in-house academic
24 training?

25 DR. COLLINS: Yes, they have. In fact, in NRC and

1 NRR we have been visited by university deans expressing to
2 us that the utilities are coming to them for assistance, and
3 they were coming to us to see what it is they are actually
4 after.

5 DR. SIESS: That was not my question.
6 The utility actually employing people, academically
7 qualified people, to give in-house courses on a continuing
8 basis to keep their supply of SRO's and RO's coming along.

9 DR. COLLINS: They have gone one step towards
10 that. I know three utilities that have contracted with a
11 university to provide them that type of training.

12 DR. SIESS: That is common. I understand that.

13 DR. COLLINS: But they have not gone out and hired
14 employees to do this type of training.

15 DR. SIESS: What is an accredited course? That is
16 the question I am getting at. If it is given by the
17 university as an extension course or on campus, I do not
18 think there would be much problem fitting that into any
19 reasonable definition of "accredited." But if the utility
20 went out and hired people of equivalent education to, say, a
21 university professor, which right now means a Ph.D., I
22 guess, puts them on their staff, giving courses in
23 thermodynamics and reactor control theory, et cetera, et
24 cetera, would this meet these qualifications?

25 DR. COLLINS: We have right now ongoing a study by

1 some people on my staff, some of the consultant examiners,
2 to develop an accreditation program for us on operator and
3 senior operator training, and on it there are three college
4 professors and one man from Oak Ridge, so we are going to
5 get a handle on this, and --

6 DR. SIESS: And that will go into the Reg. Guide
7 somewhere?

8 DR. MILHOAN: It would not go in this revision. It
9 is going out for public comment, because we still have a lot
10 of study to do in this area before coming --

11 DR. COLLINS: We will have benchmarks. We will
12 have benchmarks that anybody who wants to do training or
13 educating will have to meet.

14 DR. SIESS: You see, if you don't have performance
15 criteria, which would be how well the operator performs
16 after having met these prescriptive criteria, except your
17 operator license --

18 DR. COLLINS: Yes.

19 DR. SIESS: -- obviously, you want to go beyond
20 that. You do not believe that the operator license
21 examination tells you whether the person is capable of
22 operating a reactor safely. That is, you want to know how
23 he gets his education that you are testing on the license.
24 You just don't use the license examination itself as your
25 performance standard.

1 DR. COLLINS: That is what we are trying to get
2 away from.

3 DR. SIESS: You are being very prescriptive, and
4 yet it is perhaps being too prescriptive. The 60 hours, can
5 he pass it with a grade of C, or does he have to make a
6 grade of B or a grade of A? Some people don't think there
7 is any difference between an A student and a C student.
8 Some people think there is a lot. I have my own opinions.
9 I will not express them. But I do not really know.

10 DR. MILHOAN: In the proposed Reg. Guide, we are
11 saying, completed with a grade of at least 70 percent.
12 Arbitrary, but we are providing some guidance.

13 DR. SIESS: That can give you all sorts of trouble.

14 DR. MILHOAN: Yes.

15 DR. SIESS: As a university professor, if I gave a
16 grade of C, I could not give you a numerical equivalent.
17 You said 70 or C?

18 DR. MILHOAN: We said 70 percent.

19 DR. SIESS: Suppose you just use a letter grade
20 system, which most people do? How are you going to
21 interpret that?

22 DR. MILHOAN: I think you would have to examine on
23 that letter grade system whether or not that was "equivalent"
24 to a 70 percent. At least you do have some performance
25 objective stated in the Reg. position of the guide, to try

1 to determine --

2 DR. SIESS: It is a very naive approach. I have
3 another professor here. Do you agree?

4 DR. MOELLER: Yes.

5 DR. WIEBE: Are we getting into an area that we
6 should discuss during 1.8?

7 DR. MATHIS: I guess so. There are things that
8 need to be worked over, in my opinion, but that is another
9 thing.

10 DR. SIESS: Sixty hours of college level education,
11 that sounds very good, but like most prescriptive things,
12 unless you get very, very specific, how it gets interpreted
13 is going to be up to somebody else, not you people. You are
14 writing the standard, and I don't know whether NRR or I&E or
15 the Licensing Branch or whoever is going to interpret it --
16 Right now, I don't know that it is worthwhile talking to
17 Standards. I think I need to be talking to the guy who is
18 going to interpret this, and whether the Reg. Guide is going
19 to help it or not, I do not know.

20 I think you are getting yourself into a real
21 situation here of not knowing what you mean, and I guess
22 what bothers me, basically, about this, is that you have no
23 faith in the license examination as telling you anything.

24 DR. COLLINS: We were severely criticized in the
25 Kemeny Report that we put too much reliance on the final

1 examination, and they felt we should become somewhat front
2 end oriented, and to assure ourselves that the training
3 programs were well done, as well as giving meaningful
4 examinations at the end.

5 I can only speak for myself, but I had a lot of
6 faith in the licensing examinations.

7 DR. MATHIS: You have to go one step beyond that,
8 Collins, and get to the point where the selection of people
9 that you are going to put in the training program is very,
10 very important, and I don't know that we addressed that
11 particularly today.

12 DR. COLLINS: Not in this particular guide, no.

13 DR. SIESS: You see, the reading out process --
14 There are three stages. There is the selection process.
15 There is what the guy learns after he is selected, and there
16 is a reading out that goes on. I do not think you do much
17 reading out with examinations. I don't know how many people
18 never pass it. You certainly read out some on the first try.

19 The experience part of this probably reads out some
20 people. I don't know. If the utilities get desperate, that
21 may not be very much of a selection in there, and certainly,
22 having passed 60 hours of college level work with a grade of
23 C, if they really got it in college, there was a certain
24 amount of weeding out in getting into college which varies
25 -- well, where I come from, it is about the top 15 percent

1 of people who get it, but it does not say where they have to
2 take this work. There will be another weeding out process
3 of those college graduates that would like to go into
4 operators and those that would like to go somewhere else in
5 the nuclear business and do research on fusion.

6 So, there is a process that goes on, but at the
7 entry level, looking at the sort of first step type thing
8 here, it is not very selective.

9 DR. MATHIS: Chet, there is one other thing. Maybe
10 this is the time to inject it.

11 It seems to me that one of the objectives we should have in
12 this whole system is to put together a program that could
13 lead to a true career development on the part of an
14 operator. That does not exist today, particlarly. I think
15 it does exist in some places, from what little I have read,
16 and for example, Japan, they really work at this as a
17 career. They provide progression opportunities. They
18 provide training.

19 In other words, you send the right kind of people,
20 and this is where they are going to go, this is where they
21 are going to stay, as a career, hopefully, and you will not
22 have the turnover that exists today.

23 I think if it is approached that way, and the
24 system is put together in that fashion, it would not only
25 provide for better trained people as stability in the

1 organization, and you would have a safer operated plant. It
2 would be under better control of time, and that is the kind
3 of objective I would like to see put in this whole system,
4 if you will, and it is a complex thing. I realize.

5 DR. MILHOAN: If you look -- and we are talking an
6 August meeting -- if you set up the Part 55, where the
7 person progresses from an auxiliary operator to a reactor
8 operator to a senior reactor operator to a shift supervisor,
9 and the regulations are set up in that form of progressing
10 that way, do you not have a career progression pattern?

11 I think you will find Part 50 Guide and Reg. Guide
12 1.8 provide for that progression pattern.

13 DR. MATHIS: Okay.

14 Well, we have covered enough on this.

15 DR. SIESS: I don't think you are going to get many
16 bachelors of science in nuclear engineering that are
17 starting out as auxiliary operators. That is another path.
18 You will have two paths into this. One will be the BS that
19 is willing to go in because he sees a path to somewhere in
20 management, or you know, the higher level, in which he will
21 get his 60 hours on the job.

22 The utilities will have to set up extension courses
23 or send him to school somewhere.

24 The other will be the BS or the MS that is willing
25 to come in.

1 DR. MOELLER: Perhaps it has been discussed and
2 evaluated in detail, but I am curious --

3 DR. SIESS: You heard most of the detail.

4 DR. MOELLER: I am curious to the extent the NRC
5 has looked at alternatives in the placing of more of this
6 evaluation on professional societies through board
7 certification or some mechanism such as that.

8 I mean, looking at a position, if you were hiring a
9 position in NRC and you wanted him or her to be a surgeon, I
10 doubt if you would give him or her a detailed exam to see
11 whether they could operate properly. You would probably go
12 and see if they were board certified.

13 Have you looked at whether you might enlist the
14 assistance of professional societies to set up board
15 certifications for various levels of reactor operators?

16 DR. COLLINS: Not so far as the operators are
17 concerned, because we go right back to the Atomic Energy
18 Act, which specifically mandated that we license operators,
19 but I am sure that is being given a lot of consideration as
20 far as other positions at the plant are concerned, health
21 physicist, instrument mechanics, maintenance people, those
22 that you cannot draw a direct line back to the Atomic Energy
23 Act that require licensing of these particular individuals.

24 But to my knowledge, in the program we have never
25 looked at board certification in lieu of licensing, because

1 the law mandated that we license these people.

2 DR. MOELLER: Right, but does it --

3 DR. COLLINS: We have not looked at it.

4 DR. MOELLER: Does the law say you must give an
5 exam of three hours' duration, oral, written, and so forth?
6 I am just wondering if you might blend into your system
7 something along the lines of board certification.

8 DR. COLLINS: We have had something along that
9 line, and it has been taken out per the Commission's
10 decision on the SECY paper that was prepared. We used to
11 allow reactor vendors to certify people at the end of a
12 particular portion of their training.

13 DR. SIESS: The board certification idea is a
14 professional affair, and I think it has some problems in the
15 sense that Dade used board certification. It would be like
16 the positions, that is, basically, at a professional level,
17 and I do not think anybody would get certified now by a
18 board without meeting certain educational requirements.

19 I think some states will still give an engineer
20 registration on the basis of experience, but most states are
21 changing their requirements for professional engineer, for
22 example, to require a bachelor's degree, period, plus
23 experience, so even there the experience part of it is being
24 wiped out.

25 The other level of certification at the technician

1 type level is not professional, and I think you have a
2 problem here, because one path to SRO or shift technical
3 advisor or shift supervisor is to come up through the ranks
4 as an auxiliary operator starting out with a high school
5 education and probably never getting the equivalent of a
6 bachelor's degree, and with any professional type
7 certification he would never make it.

8 The other path is, let's say, a professional one,
9 and I am sure at the upper levels there are people that do
10 that. There must be plant superintendents who are
11 professionals. So, there are two paths, and I am not sure
12 you could ever satisfy both of them.

13 I think it is an interesting idea, but it is going
14 to be complicated.

15 DR. MOELLER: Looking again at the radiation protection
16 profession, there is the American Board of Health Physics,
17 which I am sure you are thoroughly familiar with, and they
18 in addition now have set up a technician certification
19 program, and I believe that a person could be certified
20 first as a technician, and then they progressed along and
21 took courses and so forth. Ultimately, they could be
22 certified.

23 DR. SIESS: You would have to take the courses.
24 You would have to meet educational requirements.

25 DR. MOELLER: Yes.

1 DR. MILHOAN: In reference to Reg. Guide 1.8, that
2 certification process you mentioned is recognized. It is
3 mentioned as an alternative for satisfying one of the
4 sections of that section.

5 DR. MATHIS: I have one other question. Have you
6 had INPO and comments from them on this? You do not know
7 what their thinking is relative to this same kind of thing?

8 DR. MILHOAN: No.

9 DR. MATHIS: They must be thinking about standards.

10 DR. MILHOAN: The only thing I can say is, after
11 submitting Regulatory Guide 1.8, I do have a meeting
12 scheduled -- a trip scheduled to go down to INPO in July to
13 discuss Reg. Guide 1.8, and I am sure Part 55 will come up
14 in that area.

15 DR. SIESS: It seems to me you will go a bit
16 farther than that. I am sure you will get commens from INPO
17 or associated people on the regulation. It seems to me you
18 would have solicited those, set up a meeting with INPO on
19 these changes.

20 DR. COLLINS: They just have not been formal long
21 enough, and in my few contacts with them down there, as far
22 as the training of people goes, they are so swamped with
23 work as we are on other areas.

24 DR. SIESS: If I had anything to do with INPO and
25 saw a regulation coming out that was going to have a very

1 serious impact on what I was trying to do at INPO, I would
2 want to know all about it as fast as I could, and drop
3 anything else. I certainly would not go ahead with any kind
4 of a training program without knowing what the regulation
5 was going to be, and knowing it inside out.

6 It seems to me they would be willing to discuss
7 anything. Now, there are other people in the country that
8 are thinking about these things besides this committee, that
9 have given it a heck of a lot more thought than we are, and
10 I certainly expect you to try to pick their brains.

11 DR. MILHOAN: I will repeat myself.

12 DR. SIESS: You are talking about 1.8.

13 DR. MILHOAN: Maybe we need to include Part 55 in
14 that discussion.

15 At what point in time do we involve INPO and the
16 public in this process? Is it during the public
17 comment period?

18 DR. SIESS: It is clearly during the public comment
19 period. I am not saying you should discuss this with INPO
20 before you go out for public comment, but in that process,
21 I think you should make an effort to set up a meeting with
22 them, and I would get the stuff in writing. They are a
23 resource. Let's face it. This is not an adversary
24 process. They are just as interested in running these
25 plants safely as I am.

1 DR. MILHOAN: I agree with you. They have valuable
2 experience to offer in this area, and we need it.

3 DR. MATHIS: Enough of that.

4 DR. SIESS: I have one point I want to just clear
5 up. On Page 20, in reference to -- It is 3A on Page 20,
6 about the simulator.

7 DR. WIEBE: We will discuss that later on. It is a
8 different recommendation.

9 DR. SIESS: Okay. Do you want to go ahead with
10 your presentation? All right. We take things up as we come
11 to them. We have all read this, and this is just to refresh
12 our memories.

13 (Slide.)

14 DR. WIEBE: This is Recommendation 4 in the SECY
15 79-330E letter, to establish requirements that simulators be
16 used in training programs for hot applicants,
17 Commissioners' applicants in this item. The recommendation
18 was agreed with.

19 We brought up questions on simulators for older
20 plants, what to do about the simulator which has not been
21 built yet, et cetera. We may not want to build a simulator
22 for an older plant that is going to be decommissioned.

23 Also, questioned on the Navy philosophy on the
24 simulators, on simulators for older plants, although we
25 started in Appendix B, Paragraphs 2, 3A, and 33A of Appendix

1 B, that the required applicant must have training on a
2 simulator. Exceptions can be applied for under Section 55.7
3 of Part 55, but what we are recommending proposing here is,
4 as a goal, every applicant should have training on a
5 simulator.

6 The Navy philosophy on simulators, I think, was
7 successfully answered in the letter from Admiral Rickover,
8 and that is included in Enclosure E of the letter that was
9 submitted to the ACRS.

10 DR. SIESS: That was an unusual letter. I think I
11 am going to frame my copy of it. I expected much stronger
12 and more decisive remarks from the Admiral than you got. I
13 am glad I do not have to publicly disagree with him.

14 (General laughter..)

15 DR. SIESS: What do you mean by "older plants that
16 might soon be decommissioned?"

17 DR. WIEBE: Some of the older plants have -- I
18 guess Mr. Collins would know more about this than I do, but
19 it may not be economically feasible or even desirable to
20 build a simulator.

21 DR. SIESS: How old? Are you talking about Yankee
22 Rowe?

23 DR. COLLINS: I think Lacrosse made a statement
24 that they were thinking about getting out of the business.
25 Humboldt Bay, we don't know whether they are going to start

1 up again. You are not talking about Dresden 1 or San
2 Onofre.

3 DR. MILHOAN: Yankee does not have a simulator.

4 DR. COLLINS: No, they don't.

5 DR. SIESS: I think people ought to go there and
6 see what those people are doing right. Your requirements,
7 maybe I am anticipating a little bit, will not require a
8 simulator that is an exact duplicate of the control room? I
9 am referring to Task RS15, that we looked at a few months
10 ago. But I get an impression that most of the plants are
11 going out for simulators that are exact simulators of the
12 control rooms, and probably exact simulators of their
13 plants, and that is the trend, whether or not you are
14 requiring it.

15 Am I right in that?

16 DR. COLLINS: Yes, definitely.

17 DR. SIESS: I think Link Singer told us one of
18 those things cost us about \$10 million, which compared to
19 the cost of the plant is nothing.

20 DR. COLLINS: Most of them are weighing very heavily -- They
21 know we are coming out with mandatory requirements for
22 simulators, and I think they have weighed in their mind the
23 time they will have people away from the plant to meet all
24 the requirements, and so they are saying, let's put one on
25 the plant rather than have these people off-site all the

1 time.

2 DR. SIESS: The only things we have seen coming up
3 that are reasonably standard is something like GE's nuclear
4 net, right, where GE builds the control room. Am I right on
5 the nuclear net?

6 DR. COLLINS: Right.

7 DR. SIESS: So if the plants and control rooms were
8 essentially identical, more than one plant could use the
9 simulator out at Tulsa, couldn't they?

10 DR. COLLINS: Correct.

11 DR. SIESS: Certainly they could under the proposed
12 Reg. Guide, because they would be close enough, but it
13 essentially would be as good as a dedicated one except for
14 access.

15 DR. COLLINS: Yes.

16 DR. SIESS: So standardization would help there,
17 wouldn't it?

18 DR. COLLINS: On the number of simulators, yes.

19 DR. SIESS: I doubt if it is much of an incentive,
20 though, to buy standardized plants just because you could
21 use somebody else's simulator. There have to be other
22 incentives for standardization.

23 (Slide.)

24 DR. WIEBE: I would like to point out that the type
25 of simulator to be used that was proposed in the proposal is

1 just a first cut effort at what the simulator requirements
2 are going to be. We have not made any final decision here.
3 We want to go for public comment in this area.

4 DR. SIESS: You want to relate that to Reg. Guide
5 Task RS-15, which endorses an ANSI thing which is a lot more
6 specific than the appendix is?

7 DR. WEIBE: They are two different items. The
8 simulator regulatory guide only states the relationship of
9 the simulator to its reference plant, and we are not stating
10 that in order to be trained on a simulator, the simulator
11 has to have a reference plant that is the same as your
12 facility.

13 That is an entirely different question which needs
14 to be addressed in Appendix B.

15 DR. SIESS: Yes, but Appendix B says you want to be
16 trained on a simulator which has a reference plant similar
17 to your plant. That is, if it is a PWR, you train on a PWR
18 simulator. Right?

19 DR. WIEBE: Right.

20 DR. SIESS: And the same level of control room, and
21 the same type of steam generator?

22 DR. WEIBE: Right.

23 DR. SIESS. But now once I have said -- once I have
24 said that, the next thing for me to do is look at a Reg.
25 Guide.

1 DR. WIEBE: Yes.

2 DR. SIESS: Do you expect to go farther than that?

3 DR. WIEBE: No.

4 DR. SIESS: So the Reg. Guide is ahead of you. It
5 is already out for comment.

6 DR. WIEBE: It will be out for comment at the end
7 of June.

8 DR. SIESS: It has been through this committee.
9 Unless you move a lot faster on this than you move on the
10 Reg. Guide --

11 DR. WIEBE: We expect the Reg. Guide --

12 DR. SIESS: You expect the Reg. Guide to set the
13 standard minimum as of now?

14 DR. WIEBE: Yes.

15 DR. EBERSOLE: Mr. Chairman, may I ask a question?

16 DR. SIESS: Yes.

17 DR. EBERSOLE: I have been reading this in the
18 context here, mostly attempting to try to find out the
19 nature of the training program rather than how it is going
20 to be gotten, and I guess I can focus on this by looking at
21 the two accidents we have had, Browns Ferry and TMI 2.

22 DR. SIESS: This is a Reg. Guide on training
23 programs.

24 DR. EBERSOLE: Are we going to talk about the
25 nature of simulators in the context of what they cover in

1 their scope?

2 DR. SIESS: No, not here.

3 DR. EBERSOLE: This type of simulator to be used,
4 is that narrowly defined?

5 DR. SIESS: That is on Page 20, and it is more
6 narrowly defined in the Reg. Guide we considered in April,
7 but this regulation only says that there shall be training.
8 There will be a Reg. Guide, or there is a Reg. Guide on what
9 the training shall cover, right?

10 DR. COLLINS: Yes.

11 DR. EBERSOLE: So we are not going to get into the
12 caliber and quality of the training?

13 DR. SIESS: No, not here.

14 DR. COLLINS: We want to stay -- In Part 55, we did
15 not want to address the nitty-gritty details of a simulator,
16 because it is not a simulator standard. It is a regulation
17 to a man. This is what you must do to get a license.

18 DR. EBERSOLE: My questions will still be
19 pertinent. With the kind of training that we have here
20 going, what are we going to do to teach operators to do in
21 essence what they did do at Browns Ferry, to devise ways and
22 means to find methods of cooling the core under highly
23 degraded circumstances? Is the training program
24 oriented -- going to be oriented quite differently from the
25 way it used to be, when the operator had the prerogative of

1 believing there would always be a system available to him to
2 serve its purpose?

3 DR. WIEBE: Part 55 does not address that.

4 DR. EBERSOLE: We would have to cover that in other
5 places.

6 DR. SIESS: All the regulations will say is that a
7 person must have certain educational levels, certain
8 experience levels, and so many years of training, and that
9 it must be on a simulator. That is the only change here
10 now, essentially, that it must be on a simulator.

11 DR. EBERSOLE: The simulator may or may not be
12 capable of doing the training I am talking about.

13 DR. SIESS: That is addressed somewhat more in a
14 Reg. Guide that we reviewed on April 30th. I don't know
15 whether you were here or not.

16 DR. EBERSOLE: I was here, yes. I guess I am
17 getting back to my old topic.

18 DR. SIESS: It is not appropriate now. The
19 implementation will be in the Reg. Guide at one stage, and
20 it will be by Mr. Collins' group at the next stage.

21 DR. MILHOAN: You made one comment about the
22 simulator Reg. Guide, and I think listening to the
23 discussion, it was clear to me the relationship of what I
24 think the simulator Reg. Guide is and this regulation
25 concern. The simulator Reg. Guide, the way I understand it,

1 if you are going to build a simulator for a reference plant,
2 this is what the Regulatory Guide addresses, as to how to
3 build that simulator, as applied to one particular reference
4 plant.

5 Now, the regulation says if you are going to use a
6 simulator in a training program, and you, let's say, do not
7 have a simulator for your plant, what is the quality of the
8 simulator to be used in the training program? The
9 regulation defines that quality.

10 DR. SIESS: I think that is a good point. If I
11 have a B&W PWR, the regulation says I must use a PWR
12 simulator that simulates a once-through steam generator, and
13 that has a level of control room, whether it is ICS or
14 whatever, a level of control -- If I have an ICS plant, it
15 has to be an ICS reference plant, but I do not have to have
16 one that is identical to my plant. That is all the
17 regulation says.

18 DR. COLLINS: Right.

19 DR. SIESS: It has to be essentially a B&W
20 simulator with an ICS.

21 DR. COLLINS: Right now there is a caveat in
22 there. This is only a first cut.

23 DR. SIESS: I am talking about what is here. Now,
24 the Reg. Guide says that that simulator, if it does relate
25 to a reference plant and is not a generic B&W simulator, has

1 to bear the following relation to the reference plant, and
2 this says it does not have to be a reference plant. It
3 could be a generic simulator, according to the regulations.

4 DR. WENZINGER: It does not have to be identical?

5 DR. SIESS: It does not have to have a reference
6 plant, does it?

7 DR. COLLINS: It does not say it here, but in order
8 to build a simulator we will approve, it does have to have a
9 reference plant.

10 DR. SIESS: Why don't the regulations say so?

11 DR. WIEBE: We don't see any problems.

12 DR. COLLINS: I don't see the problem.

13 DR. SIESS: I can visualize a generic type
14 simulator that does not agree with any specific plant.
15 Somebody could finagle the codes. I agree that if you build
16 one, you probably go to find your ECCS codes and so forth
17 for some plant that has been licensed, and that is what the
18 Reg. Guide addresses.

19 DR. COLLINS: The process of building a simulator
20 starts with a particular utility saying, build a simulator
21 that models this particular plant, and now other people can
22 use the simulator.

23 DR. SIESS: If we accept what people do, we don't
24 need regulations. The regulations assume they will not do
25 something that tells them what they are supposed to do. If I

1 sound like a lawyer, I apologize. Not to the lawyers. To
2 the engineers.

3 (General laughter.)

end b

4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

t7
lws jl
t6

bfml

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 MR. MATHIS: We can accuse you of being a lawyer
2 anyway.

3 DR. SIESS: This may mean that it does not say that.

4 MR. WIEBE: Yes. I think you are right. I think that
5 the simulator we use should have a reference plant to compare its
6 characteristics with.

7 MR. WENZINGER: That clearly implied in the reg guide.

8 DR. SIESS: Yes, but the point you just made is that
9 the reg guide does not -- its relation to the rule does not
10 require the reference plant.

11 MR. WIEBE: I think we can revise that to put that in
12 there.

13 DR. SIESS: Maybe it is impossible to build one without
14 it, but I am not sure. I thought a lot of things were impossible
15 a year or so ago.

16 (Slide.)

17 MR. WIEBE: Recommendation seven of SECY 330E was in
18 addition to the present operator requalification program require-
19 ments, all licensees should be required to participate in
20 periodic retraining and recertification on a full-scope simulator
21 representative of their facility.

22 It required annual recertification on a simulator and
23 recertification on a simulator following four months of licensed
24 duty inactivity.

25 Commissioners' action on this item was recommendation

bfm2

1 accepted. Chairman Ahearne additionally stated that he thought
2 they should requalify for a license, if they have had six months
3 of licensed duty inactivity.

4 (Slide.)

5 To incorporate this recommendation into the proposal
6 before the ACRS, paragraph 3-E of Appendix A to 10 CFR Part 55
7 was revised to require requalification training on a simulator.

8 We referenced the type of simulator back to Appendix
9 B to make sure they are all the same.

10 DR. SIESS: I am getting a little confused. There is
11 a Roman three, there is an Arabic three.

12 MR. WIEBE: This is Appendix A.

13 DR. SIESS: I think I am in Appendix A. That is an
14 Arabic three and that is a capital E or a small E?

15 MR. WIEBE: That should be a small E.

16 DR. SIESS: That is a small capital E. Okay, we will
17 buy that.

18 (Laughter.)

19 MR. WIEBE: It is page 17 of the proposed reg.

20 DR. SIESS: You left out the Roman, so that is why I
21 got lost. Okay, I see. That appendix does not have it. Is it
22 completely hopeless to get people to use Arabic numerals with
23 decimals like engineers do, instead of something that is over
24 2000 years old?

25 (Laughter.)

1 Or is this mandated by the federal government for the
2 code of Federal Regulations that you use Romans, Arabics, et
3 cetera?

4 MR. HILL: In the code of Federal Regulations, there is
5 a standard that says what you must use. We do not have that
6 same standard applicable to regulatory guides.

7 DR. SIESS: The standards applicable to the regulatory
8 guides are equally deplorable.

9 (Laughter.)

10 I am looking forward with a great deal of anticipation
11 to the implementation of the PPPG document that says things will
12 be written in plain English. I hope there is a recruiting
13 program under way to find the people that can do it.

14 MR. WENZINGER: For the Chairman's information, there
15 is a course currently being given in instructing the people to
16 write reg guides in plain English. Both Mr. Wiebe and Mr.
17 Milhoan are enrolled in that course.

18 (Laughter.)

19 MR. MATHIS: We will judge their progress the next
20 time around.

21 (Laughter.)

22 MR. WENZINGER: It is before and after.

23 DR. MOELLER: Looking back at the previous slide --

24 DR. SIESS: If you look at the style book they provided
25 you with, it is a beautiful document.

m4

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

DR. MOELLER: What was your justification for the four months, and what was the Chairman's argument for six months?

(Slide.)

MR. WIEBE: He agreed with the recertification on a simulator following four months of licensed duty inactivity. He felt, in addition to that, they ought to be required to requalify for a license if they have six months of licesned duty inactivity.

DR. SIESS: That is a requalification. Okay.

(Slide.)

MR. WIEBE: Okay. Paragraph 4.A of 10 CFR Part 55 was revised to require an annual practical examination on a simulator. The fourth paragraph of the introduction to Appendix A was deleted because it implied that the use of the simulator was optional in the requalification program.

Paragraph 55.31(e) under condition of licenses was revised to require recertification on a simulator after four months of licensed inactivity.

DR. SIESS: Are we still on seniors, or are these just operators?

MR. WIEBE: This is for both.

DR. SIESS: These are for both.

MR. WIEBE: Requalification in Appendix A covers both licenses.

DR. SIESS: I guess I can see how an operator at the controls can get rusty after being off for four months. It is

1 a little hard to see how an SRO -- except if he has really been
2 off and has not been reading LERs. There may be things he needs
3 to be brought up to date on.

4 MR. WIEBE: I think the intent here is to ensure that
5 he recognizes the way the plant will respond.

6 DR. SIESS: Changes in the plant.

7 MR. WIEBE: Not just that he knows where all the swit-
8 ches and stuff are, but he knows the way the plant will respond.

9 MR. COLLINS: Nothing in the regs prohibit the senior
10 operator from manipulating the controls. In many plants, they
11 have upgraded their staff so that -- and encouraged their opera-
12 tors to get a senior license. It gives them flexibility even
13 though the man's primary duty is still on the board.

14 (Slide.)

15 MR. WIEBE: In the correction hand-out I gave you, the
16 third correction item was we changed Appendix A to allow expansion
17 of the required number of control manipulations. This is in
18 response to the March 28th letter to the licensee.

19 (Slide.)

20 Recommendation eleven, SECY 79-330E recommended
21 applicants for operating and senior operator licenses should be
22 examined in a nuclear power plant simulator. The Commissioners'
23 action was recommendation accepted.

24 The incorporation was by changing Section 55.23 to
25 require the use of a simulator during the operator test. This

1 is also for the senior operators also.

2 (Slide.)

3 DR. MOELLER: Speaking of plain English, the first
4 line says, "Should be examined at a nuclear power plant simulator."

5 Does that just mean it just has to be in the room when
6 they are being examined?

7 MR. WIEBE: No, it does not.

8 (Laughter.)

9 DR. MOELLER: I would have said "Examined using it, or
10 on it."

11 DR. SIESS: I do not know what the wording says -- the
12 wording in the regulation is probably different. It may be
13 a paraphrase. It's in 55.23, if you can find it.

14 MR. WIEBE: It says, "The listed items for use of a
15 simulator" -- it should be nuclear power plant -- using the same
16 kind of simulator as required by Appendix D.

17 DR. SIESS: That is this shorthand up there so --

18 MR. WIEBE: This is an exact quote of the --

19 DR. SIESS: Okay.

20 MR. WIEBE: One of the recommendations.

21 (Slide.)

22 DR. SIESS: You had a slide up there, the one before
23 that.

24 (Slide.)

25 DR. SIESS: You skipped one. It says "type of simulator

1 to be used."

2 MR. WIEBE: We discussed that a while ago.

3 DR. SIESS: Who is the contract with?

4 MR. COLLINS: That is with Analysis and Technology,
5 Incorporated, out of Stonington, Connecticut.

6 DR. SIESS: What are they; builders of simulators?

7 MR. COLLINS: They are a consulting outfit. They
8 have done a lot of work for the Navy and a lot of work for the
9 Coast Guard.

10 DR. SIESS: On training?

11 MR. COLLINS: On training and education. We selected
12 them to take a look at our overall program, including use of
13 simulators.

14 DR. SIESS: You do not think their Navy work will
15 prejudice them?

16 MR. COLLINS: The only other people to go to would be,
17 as you mentiond, simulator vendors. They would be prejudiced;
18 so we stood away from them.

19 MR. WIEBE: Okay.

20 (Slide.)

21 The last three recommendations, four, seven and eleven,
22 concern a simulator, so I grouped them all together.

23 Recommendation nine of SECY 79-330E recommended an
24 increased level of confidence in the effectiveness of requalifi-
25 cation programs; should be provided by the NRC by administering

bfm8

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

annual requalification examination.

The recommendation stated that the NRC should administer about ten percent of the annual examinations. The Commissioners' action was that the NRC shall conduct all requalification examinations.

They also recognized that the implementation of this will be extensive because of the significant resources involved.

DR. SIESS: This is for requalification? NRC now gives the original examination?

MR. WIEBE: Right.

DR. MOELLER: Who gives the others; the requalification?

MR. COLLINS: The utilities, presently.

MR. WIEBE: To incorporate this recommendation, we changed paragraph 4.A of Appendix A Part 55 to state that the NRC will administer the annual written, oral, and simulator examinations.

(Slide.)

This is a requalification program. The next item there for implementation of this action, we said that NRC may direct specific facilities to administer the examinations. So, that is until the NRC develops the needed resources.

DR. SIESS: Are the words "May direct or delegate," what is the word?

MR. WIEBE: Direct, so that NRC would have to specifically have to state to the facility that they have to administer

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

their requalification examinations.

DR. SIESS: Is there legally a difference between direct and delegate?

MR. WIEBE: I don't know.

MR. WENZINGER: I think it has the same effect.

DR. SIESS: Okay. It just seemed a little strange. Go ahead.

MR. WIEBE: Section 55.31 requires, as a condition of license, that the operator satisfactorily complete the annual examinations.

(Slide.)

Recommendation ten of 330E, the scope of the written examination should provide increased emphasis on understanding of thermodynamics and related matters. The recommendation was that the same categories that now exist be used and just expanded.

Commissioners' action was to create new categories.

DR. SIESS: Name one related matter for me so I know what we are talking about.

MR. WIEBE: Like I say --

DR. SIESS: I could never get that course description through my department.

(Laughter.)

bfm9

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

t7

dsp flws

t8

6/4
NRC-ACRS

d r&t
tape 8

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

MR. WIEBE: That is a quote of the recommendation.

DR. SIESS: I know, but what does it mean?

MR. WIEBE: We incorporated recommendation 10 as follows: Section 55.20 states the increase in scope of the operator test, and I do not believe it uses related matters in there. Sections 55.21 and 55.22 provide an additional category for this area, and are regrouped to be consistent with the present examination content.

(Slide)

Okay. That concludes the recommendations of SECY-330E that were applicable to the regulation change.

However, in our review of the Part 55, we discovered several items we felt should be changed. The first one is under license expiration. In the present regulation, the present regulation would allow an extention of the license expiration date during the NRC review of the renewal applications.

This would allow the operator to perform license duties beyond the original expiration date before the Commission fully determines the acceptability of the renewal application.

In discussions of this problem with the operator licensing branch, we discovered in some cases extensions are necessary just for completing minor portions of the medical evaluation.

We should not eliminate this allowance in its entirety, so we proposed that the regulation be changed to limit the

dsp2

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

extention to a maximum of six months.

DR. MOELLER: Does this occur once a year?

MR. WIEBE: The license is a two year --

DR. MOELLER: So every two years, it will extended up to six months?

MR. WIEBE: I do not believe -- I believe that six month period is with respect to the original date. Is that correct? When you issue a relicense after this period, does it start on the day you issue the license or does it start on the day it would originally would expire?

MR. COLLINS: If for some reason the processing of a renewal application goes over 30 days, then we will give a new effective date. If we get it within a 30 day period, we use the previous effective date.

MR. MATHIS: What about cases where people are on vacation or ill or --

MR. COLLINS: In the case of a Three Mile Mile, we ran months and months on renewal applications. We just did not have the staff to look at them. So half the industry would have been shut down.

MR. WIEBE: Okay.

The second to the last item was the licenses for similar facilities. The present regulation implies in 55.11(c) that operators' servidcs may be utilized on a facility that is similar to the facility for which he is licensed. Present licensing

1 practice does not allow this, and so we just proposed to delete
2 the implication.

3 And we did discover, however, that in some cases, an
4 operator may be licensed on more than one facility. And it is
5 stated so in the license itself; so the definition in 55.4(c)
6 includes the concept of licensing at more than one facility.

7 DR. SIESS: But your practice has been that if he has a
8 license to operate at one facility and, say, a second unit at
9 the site is almost identical, he can be licensed on the second
10 one if he is examined for the differences.

11 MR. COLLINS: No, he is required to take a complete
12 examination for the second unit.

13 DR. SIESS: A complete examination, not just on the
14 differences?

15 MR. COLLINS: No, no, a complete examination; this is
16 sort of built into NRC giving the requalification exams every
17 year. I am sure we will get where we are giving the requalification
18 exam every year; if two months after he takes our requalification
19 exam he applies for a license on a second unit, then we probably
20 would waive examinations for him.

21 DR. SIESS: Because I can visualize instances where there
22 are two units at the site that differ by small amounts; I think
23 Salem 1 and 2 are a reasonable example of that where in the course
24 of a year there might be changes made in one unit and not in the
25 other that might be bigger differences than they had to start

dsp4
1 with; that would not affect his license until he came up for --
2 For instance, he might go eight months on one that was different
3 by that much.

4 MR. COLLINS: In the regulations --

5 DR. SIESS: Now, if he is as intelligent as you want
6 him to be, that should not make any difference.

7 MR. COLLINS: If we have a decent requalification
8 program going, then he would have been taught those differences.

9 DR. SIESS: It is a little inconsistent, but I
10 assume intelligently applied, it might work out all right.

11 That concludes your presentation?

12 MR. WIEBE: That concludes the presentation.

13 DR. SIESS: We have discussed a number of items at
14 some length. Does anybody have anything they want to discuss
15 further at this time?

16 Let me see if I do.

17 MR. MATHIS: I have one question on the operator
18 license. That was after you go through the requirements for
19 training it talks about thermodynamics and other such good
20 topics. And then the inference is that you are going to test
21 the man by simple calculational problems showing understanding
22 in the area, and that to me is taking things a little far.

23 I can't imagine an operator without a lot of technical
24 education being able to sit down and do some heavy calculations
25 in thermodynamics. I do not know what these words mean, but I

1 am making an intepretation; it seems to me there could be an
2 understanding without resorting to calculational proof.

3 MR. WIEBE: I think the calculations show understanding
4 in the area. We did say simple calculations.

5 MR. MATHIS: That may be true, but the man can
6 understand without having the mathematical knowledge to do the
7 calculations.

8 MR. WIEBE: We are not talking about calculus here. We
9 are just talking about simple division, multiplication.

10 MR. COLLINS: We did not want to eliminate the chance
11 that we may have small problems to work out from data sheets.
12 He may have to use those to determine if he has natural
13 circulation and various things such as this. We did not want to
14 shut the door on it.

15 It is true that a good many of our tests for the
16 operators in theoretical areas are on a qualitative basis,
17 qualitative type questions. We do not want to preclude the
18 quantitative questions if the need arises.

19 MR. MATHIS: Okay. You just want that option; it is
20 pretty vague, that's all.

21 DR. SIESS: I have a question. On page 16 of what you
22 gave us -- it is paragraph 55.33(c); "the license will be
23 renewed if the Commission finds that:" and there are two
24 items here which, you know, sound great, but I do not know quite
25 what they really mean.

dsp6

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

The first one says, "The physical condition and the general health of the licensee continue to be such that they will not cause him to make operational errors which might endanger public health and safety."

I admit this does not refer to his mental health.

MR. MATHIS: Yes, it does.

DR. SIESS: It says general health. I don't know whether that means mental.

MR. COLLINS: Yes.

DR. SIESS: For example, I guess by any standard we would have to say that the operators at Three Mile Island Unit 2 made operational errors which might endanger the public health and safety. They did not endanger it, but they might have. You know, what characteristics of general health caused him to make those errors so we can judge whether he can get another license?

MR. COLLINS: I have asked that that particular language there be changed. I looked at it as a possible finding to make.

DR. SIESS: The previous wording was continue to be such as to cause operational errors, which was not much better. What do you propose to change it to?

MR. COLLINS: Back to the language that we had in the original one.

DR. SIESS: Such as not to cause.

MR. COLLINS: I would have to get out the entire

dsp7

1 document, but the way it is worded, to me, it is an impossibility
2 to make that finding.

3 I could make this finding based on the medical reports
4 that are sent in. What we are really looking for here is --

5 DR. SIESS: This is a license renewal. Let's assume
6 the man has made an error and you do not know the cause of the
7 error.

8 Is that sufficient to deny renewal?

9 MR. COLLINS: No, sir.

10 DR. SIESS: Only if you can attribute that error to
11 his physical condition or general health. If it was just stupid,
12 that is not a good enough reason.

13 MR. COLLINS: That does not fall into this particular
14 paragraph.

15 DR. SIESS: Let's take the next item, because I have
16 a similar problem, which may be not the same and it may be
17 answerable.

18 "The licensee has been actively and extensively engaged
19 as an operator or as a senior operator under his existing license,
20 has discharged his responsibilities competently and safely, and
21 is capable of continuing to do so."

22 Who determines whether he has discharged such
23 responsibilities competently and safely and how does he determine
24 it? Is this performance -- past performance?

25 MR. COLLINS: This is done by a review of the application

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 to see that he has participated in the requalification program
2 satisfactorily, and that -- well, this is the way we are doing
3 it. We also have set up a system of checking on operator
4 errors. We are in the procedure of really formalizing it with the
5 I & E inspectors.

6 DR. SIESS: That would name the operator.

7 MR. COLLINS: That would name the operator to me so his
8 application would be flagged and we could see that additional
9 training be given to that man.

10 DR. SIESS: That is within the LER program?

11 MR. COLLINS: Yes.

12 DR. SIESS: I could argue that even if it has been
13 corrected, this says, has discharged his responsibilities
14 competently and safely and is capable of continuing to do so.
15 It does not say, or is capable. So if he has not discharged
16 his responsibilities competently and safely, no matter how well
17 he has been retrained, he cannot get his license renewed. I
18 do assume he could apply for a new one.

19 But to me this says if he has not discharged his
20 responsibilities competently and safely, he is not entitled to a
21 renewal, not matter what corrections have been made.

22 MR. COLLINS: One error or a series of errors does not
23 mean the man is incompetent.

24 DR. SIESS: No.

25 MR. COLLINS: It depends on the severity of the error,

dsp9

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

and includes lack of correction taken.

DR. SIESS: I do not think the corrective action is permitted by these words.

MR. COLLINS: I will leave that up to the standard writers.

MR. WIEBE: I guess that once somebody has determined that he is not competent in safely operating the plant, then you are right, there is no provision for having him retrained.

DR. SIESS: You see, this to me is pretty important because experience on the job -- you know -- I mentioned earlier the screening process; how do you get rid of the people who are not good.

How do you get the good ones to come to the top? Here is a way; actual performance on the job is evaluated by somebody, and he can be denied renewal for it.

MR. COLLINS: Excuse me, on the following page -- do you want to say what we have done on that?

MR. WIEBE: That one, we have changed that; item four of the corrections we have handed out, it changes it so the applicant does not have to reapply for a license if the requirements of ii above that have not been met.

MR. COLLINS: I think that addresses your concern. It says, if we make those two findings then we can give a man an examination before we give him his license.

DR. SIESS: It says, if the requirements -- let's take

dsp10

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

the second paragraph.

If he has not discharged his responsibilities competently and safely, that means the requirements are not met, that the Commissioner may require the applicant for renewal to take additional training or examinations or both.

MR. COLLINS: This should address your concern. If the man is shown to be incompetent -- that paragraph I first read says that if he has shown himself to be incompetent -- I will use those words as a paraphrase -- he does not get a license.

It says that is a finding you have to make to renew the license without re-examination. We will renew his license without re-examination if we can make findings 1, 2(i), 2(ii).

If we cannot, then 2(iii) gives us the right to give him an examination prior to renewing his license.

DR. SIESS: When you say "renew the license," that is not the same as requalification.

MR. COLLINS: That is being done continuously. Right. This is -- we now have his application in front of us and we say that based on the evidence in this docket we cannot renew his license unless we go out and take another look at this man.

end 8

t9
f s dsp
t8

bfml

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

DR. SIESS: I guess so. It really gives you an out.

It gives you a basis for not firing him because you would be required not to renew his license if he was found to be incompetent.

MR. COLLINS: If we did not have that item three in there.

DR. SIESS: It was stronger without item three.

MR. COLLINS: Yes. This gives an opportunity to take another look at the man.

DR. MOELLER: On your rewrite of page 17, in the middle of the page, you have deleted four lines, but you left in footnote 16 which refers to what you have deleted.

DR. SIESS: What page was that, Dade?

DR. MOELLER: 17.

MR. WIEBE: That just explains why we deleted it.

DR. SIESS: Yes, that explains the deletion.

DR. MOELLER: Where does the footnote 16 go?

DR. SIESS: The footonotes are for our use, not for the regulations.

DR. MOELLER: The footnotes will not be in the final?

MR. WIEBE: No, they will not be in the --

DR. SIESS: They are for our information?

DR. MOELLER: I understand.

DR. SIESS: Anything else on the proposed rule? Does anybody have any objection to the staff issuing the rule for

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

comment?

DR. MOELLER: I have one comment. Before they issue it, the dictionaries in Boston spell "accommodate" with two m's.

DR. SIESS: How many c's?

DR. MOELLER: Several c's.

(Laughter.)

MR. MILHOAN: Is that a 70 percent c?

DR. MOELLER: It is in here several times.

DR. SIESS: Okay. You have our approval to go out for comment. We will look forward, I think, with interest to what comes back. We will try not to forget this when we look at the reg guide that goes with it.

I assume it would be appropriate to take a short break at this point.

(Recess.)

DR. SIESS: The meeting will reconvene. I would like to take up an administrative matter, briefly, before we go to the next item.

Last month, the Chairman of the ACRS wrote a letter to the acting executive director of operations, commenting on the numbering system that we have been confronted with, the task number as an identification for the guide to go along with the 1.XXX.

The fact that the reg guide number was not assigned until the post-comment -- the actual effective guide was pub-

bfm2

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfm3

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 lished. The technical objection we had to that was the trace-
2 ability or accountability which we thought violated sort of
3 elementary QA procedures, as we understood them.

4 It certainly loused up our ability to follow things
5 through, because once the guide was issued, it had a guide
6 number. Prior to that, it had an RS number. There was no easy
7 way of keeping track of this.

8 We got a rather lengthy response back from Mr. Dircks,
9 and leaving out a lot of stuff that is not particularly pertinent,
10 and we will get copies of this for the members of the subcommittee
11 and the full Committee, he says that "In order to ensure the com-
12 plete records of the history and development of the guide are
13 maintained, we are now including the task number in parentheses
14 directly under the regulatory guide number on each active guide."

15 Now, that means the task number will follow this thing,
16 not only to standards through the pre-comment stage, through the
17 next stage, but when it is issued as effective, there will be
18 a task number on the guide.

19 I assume that task number will stay all through all
20 revisions. Is that right?

21 MR. HILL: That is correct.

22 DR. SIESS: That satisfies the technical objection. I
23 guess they have a good reason for not wanting to assign reg
24 guide numbers at the beginning and not get them out of order,
25 et cetera. I note a further statement made by the acting

1 executive director.

2 "It should be noted that the above procedure for
3 assigning a regulatory guide series number only after an
4 official staff position has been reached has not been changed
5 since the regulatory guide series was initiated in 1972."

6 I am not impressed by that. I would hate to defend
7 that position before the Kemeny Commission, or the Rogovin
8 Inquiry Group, or the Commission itself in view of the current
9 Agency's feeling for a need for change.

10 I mention it in passing. I knew it. I did not think
11 it was a very good reason. Incidentally, 1.XXX will be dropped
12 in the future, we understand. It will now carry nothing but an
13 RS number until it is issued, then it will be regulatory guide
14 1-something-something-something, and RS underneath it.

15 MR. HILL: The letter said precede the number, like
16 RS that you mentioned signified the branch of standards which
17 has the responsibility for that task.

18 So, the letters will carry, depending on the particular
19 branch.

20 DR. SIESS: That is interesting. I am glad to know
21 that. Remember that, Sam, and we will know who to talk to.

22 MR. HILL: That is another advantage of using the
23 task number. Then, when you have the task number, you know what
24 branch to go to.

25 DR. SIESS: I guess so.

(Laughter.)

That is Mr. Duraiswamy's job. Does the subcommittee have any objection to accepting that somewhat reluctantly?

We will get that to the full Committee. I will report on it.

The next item of business is regulatory guide that has a number, it does not have a task number. So, I guess that simplifies that.

MR. BERATAN: I can give you the task number on it.

DR. SIESS: Regulatory Guide -- what will be Regulatory Guide 1.23 Revision 1. It started out as a safety guide. I thought maybe after the comments from the Kemeny Commission that we would change regulatory back to safety, since they pointed out they were not necessarily the same thing.

We asked a consultant to comment on this guide and give us and you the benefit of his comments. Said consultant being Mr. Frank Gifford, a former member of the Committee, and one who didn't know how to write in plain English.

Maybe we ought to get him back.

(Laughter.)

Frank is now retired, if you did not know it. I don't know how retired he is, since his letter came from Los Alamos. We sent you a copy of his comments, or sent them to Bill Morrison yesterday.

Did you get them yet?

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfm5

86
1 MR. BERATAN: We have them.

2 DR. SIESS: We have some written comments from Dr.
3 Moeller who is here to present his arguments in person, if he
4 wishes. They did agree on the delta t -- delta-theta thing.

5 Incidentally, did you send them the original on Gifford,
6 because there were some errors in typing. He spells better than
7 that.

8 First, I should say that Mr. Gifford's first comment,
9 I think, is quite important to the Committee. He agrees with
10 the staff's evaluation that a revision is required. I don't
11 guess there is any argument about that, though. That was what,
12 1972?

13 We have come a long way, haven't we? Do you have a
14 presentation you would want to make on 1.23?

15 MR. BERATAN: Yes, we do, Dr. Siess. I would like to
16 introduce Leta Brown who will make the presentation on the
17 revision of this guide. Bob Kornasiewicz will give us the
18 back-up on it.

19 Leta, would you like to start, please?

20 DR. SIESS: This is a highly technical area, but I
21 think Dr. Moeller is reasonably knowledgeable in it from the
22 nature of his comments.

23 DR. MOELLER: Let me enter in the record that the
24 comments which I hope can be passed on to the staff are a blend
25 of some of my thoughts. Primarily, the technical input on them

1 was provided by Dr. John Spengler, S-p-e-n-g-l-e-r, who is the
2 meteorologist in the same department that I am in at Harvard
3 University.

4 DR. SIESS: Maybe that change is what I wanted to say.
5 What I was getting at is this is quite technical and I am not
6 sure that, then, in view of what Dr. Moeller said, that any of
7 us here are all that knowledgeable about the technical details
8 and the technical facts.

9 I would suggest that you orient your presentation to
10 objectives rather than the technical details. If you prefer,
11 we could open it to questions that will tend to be less technical
12 than Mr. Gifford's or the ones from Dr. Spengler.

13 I do not really expect a detailed response from the
14 staff on the written comments you got. In the first place, you
15 have gotten them much too recently. In the second place, as
16 Mr. Duraiswamy indicated, we really expected you to handle those
17 along with the other public comments, respond to them.

18 MR. BERATAN: That is what we would prefer to do.

19 DR. SIESS: You can get a more reasonable response.

20 MR. BERATAN: I would like to go along with our
21 original plan and let Leta give the presentation, which is not
22 too technical. I think, about the right level for the expertise
23 here.

24 DR. SIESS: You know about our level, so go ahead.

25 (Laughter.)

1 It varies quite a bit, as you might know. Our comments
2 are not necessarily proportional to our knowledge.

3 (Slide.)

4 MS. BROWN: The timing of this proposed revision of
5 Regulatory Guide 1.23 Meteorological programs in support of
6 nuclear power plants is in response to a request from the Office
7 of Nuclear Reactor Regulation.

8 This request identified an urgent need to strengthen
9 guidance in the area of meteorological measurements in support
10 of an emergency preparedness, particularly in light of the
11 current rulemaking effort in response to the Three Mile Island
12 incident.

13 Regulatory Guide 1.23 was originally issued as Safety
14 Guide 23, On Site Meteorological Programs in 1972. Since issu-
15 ance, this guide has never been revised.

16 Recent staff experience during the incident at Three
17 Mile Island has shown their capability to assess meteorological
18 data from locations off site should be an integral part of the
19 meteorological program during the operational phase of the
20 nuclear power plant.

21 This revision of the guide includes such a recommenda-
22 tion which the current guide does not. Additionally, changes in
23 the state of the art and meteorological measurement technology
24 have outdated some of the information provided in the current
25 guide.

fm9

1 Federal Regulations require that meteorological condi-
2 tions at nuclear power plants sites be considered in order to
3 assess siting, plant design, and emergency preparedness planning,
4 and environmental factors. In addition, it is necessary that the
5 licensee establish and maintain a meteorological measurements
6 program capable of rapidly assessing critical meteorological
7 parameters for determining when measures should be considered
8 to protect the public health, safety, and property.

9 Thus, at each nuclear power plant site, there are
10 multiple needs for programs which will adequately measure and
11 document basic meteorological data. Regulatory Guide 1.23
12 Revision 1 which describes meteorological programs acceptable
13 to the NRC staff for providing these meteorological data
14 incorporates several changes, which I would like to highlight.

15 The current guide is entitled "On Site Meteorological
16 Programs." The title of Revision 1 is "Meteorological Programs
17 in Support of Nuclear Power Plants."

18 This change is made to clarify two points. First,
19 meteorological towers and masts used to divine atmospheric
20 conditions in the site vicinity should have locations and
21 exposures which are indicative of meteorological conditions in
22 the region of the plant site for which definition is needed.

23 Such towers, or masts, could be located off the nuclear
24 power plant site. Second, the title change also explicitly
25 states that the guide is intended for use with nuclear power

bfml0

300 7TH STREET, S.W. , REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 plants, although portions of the guide may be applicable to
2 other nuclear facilities, such as millin and fuel cycles opera-
3 tions.

4 Guidance for these facilities will be developed sepa-
5 rately. An attempt was made in this revision to more clearly
6 differentiate the function of the preoperational and operational
7 meteorological programs.

8 For the preoperational program, 90 percent data capture
9 is acceptable, presuming there is not accepted outage so as to
10 make the data period non-representative. For the operational
11 program, the 10 percent gap that potentially exists due to
12 failure of the primary system is to be filled by a back-up
13 system or procedure to assure continuous data avialability.

14 For the preoperational program, in some specific
15 cases, there may be a need for secondary towers or masses to
16 better represent complex mesoscale conditions. For the opera-
17 tional program, the backup system or procedure may be drawn from
18 the secondary towers or masts, provided they are representative
19 of the primary tower.

20 Consider the case of a simple non-meandering valley
21 site in which there are three meteorological towers. The primary
22 tower is located in the valley. A second tower is located at
23 a nearby offsite location in the valley. The third tower is
24 located on the ridge which forms one of the valley walls.

25 In the event of an instrument failure on the primary

bfml1

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 tower, sensors on the secondary tower may provide useful meteorological data. Measurements made on the tower located on the
2 ridge would not be expected to be similar to the two towers in
3 a typical non-meandering valley, since the two towers measure
4 air flow outside of the valley.
5

6 For the preoperational program, the use of lateral
7 wind fluctuations is not required, but is one of several alternatives to the method of determining the stability of parameters,
8 reporting evidence reports should be provided.
9

10 During plant operation and in the context of real
11 time diffusion assessments for emergency conditions, wind direction variability is an essential element in describing the extent
12 of the plume exposure pathway and estimating potential radiological doses.
13
14

15 There is no necessity for remote interrogation of
16 meteorological measurement for the preoperational program. However, for the operational program, the availability of real
17 time meteorological data is essential. Advances in the state of
18 the art with respect to meteorological towers siting and instrument placement have resulted from licensee experience with
19 meteorological measurement programs and from field tests and
20 research, which has been conducted in recent years.
21

22 This revision of Regulatory Guide 1.23 offers expanded
23 guidance in these areas.
24

t9

jl flws
t10

1 Electronics and system design have also advanced
2 considerably since issuance of the current guide for data
3 acquisition on the primary tower. A dual recording system
4 consisting of one digital and one auxiliary analogue system
5 should be used. Similarity between the systems should be
6 demonstrated.

7 Revision 1 provides recommendations to utilize the
8 capability of micro-processor systems which are greatly
9 simplified data logging, manipulation, and retrieval. In
10 order for the data to be useful, the continued quality of
11 the data must be assured. A section has been added to
12 regulatory Guide 1.23 to discuss an acceptable quality
13 assurance program, which is consistent with revisions of
14 Appendix E to 10 CFR Part 50, and Regulatory Guide 1.33,
15 which is entitled Quality Assurance Program Requirements
16 Operation.

17 As I mentioned at the beginning of this
18 presentation, the impetus for the current revision of
19 Regulatory Guide 1.23 is in response to a request from the
20 Director of Nuclear Reactor Regulation.

21 (Slide.)

22 MS. BROWN: Our effort in developing this revision
23 has been coordinated with our meteorological counterpart in
24 the Office of Nuclear Reactor Regulation, as well as other
25 persons working on emergency preparedness planning at NRC.

1 Revisions are incorporated from NUREG-0654, entitled
2 Criteria for Preparation and Evaluation of Radiological
3 Emergency Response Plans in Support of Nuclear Power Plants,
4 and Regulatory Guide 1.97, Instrumentation for Light Water
5 Cooled Nuclear Power Plants to Assess Environmental
6 Conditions Following an Accident.

7 Prior to fuel loading, all sites should have an
8 operational meteorological program to produce real time and
9 historical meteorological data. Such a program will allow a
10 determination of a dispersion of radioactive material due to
11 incidental and routine radioactive releases to the
12 atmosphere by the plant.

13 All systems producing meteorological data and
14 effluent transport and diffusion instruments at such sites
15 should have the capability of being remotely interrogated.
16 In this way, simultaneous real time meteorological data and
17 transport and diffusion estimates in the site vicinity can
18 be available to the licensee emergency response
19 organizations and the Nuclear Regulatory Commission for
20 decision-making processes.

21 These sites should have a viable backup system or
22 procedure to obtain suitable local meteorological data if
23 the primary system is out of service.

24 Regulatory Guide 1.23, Revision 1, currently
25 parallels NUREG-0654. As a result of the comments received

1 during the public comment period, which ended May 15, 1980,
 2 some changes in elaboration of the position taken in
 3 Appendix 2, Meteorological Criteria for Emergency
 4 Preparedness at Operating Nuclear Power Plants, are
 5 expected. As a result, it is anticipated that some
 6 revisions need to be made in Regulatory Guide 1.23, Revision
 7 1. Because of the reorganization within the Office of
 8 Nuclear Reactor Regulation, a few comments were received too
 9 late to be considered in the draft of Revision 1, which was
 10 submitted to you for your review.

11 The first comment which we received from the
 12 Division of Licensing in NRR states that the remote
 13 interrogation system will cost more than the \$10,000 to
 14 \$20,000 indicated in the value impact section. This cost
 15 estimate is only for micro-processor or other system for
 16 meteorological data, and prepare the data for transmission
 17 off-site.

18 This equipment is expected to be part of a larger
 19 system for making atmospheric dispersion calculations for
 20 use in dose assessments, and to transmit the data off-site.
 21 It is expected that the costs of this larger system will be
 22 absorbed by the emergency planning program.

23 The second comment states that the quality
 24 assurance recommendations are too excessive, and the
 25 Appendix B to 10 CFR Part 50 is normally applied to safety

1 grade reactor equipment. Although the meteorological
2 instruments and recorders are not classified as safety grade
3 equipment, nor does the program by itself mitigate the
4 consequences of an accident, the meteorological program has
5 the potential for providing information which can be used to
6 reduce the consequences of an accidental radiological
7 release.

8 Generic inclusion of the meteorological
9 measurements programs into the quality assurance program is
10 currently being reviewed by the Office of Reactor
11 Regulation. The third comment states that the
12 implementation section of the guide should be more
13 specific. We expect this implementation issue to be
14 resolved with respect to the implementation of the emergency
15 preparedness programs for operational nuclear power plants.

16 One additional comment which is being considered
17 prior to issuance of the guide for public comment is placing
18 the lateral wind fluctuation values, which are now a part of
19 Table 1, in a separate table to emphasize their use for real
20 time dispersion assessments, to describe the extent of the
21 plume exposure pathway, and for estimating potential
22 radiological tests, as their presentation in Table 1 may
23 appear to equate these values with a temperature change
24 method of determining stability.

25 Does anyone have any questions?

1 DR. SIESS: That comment about implementation, I
2 assume that really referred to the backfitting part of the
3 implementation.

4 MS. BROWN: Yes.

5 DR. SIESS: Because -- I have two or three sort of general
6 questions. Obviously, Safety Guide 23 has been obsolete for
7 quite some time. What has the staff been using in the
8 meantime? Is there a standard review plan item that differs
9 considerably from 23?

10 MR. KORNASIEWICZ: No, there is not. We have been
11 using 23. It is very limited in scope. However, if you
12 look at the instrumentation criteria there, the changes have
13 not been that significant. The new guide has been an
14 expansion, and with a lot of statements that were not made
15 in the old guide.

16 DR. SIESS: Let me go back a few years.
17 Originally, safety guides had a very limited scope. They
18 were formalizations of current practice -- past practice.
19 They were things that had worked. People had submitted
20 them, they had been agreed to, and this was what was
21 acceptable on the basis of experience, and what people had
22 been doing in several licensing actions, and formalized them
23 into a guide.

24 That concept disappeared, and guides now break
25 completely new ground, new requirements. The industry has

1 never seen them before, et cetera.

2 Does this come in that second category?

3 MR. MARKEE: No.

4 DR. SIESS: So you have not been just following 23,
5 because this goes well beyond 23?

6 MR. MARKEE: It goes well beyond 23. When the standard
7 review plans came along, they added to --

8 DR. SIESS: That is what I asked. You have a lot
9 more --

10 MR. MARKEE: The standard review plans elaborate a
11 lot more. They use regulatory -- the old Guide 23 as a
12 basis, but then they expand on that.

13 DR. SIESS: Does this more or less incorporate what
14 is in the standard review plan into the guide, or has it got
15 new stuff?

16 MR. MARKEE: Yes, plus --

17 DR. SIESS: One of the new items is this remote
18 interrogation, and my first thought when I saw that was,
19 this is nuclear data link. Am I right?

20 MR. KORNASIEWICZ: It is part of it.

21 DR. SIESS: It is in two parts, plant systems and
22 the radiological part. Well, it is part of the radiological
23 part, yes. I did not think the NDL had been agreed on yet.
24 Is this jumping the gun on that, or is this conditional on
25 NDL, or is this going to be a requirement, or --

1 MR. MARKEE: I think we are going along. We were
2 planning an in-house meeting in the very near future, next
3 week, on this to coordinate nuclear data link, you know,
4 from the systems end of it, with the environmental end of
5 it, because it seems as though when you are looking at the
6 nuclear data link you are looking at one stream of data
7 entering into some system.

8 DR. SIESS: Has the concept of the nuclear data
9 link that the Commission is going to get all this
10 information now official policy of the Commission? Has the
11 Commission approved it, the Commission, these guys, you
12 know, wherever they are?

13 DR. MATHIS: Around the corner.

14 MR. MARKEE: Yes.

15 DR. SIFCO: There was a fairly large dollar
16 commitment. There were budget problems with the NDL, and I
17 do not know, so I guess the relation will come out. We will
18 look at this, I guess, when we see it again. This is where
19 it fits into something else. You are not going to go to
20 remote interrogation on this unless you have a nuclear data
21 link, I do not think.

22 MR. MARKEE: That is correct.

23 DR. SIESS: The value impact statement is part of a
24 larger system, and you made that point. I do not think it
25 would be much good if you did not have the other

1 information. You might as well get it by telephone, I guess.

2 Let me ask a few other general questions while I
3 have the floor. On Page 5, and following my usual practice,
4 I usually ignore things that are not regulatory positions
5 because they usually confuse me, although I admit that the
6 first part of B is very good in setting up the several uses,
7 in fact, it is quite good compared to some I have addressed,
8 in Line 21, the words appear, "to assess siting, licensing,
9 and environmental factors," and that is an extremely
10 interesting combination of categories, siting, licensing,
11 and environmental. It is neither mutually exclusive nor
12 collectively exhaustive, and it fascinates me.

13 The word "safety" does not appear. "Environmental"
14 does, which sort of reverses my priorities. Siting and
15 licensing are not mutually exclusive, as I said. Licensing
16 includes environmental. It includes siting. It includes
17 safety, and I think the distinction between licensing and
18 safety might be worthwhile making, but could you find some
19 better words for that somewhere along the line?

20 MR. BERATAN: I think we can.

21 DR. SIESS: I mean, siting, environmental and
22 safety might not be bad. That sort of parallels the three.
23 There is a pre-op, there is a routine organization. Those
24 are very clearly defined. And I thought that was very well
25 defined. But it is a little harder to make the distinction

1 between those three functions as I got into this, though.

2 For example, at the -- I think it is on Page 14,
3 the paragraph at the top of the page, for example, combines
4 two of the functions. You see the licensing actions
5 referred to in Line 2 relate to the pre-op, right? The two
6 years of data you need, and Line 6, the plant operations
7 part refers to the post-op part, and here the two thoughts
8 are in one paragraph.

9 I do not know whether there is another unifying
10 thought in that paragraph that overrides this separation,
11 but I just thought I would mention it. It is not a
12 technical question.

13 At the top of Page 10, Lines 3 and 4, there is a
14 sentence that says, "Similarity between the system
15 accuracies should be demonstrated." Now, I read that to
16 mean that one system should be no more accurate than another.

17 MS. BROWN: Good point.

18 DR. SIESS: I don't really think that is what you
19 meant. I mean, it is easy to assume that everybody is going
20 to work to the lowest limit, but I would hate to see them
21 rule out a system that was more accurate than the others.

22 In Line 19, "This display should be easily visible
23 to operators in the control room." I have read an awful lot
24 of stuff recently about control room design from Essex and
25 other places, and I guess I am not sure any more what

1 "easily visible" means. I know a lot of people thought
2 "easily visible" meant something you could see over there.
3 You know, you can see the corner of the room. But I could
4 not read a sign over there.

5 Are you going to get into trouble here eventually,
6 or are we going to have more specific criteria on control
7 room design and visibility? I mean, this is a nice thing to
8 say, but if you took out "easily," you know, which I am not
9 proposing, it would really change it. You leave in
10 "easily," it does not say anything different. If I put in
11 "very easily," it still would be -- Do you see what I mean?
12 You have an adverb in there that just does not get me
13 anywhere.

14 MR. KORNASIEWICZ: One of the things that prompted
15 this, we saw a control room where instrument readouts were
16 behind a panel.

17 DR. SIESS: The fact they can put it on the front
18 of a panel 20 feet away -- I could have it on the front of
19 the panel 20 feet away, or behind a panel five feet away.
20 Which is more easily checked, the one I walk five feet to or
21 the one I walk 20 feet to?

22 MR. BERATAN: You don't want to have to walk behind
23 the board.

24 DR. SIESS: If I only have to walk ten feet as
25 compared to walking 30 feet over here that I can see but not

1 read -- it does not say "readable," it says "visible." Put
2 a little light on it, and I can -- it can be down the hall.

3 (General laughter.)

4 DR. SIESS: I know what you mean, but when you get
5 into an argument, nobody is going to know what you mean.

6 DR. MOELLER: Could I comment there? The first
7 sentence in that paragraph beginning in Line 15, Dr.
8 Spengler and I could not understand, and then he asked a
9 further question on the sentence you have just commented
10 on. Say they had it easily visible and easily readable.
11 What would they do with it?

12 DR. SIESS: Read it.

13 (General laughter.)

14 DR. SIESS: That is obvious.

15 DR. MOELLER: But we really were unable to decide
16 what they would do with the information if they had it.

17 MR. KORNASIEWICZ: In some cases, in some plants,
18 they have technical specs. Arkansas 1. Is that true? I
19 think some of the plants have tech specs that they can only
20 release -- type of releases if it is Type C, wind speed is
21 above a certain wind speed.

22 MS. BROWN: That way they do not have to have a
23 meteorologist give them guidance.

24 DR. MOELLER: Okay. That is an example.

25 MR. KORNASIEWICZ: We looked at that, and we

1 thought that perhaps --

2 DR. SIESS: I am going to give you another
3 opportunity to respond to his comments.

4 MR. KORNASIEWICZ: On Line 15, the first section of
5 that line is kind of redundant. I think we should say the
6 primary meteorological system we use during operations
7 should include a record and provision should be made, et
8 cetera.

9 DR. SIESS: On Page 12, I have a note here, and I
10 am not sure I have it marked so well that I can read it, but
11 this is Section 5, under Instrument Maintenance and
12 Servicing Schedule. I have a note that it does not
13 distinguish between the pre-op availability of 90 percent
14 and operational availability. I may be misinterpreting it.
15 The 90 percent joint data recovery, I thought that was what
16 you needed to establish the Chapter 15 accident analyses.
17 Do you have a requirement for availability during operation?

18 MR. KORNASIEWICZ: I would have to defer to Mr.
19 Markee on this.

20 DR. SIESS: When you have a data requirement to
21 test the site, but when you are operating, what level -- Is
22 there a tech spec that says you have to shut down the plant?

23 MR. KORNASIEWICZ: I think the 90 percent recovers
24 the plant operation at this time, but I think as part of an
25 emergency preparedness situation, they may have to have a

1 backup system that will cover this 10 percent.

2 DR. SIESS: It says the system should be presented
3 against lightning that may occur. It can still get knocked
4 out, I guess. It should be connected with a power system
5 with redundant power sources, and they should be inspected
6 at service intervals which will minimize extended periods of
7 outage, and assure a 90 percent annual joint data recovery,
8 et cetera.

9 When I read the joint data recovery, I was thinking
10 about the site qualification data. It is where you need the
11 stuff mostly. I assume you also need it if you are going to
12 make a burst release, but the first part says we want to
13 reduce the down time. We do not want this thing out. But
14 90 percent -- if it is down 10 percent of the time, that
15 could be 36 and a half days in a row, and I really don't
16 think that is what you mean, just the 90 percent.

17 The 90 percent might apply to the pre-op period, or
18 is it 95? Ninety? But during operation, either you want
19 the cautions -- protected against lightning, have an
20 alternate power supply, have adequate maintenance,
21 frequently enough but not so frequently that you are out of
22 service, but I don't think your criteria for operation is
23 that you can be down 36 days out of any 365-day period.

24 What does the standard review plan say about
25 ability? What do the tech specs -- It would have to be a

1 tech spec item, wouldn't it, an LCO, either an LCO on plant
2 operation or an LCO on releases? Do you want to check on
3 that and see what you mean there?

4 Incidentally, the heading is Instrument Maintenance
5 and Servicing Schedule, which is only one item in that
6 paragraph. It is really availability or something.

7 DR. MOELLER: In Lines 15 and 16, you say it should
8 be protected against other severe environmental conditions,
9 and you give some examples. I do not know personally
10 whether you are limiting yourself to icing, sand, salt.

11 DR. SIESS: This is for example.

12 DR. MOELLER: What about flooding, tornadoes,
13 seismic events? Are they excluded?

14 MR. KORNASIEWICZ: They are excluded. If you have a seismic
15 event --

16 DR. SIESS: They are so flexible they will never
17 come down. Make it free standing. It will stand up.

18 DR. MOELLER: What about flooding? Would it be
19 protected against that?

20 MR. KORNASIEWICZ: Nonroutinely. A plant where it
21 is located, it just may be -- the plant protection systems
22 -- We have no specific requirements.

23 DR. SIESS: If you put it at plant level, it
24 probably would be.

25 DR. MATHIS: Transmission lines may go out or

1 something.

2 DR. SIESS: Severe environmental, followed by what
3 you have. I assume it is severe icing, excessive sand or
4 salt, severe air pollution.

5 DR. MUELLER: What would air pollution do to it?

6 MR. KORNASIEWICZ: I understand -- again, I think
7 sometimes if you have -- some air pollution conditions could
8 cause deterioration of cables, for example.

9 DR. SIESS: But the thing is, you are getting sort
10 of mixed up. Lightning is something that is going to hit it
11 and knock it out. It is not going to reduce its life. So,
12 I would expect to find in the same sentence such things as
13 severe icing that could bring the tower down.

14 Incidentally, icing has brought towers down. It
15 increases the wind resistance, and you get a good wind, and
16 you are way over your design wind. Severe sand, a sandstorm
17 could probably short something out on it. Salt, I doubt, or
18 air pollution, I doubt is in that category.

19 So, you have mixed up the catastrophic single event
20 versus things that would just increase maintenance there,
21 and I don't -- you see, your heading is not right. It is
22 availability, is what is addressed in that paragraph, not
23 maintenance and servicing.

24 Maintenance and servicing is one aspect of it, and
25 you have calibration in there, and I am not sure calibration

1 belongs under even availability.

2 DR. MOELLER: On the same page, again, I do not
3 know that much about it, but is it typical to require up in
4 the first couple of lines that the recording rain gauge be
5 accurate to one-hundredth of an inch?

6 DR. SIESS: Where is that one? Oh, I see it, at
7 the top.

8 DR. MOELLER: What, again, would you do if it was
9 not accurate to one-hundredth of an inch?

10 MS. BROWN: This is important for purposes of
11 determining, for example, what deposition in the event of
12 radiological effluents. That is one way to estimate what
13 sort of washout could result. So, trying to get an accurate
14 picture of the rainfall that occurs during a certain period
15 --

16 DR. MOELLER: It is not that you need to know it
17 rains one inch, 1.1 inch, 1.02 inches --

18 DR. SIESS: It does not say "accurate." It says
19 "sensitive." The resolution is one-hundredth of an inch.
20 The accuracy is plus or minus 10 percent of the accumulated
21 catch.

22 DR. MOELLER: That is a little different.

23 DR. SIESS: Because if the accumulated catch is
24 one-hundredth of an inch, it cannot be accurate to --
25 one-hundredth of an inch seems absurd to me. I am no

1 meteorologist, but I will bet you over the area of a plant,
2 the rainfall will vary by more than one-hundredth of an inch.

3 MR. MARKEE: There is a general philosophy that
4 applies to all these specifications, and what we were trying
5 to do when we specified these accuracies without mentioning
6 certain systems by name and so forth to allow the latitude
7 to select this is, we were separating different systems, and
8 there are very crude measures of a certain element, and then
9 you get to more refined elements, and so on.

10 DR. SIESS: You can buy rain gauges that will claim
11 one-hundredth of an inch sensitivity.

12 MR. MARKEE: That is right. It puts it into a
13 certain quality and class of system. Meteorological people
14 would understand what class of systems.

15 DR. MOELLER: Well, I just was laughing to myself.
16 I could get a clock that is within five minutes. That is
17 pretty sloppy in these times. But then the rain gauge is to
18 one-hundredth of an inch. It just did not seem comparable.

19 DR. EBERSOLE: I thought about rain raining 100
20 yards away, and another area quite dry.

21 DR. SIESS: Over the plant area it will vary plus
22 or minus 10 percent.

23 DR. EBERSOLE: And the integral problem did not
24 seem compatible with the plant measurement?

25 DR. SIESS: In your implementation, and we will

1 the various organizations, that possibly there should be a
2 point here that interrogation should not block continued
3 monitoring.

4 DR. SIESS: If it is part of the NDL --

5 DR. RAY: You still want to accumulate data while
6 you are interrogating it. That could in some limited
7 systems block continued recording in the memory bank.

8 MR. KORNASIEWICZ: Okay.

9 DR. SIESS: I read that as part of NDL. I saw the
10 specifications proposed for that. They were not permitted.

11 DR. RAY: There is one other point. The NDL has
12 not been approved, and one very major recommendation of the
13 Committee was, it should not be as sophisticated as
14 outlined, so therefore a much curtailed system may not
15 permit you to get as much of this as you want, so you have
16 to watch what they do from that viewpoint.

17 DR. SIESS: And yet this kind of information in my
18 personal opinion was more appropriate to NDL than the
19 plant information.

20 DR. RAY: That is right. I would think this would
21 be given priority if the system is going to be curtailed
22 significantly from that which was outlined.

23 DR. SIESS: I do think the Commission has a role in
24 evacuation decisions, and this kind of information would be
25 extremely helpful to somebody sitting out in Bethesda trying

1 to decide whether to tell the Governor of Pennsylvania to
2 evacuate.

3 I am a little more concerned about the plant data
4 that somebody is going to sit out in Bethesda and tell
5 somebody out there which valve to close.

6 DR. EBERSOLE: I have a question along practical
7 lines. These meteorological installations which may be
8 subject to tornadoes, lightning, whatever, presumably they
9 will be used if you have an incident at the plant, and you
10 will do something with the output of those, but as a
11 practical matter, when you lose some of those or when you
12 have a specific accident, isn't the best data going to be
13 obtained from instrumentation that would be mounted on a
14 truck or something which would be sent to the most
15 concentrated distribution pattern that the plant has, and
16 you will guide your activities far more specifically than
17 you would with a fixed installation?

18 MR. MARKEE: Right. This is beyond the scope of
19 the guide. We do have a tech assistance contract to look
20 at a portable installation.

21 DR. EBERSOLE: It interfaces in such a significant
22 way.

23 DR. SIESS: This would not be here after a
24 tornado. It is not tornado-proof?

25 DR. EBERSOLE: The truck would be.

1 DR. SIESS: So that is all right?

2 DR. EBERSOLE: You cannot separate them so cleanly
3 as you imply.

4 DR. SIESS: You have to, because this is an
5 instruction to the utility. You cannot tell it to have that
6 drop.

7 DR. EBERSOLE: Yes, you can.

8 DR. SIESS: They don't.

9 DR. EBERSOLE: You can make them.

10 DR. SIESS: Why?

11 DR. EBERSOLE: By issuing an order.

12 DR. SIESS: Why?

13 DE. EBERSOLE: For that particular purpose. If he
14 has an incident, he may need to have refined information
15 along a particular wind line detector, and it will be a hell
16 of a lot better than a fixed tower.

17 DR. SIESS: The tower is needed for other things

18 DR. EBERSOLE: Of course. That is true.

19 DR. SIESS: And your tornado is a bad example,
20 because, boy, the releases after a tornado, nobody knows.
21 Not only that, the damage from a tornado would be so great,
22 they would not be thinking about the nuclear plant.

23 DR. EBERSOLE: It is the outage problem. An
24 expensive plant is not going to want to shut down because
25 something went wrong with the towers.

1 DR. SIESS: That is what I was asking earlier. I
2 don't think he has to shut down. I do not think it is an
3 LCO.

4 MR. MARKEE: No.

5 DR. SIESS: I don't know how long he can operate
6 without the tower.

7 DR. EBERSOLE: A tower on a pickup.

8 DR. SIESS: It would not be high enough. Over at
9 the White House they were doing a television protest
10 apparently last night, and they had a truck there with a
11 telescopic mast that went up 60 feet. It went up pretty
12 far. The truck had outriggers on ti, and the mast was high
13 enough that it had an airplane beacon on top of it.

14 DR. EBERSOLE: You can buy half a dozen of those
15 for eight days' outage cost.

16 DR. SIESS: Oh, yes.

17 MR. MARKEE: At the present time, in the licensing
18 action, we look for an alternative source of meteorological
19 information. Admittedly, now it is a rather poor supplement
20 at some times because maybe it is calling the National
21 Weather Service office, which would be 50 miles away, in
22 non-representative terrain, but we are trying to improve
23 that, and we think this system, and having a backup type of
24 system which will essentially put us within the same terrain
25 regime to measure meteorological --

1 DR. SIESS: Did you ever consider a smoke plume or
2 helium-filled balloons?

3 DR. RAY: A trace system?

4 DR. SIESS: You have to know which way the wind is
5 blowing and how hard.

6 DR. RAY: Just turn out a plume of smoke.

7 MR. MARKEE: That was considered a few years back
8 at Idaho.

9 DR. SIESS: I assume the pictures from the
10 building, wake test, you know, it was nice to see the plume
11 of smoke. I would know which way to run.

12 (General laughter.)

13 DR. EBERSOLE: You have to warn the public that the
14 smoke is noxious.

15 DR. SIESS: If you want them to run, don't tell
16 them that.

17 DR. EBERSOLE: Make it purple, if you want.

18 DR. SIESS: We have to avoid that psychological
19 stress.

20 Charlie, do you have some comments?

21 DR. MATHIS: No.

22 DR. RAY: I have one last question. I am not
23 familiar with these instruments or the systems, but I can
24 conceive of an electrical failure, insulation failure, that
25 is, on the transmission system, that takes the information

1 into the recorder and so on, and accumulates it for you in
2 the plant, due to a lightning surge or whatever, something
3 of this nature, but the sensors might still be in service,
4 and I wondered if any thought had been given to the
5 desirability of a local indication right at the instrument,
6 so an operator could go out there and observe it should he
7 lose the system otherwise.

8 MR. KORNASIEWICZ: I think a lot of systems do have
9 them as a matter of course.

10 DR. RAY: It is a standard provision.

11 MR. KORNASIEWICZ: I am not sure. I do not know if
12 we specify that.

13 DR. RAY: It is not in here.

14 MR. KORNASIEWICZ: It is not in here. A lot of
15 people as a matter of course have a redundant set of
16 readouts, at the base of the tower. They usually have an
17 instrument shelter there, and then they usually have another
18 set in the control room.

19 DR. RAY: Other instruments.

20 MR. KORNASIEWICZ: In the control room, yes.

21 DR. RAY: There is something, then, where an
22 operator could go out and read for you and give you the
23 information by phone.

24 DR. SIESS: That would only be necessary in case of
25 an accident.

1 DR. RAY: Yes. Yes.

2 DR. SIESS: Which you would have to postulate
3 simultaneously with the other.

4 DR. RAY: Yes.

5 MR. KORNASIEWICZ: I believe initially that is
6 where the instrumentation was located. And one of the
7 reasons for putting it in the control room was, if there is
8 a release, someone is going to have to go out to the control
9 room, possibly into the plume, to read the instruments to
10 find out what the plume is.

11 DR. SIESS: For pre-op it is out there anyway. I
12 assume a lot of people leave the instruments and --

13 MR. MARKEE: The general practice is to leave the
14 system that is installed at the construction and
15 pre-operational phase in the shed that is supplied, and to
16 put another system into the control room.

17 DR. EBERSOLE: It would be cheaper just to
18 retransmit the information.

19 DR. SIESS: Yes, that is what they do.

20 Okay, Charlie?

21 DR. MATHIS: No, everything has been covered.

22 DR. SIESS: Dade, have you got anything other than
23 you submitted in writing that you want to bring up first?
24 Then I am going to give them a chance to ask you about your
25 comments, since you are here, and see if they have any

1 questions.

2 DR. MOELLER: I had one supplement or reinforcement
3 for the comments. The comments on Page 6, of course, as
4 Chairman Siess pointed out, the comments made by Dr.
5 Spengler which I transmitted to you, and the ones by Dr.
6 Gifford emphasize the same point, and I notice here, to
7 further reinforce this point, I notice here in a book,
8 Atmospheric Diffusion, Second Edition, By F. Pasqual, there
9 is a paragraph on Page 333 that I found of interest.

10 It says, "Because of the clear association between
11 diffusive action and thermal stability of the atmosphere,
12 temperature gradient was adopted from the beginning as the
13 main indicator, and much effort has been expended in many
14 countries towards obtaining statistics and maintaining
15 current measurements of this quantity. Although it may be
16 particularly effective in indicating the likelihood of
17 extreme conditions such as fanning and fumigation, there has
18 been a growing recognition of its inadequacy on its own as a
19 general indicator.

20 "This arises partly from the observation that
21 influence of stability involves a critical gradient of wind
22 speed as well as that of temperature, and partly from the
23 observation that diffusion is manifestly affected by the
24 roughness and topography of the terrain.

25 "Accordingly, there is a growing tendency supported

1 both by practical experience and by the development of the
2 fundamental understanding of diffusion processes either to
3 adopt more sophisticated stability parameters such as the
4 reference number, such as more recently" -- I do not know
5 the pronunciation -- "the mod" -- o-b-u-k-h-o-v -- "length,
6 or to use measurements of the intensity and scale of
7 turbulence."

8 Seeing a paragraph such as that in a textbook that
9 obviously has been out for some time, I guess, did lead me
10 to wonder why the staff is doing what you are doing in
11 recommending what you are recommending in this guide.

12

13

14

15

16

17

18

19

20

21

22

23

24

25

t12
fl j1
t11

1 MR. MARKEE: I think as a meteorologist, I don't
2 disagree technically with any of these comments. I would say
3 that I think there are three of us here that went to the
4 reference meeting in Boston a few years back that are here now.

bfml

5 I do not think that any of us would disagree technically
6 with the statements that came out of that conference. In
7 regulation, there is a practical nature to the whole thing. In
8 the first place, for siting evaluations for licensing, Chapter
9 15 accidents and so forth, for these types of meteorological
10 evaluations, we have found that other types of measurements get
11 so complex such that data recovery becomes very poor.

12 I think any meteorologist would say that direct turbu-
13 lence measurements against estimate of diffusion -- such as mea-
14 suring fluctuations of the wind -- however, we found by experience
15 that whenever you put such a system in continuous operation with
16 the attendance that the systems get at a typical site, we are
17 talking about data recovery not better than 50 percent.

18 So, we are faced with this problem. Another thing
19 with the wind fluctuation measurements, we found that the
20 systems that are commonly available other than going on some-
21 thing like a hot wire or something like that. The sensitive
22 system, we find that these instruments are not recording faith-
23 fully at about ten percent of the time because the wind speed
24 is too low.

25 These are regular type of systems. So, that eliminates

1 another ten percent of the time. So, for climatological evalua-
2 tion, this is why we went to the critical temperature gradient
3 method. Along with this, the categories that we have described
4 we know from comparison to diffusion experiements that these
5 provide conservative assessments when used.

6 DR. SIESS: When you respond to Gifford's comments on
7 the delta t thing, it might be helpful if you could indicate how
8 the uncertainties in diffusion really affect safety or really
9 affect siting.

10 I mean, can it really make a big difference as to
11 whether a site is acceptable or not? How tight does the LPZ
12 have to be, or the site boundary distance before a fact of
13 whatever uncertainty there might be, two, three, or four could
14 be a go or no-go on a site.

15 If we put the sites in relatively isolated areas,
16 plants in relatively isolated areas as we have been doing for
17 the last 20 or so, how tough does this get?

18 I know we have been through some of this when we have
19 been talking about further aspects of siting, as you recall,
20 and the direction dependent data. I do not have a good feel,
21 right now, for the kind of sites we are talking about, whether
22 this is a big deal or not.

23 It might be for an Indian Point or a Zion, but is it
24 for a Hatch or a Palo Verde or some desert or something like that,
25 where you have miles and miles.

bfm3
1 I mean, in terms of the calucation, yes, whether it
2 is 300 rem or 150 rem. I mean, in the licensing process. I
3 assume if we have an accident, are we likely to get so fine
4 tuned that whether we release or not -- if you are going to
5 purge at Three Mile Unit 2, are we in the range where that kind
6 of uncertainty where we calculate the diffusion is going to
7 be critical? On whether we purge at Three Mile Unit 2, that is
8 a good example.

9 MR. MARKEE: I guess so.

10 DR. SIESS: If there is still an argument about this,
11 we would like to get it in perspective in terms of saf.ty
12 to the public, not just on the siting end. I guess we have to
13 think about it on the accident end.

14 Siting is a hypothetical accident. When you have a
15 real accident, do you have a choice? Are we taking the five
16 percent chance on a real accident of the worst meteorology?

17 Are we talking about factors of two or factors of
18 ² 10 of uncertainty?

19 MR. MARKEE: There have been several publications
20 involved with meteorological assessments. We have done enough
21 work with those uncertainties so we are able to get an idea of
22 where the uncertainties are and how good we can get, and where
23 can we get unlitmately by improved instumentation and so forth?

24 DR. SIESS: There are two aspects to it, here. One is
25 t.ue ritual dance we go through on siting. Reg Guide 1.3 releases

bfm4

1 inside the containment tech spec leak rate, five percent meteor-
2 ology and so many people out here, and how many rem do they
3 get?

4 That is a stylized calculation which affects whether
5 the plant is going to be here or somewhere else. Right? Or
6 where the exclusion boundary is, or where the LPZ is.

7 The other is getting down to the WASH-1400 type of
8 analysis where we end up with consequences. I assume the CRAC
9 code for close in -- CRAC, yes.

10 I get CRAC and TRAC mixed up. If I slow it, it does
11 not make any difference.

12 (Laughter.)

13 The CRAC code uses in meteorology out to some distance,
14 doesn't it?

15 DR. MOELLER: Many miles.

16 DR. SIESS: Too far, probably. When we get into a
17 WASH-1400 type of analysis, we have 10^2 , 10^{-2} of uncertainty
18 before we even get down there.

19 So, if we are talking about a factor of three or four
20 in this, I have one feeling about it. If it is another 10^2 ,
21 maybe I have another one.

22 So, I think, you know, if we get -- if we have to have
23 an argument about how do you compute the diffusion, I would like
24 to get it in perspective at the two ends. The second end, I
25 guess, it is the low probability of consequences.

bfm5
1 At the siting end, I think it is probably negligible
2 from those sites we are seeing now. Occasionally, we hit a funny
3 one, but most of those are past us.

4 With the new criteria, they are going to get farther
5 and farther behind us.

6 DR. MOELLER: In reading this guide, I guess I had
7 another question of a fundamental nature that I needed to have
8 clarified or my memory refreshed.

9 When you go out or come to us with a guide which you
10 want to then out out for public comment on, is this then -- does
11 this mean it has been thoroughly reviewed within NRC?

12 MR. BERATAN: Within NRC and we will go out for exclu-
13 sive public comment as well.

14 DR. SIESS: Within NRC means?

15 MR. BERATAN: ACRS and the other divisions.

16 DR. SIESS: You are from the NRR?

17 MR. MARKEE: Yes.

18 DR. MOELLER: Does this go a pretty thorough review
19 in NRC?

20 MR. MARKEE: Yes.

21 DR. SPUNGLER: A lot of the material -- a lot of the
22 material that is presented in this document is also presented in
23 ANS 2.5 of which I am the chairman. ANS 2.5 has been in the
24 works for about six years and has undergone extensive, both
25 technical review from the technical community and also extensive

1 review from the nuclear industry.

2 So, this document has not been created in a vacuum, and
3 has used a lot of the information that is in ANS 2.5. A lot
4 of the information that has been provided by ASME in their
5 specifications for instrumentation.

6 DR. SIESS: So if that is true, why doesn't this --
7 is ANS 2.5 an approved standard?

8 DR. SPENGLER: It is going to ANSI now. It is not
9 yet an approved standard.

10 DR. SIESS: Was it worth referencing?

11 DR. SPENGLER: We cannot reference it until it is
12 approved.

13 DR. SIESS: I'm sorry. You weren't here earlier,
14 were you? We have had two reg guides, one this morning and
15 one that is coming up.

16 One, a month or so ago, that referenced a draft ANS
17 standard.

18 MR. BERATAN: We have not in our branch.

19 DR. SIESS: We discussed it at some length as to --
20 they expect it to be approved. In the mean time, it is a draft
21 standard, a specific draft is referenced. ANS gave permission
22 to reference it, and provided copies that could be put in the
23 Public Document Room so that anybody could have access to them.

24 I do not know that that is the best idea, but usually
25 it has been done with the hope that it will be approved by the

1 time the guide becomes official.

2 As an example -- what is your branch?

3 MR. BERATAN: Site safety standard.

4 DR. SIESS: This is in RS reactor safety and it refer-
5 ences a draft ANS 3.5. It is RS 110-5 on nuclear power plant
6 simulators.

7 MR. KORNAWIEWICZ: I think in this case, we would prefer
8 not to reference them. I have no objection to that. I can see
9 some wisdom of it.

10 I can also see some wisdom in waiting another year in
11 putting out a reg guide. The reg guide is eight years old.

12 MR. BERATAN: If it required a simple endorsement, it
13 would be a simple matter to endorse it later.

14 DR. SIESS: Then all this work goes down the drain.
15 How long have you been working on this? Six years?

16 MR. BERATAN: No, about six months.

17 DR. SIESS: That is your problem, really.

18 MR. ABBEY: Bob Abbey, Office of Research to respond
19 specifically to Dr. Moeller's comment. This proposed guide has
20 not received formal office concurrence, which is in response to
21 your question. We received the same copy of the draft that you
22 received for comment at the same time.

23 MR. BERATAN: I will take exception to that. It did
24 receive Office concurrence from everyone, but your office.

25 MR. ABBEY: Okay.

1 MR. BERATAN: Only because you read it so late.

2 MR. ABBEY: There are several significant comments.

3 DR. SIESS: The two comments that you have been
4 submitted, I think, both indicated areas of research that were
5 needed. Dr. Spengler mentioned that; Gifford mentioned that.
6 Would you make copies of those available to research?

7 I was going to take them into the meeting I'm going to
8 go to after I leave here. I think we have the meteorological
9 people in on that. Maybe just it's all seismic. See that Okrent
10 gets a copy.

11 Anything else? Anybody have any objection to letting
12 the public have a whack at this thing now?

13 DR. MOELLER: It depends upon the significance, it
14 would seem to me, of the Office of Research --

15 DR. SIESS: I do not consider that --

16 DR. MOELLER: That can be handled --

17 DR. SIESS: They've had plenty of time to comment.
18 Their comments will be given just as much weight in the next
19 period as they would be before.

20 DR. MOELLER: Okay. That is fine.

21 DR. SIESS: They might have some -- as you know, I have
22 sort of mixed feelings. I think sometimes we give you a little
23 help on these things at an early enough stage so that might do
24 some good.

25 Our comments -- one of our functions, and I think the

bfm3

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

bfm9

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

1 one we do best, is try to help resolve the differences that
2 come up. When we have not seen those differences, there is not
3 much we can do.

4 So, the next time around, we have the issues a little
5 more clearly. Then you will have had a chance to respond to
6 the consultant's comments.

7 DR. MOELLER: Does this mean, though, that it would --
8 to what extent will the existing draft be changed prior to going
9 out?

10 DR. SIESS: We usually leave that up to the staff.

11 MR. BERATAN: We will make the clarifying changes.

12 DR. SIESS: Sometimes they have done that. My feeling
13 has been if they want to take the trouble, if they think it is
14 enough of an improvement to make the changes we have called
15 attention to, it is a good idea for them to do it.

16 If for some reason they would rather save a couple
17 of weeks and get it out in a hurry, they can do it later.
18 Personally, I think that that is rather confusing. We are going
19 to get 15 people writing in and wanting an explanation of that.
20 Why not fix that up now? That just saves trouble.

21 MR. BERATAN: We will make the clarifying changes before
22 we send it out.

23 DR. SIESS: SOmetimes we catch things and then we catch
24 other things later. Somebody else gets them in the mean time.

25 Okay, then, we will --

1 DR. MOELLER: Let me comment to in terms of Dr.
2 Spengler's review. It mainly -- it does only have the criticisms.
3 There were many pages he put very good on. So, it is not all
4 bad.

5 DR. SIESS: I think he can assume the same about Dr.
6 Gifford. If he did not criticize it he was probably pleased.
7 You know him.

8 MR. BERATAN: He's not bashful.

9 DR. SIESS: He is very gentle, though. Anything else?

10 (No response.)

11 The meeting is adjourned.

12 (Thereupon, at 12:15, p.m., the meeting was adjourned.)
13
14
15
16
17
18
19
20
21
22
23
24
25

biml0

300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

in the matter of: **ADVISORY COMMITTEE ON NUCLEAR SAFEGUARDS -
SUBCOMMITTEE ON REGULATORY ACTIVITIES**

Date of Proceeding: June 4, 1980

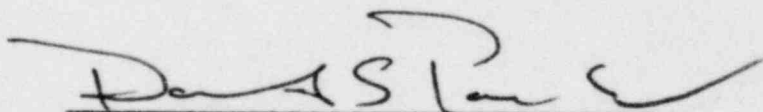
Docket Number: _____

Place of Proceeding: Washington, D. C.

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

David S. Parker

Official Reporter (Typed)



Official Reporter (Signature)

SECY 79-330E: RECOMMENDATIONS FOR IMPROVEMENTS IN THE OPERATOR LICENSING
PROGRAM

SECY 79-330F: RECOMMENDATIONS FOR IMPLEMENTATION OF SECY 79-330E

MEMORANDUM OF NOVEMBER 27, 1979: COMMISSIONERS' APPROVAL OF SECY 79-330E
/330F WITH COMMENTS

RECOMMENDATION 1 OF SECY 79-330E

1. THE EXPERIENCE REQUIREMENTS REGARDING POWER PLANT OPERATIONS FOR SENIOR OPERATOR APPLICANTS SHOULD BE INCREASED.

- 4 YEARS OF POWER PLANT EXPERIENCE

- 2 YEARS MAY BE FULFILLED BY ACADEMIC OR RELATED TECHNICAL TRAINING

- 2 YEARS MUST BE NUCLEAR POWER PLANT EXPERIENCE

- 6 MONTHS MUST BE AT THE FACILITY FOR WHICH HE SEEKS A LICENSE

COMMISSIONERS' ACTION

- ACCEPTS AS INITIAL STEP
- NEW REQUIREMENTS CONSISTENT WITH NUREG-0585
"LESSONS LEARNED TASK FORCE FINAL REPORT"

PROPOSED 10 CFR PART 55

- 3 YEARS OF POWER PLANT EXPERIENCE

- NO ACADEMIC OR TECHNICAL TRAINING IS ALLOWED TO BE SUBSTITUTED FOR EXPERIENCE

- 2 YEARS MUST BE NUCLEAR POWER PLANT EXPERIENCE

- 1 YEAR MUST BE AS A LICENSED OPERATOR AT THE FACILITY FOR WHICH HE SEEKS A SENIOR OPERATORS LICENSE

RECOMMENDATION 2 OF SECY 79-330E

2. ESTABLISH REQUIREMENTS FOR APPLICANTS FOR SENIOR OPERATOR LICENSES AFTER THE PLANT ACHIEVES CRITICALITY TO BE LICENSED AS AN OPERATOR FOR 6 MONTHS.

COMMISSIONERS' ACTION

- 12 MONTHS VS 6 MONTHS AS A LICENSED OPERATOR

PROPOSED 10 CFR PART 55

- 12 MONTHS AS A LICENSED OPERATOR AT THE FACILITY FOR WHICH HE SEEKS A SENIOR OPERATORS LICENSE

RECOMMENDATION 3 OF SECY 79-330E

3. ESTABLISH REQUIREMENTS FOR PARTICIPATION IN PLANT SHIFT OPERATIONS PRIOR TO LICENSING.
 - OPERATOR-3 MONTHS CONTINUOUS ON-THE-JOB TRAINING FOR HOT OPERATOR APPLICANTS AS AN EXTRA MAN ON SHIFT IN THE CONTROL ROOM.
 - SENIOR OPERATOR-3 MONTHS CONTINUOUS ON-THE-JOB TRAINING FOR HOT SENIOR OPERATOR APPLICANTS AS AN EXTRA MAN ON SHIFT IN TRAINING.

COMMISSIONERS' ACTION

- RECOMMENDATION ACCEPTED

PROPOSED 10 CFR PART 55

- OPERATOR

- 3 MONTHS OF SHIFT TRAINING
- NO OTHER CONCURRENT DUTIES
- AT THE FACILITY FOR WHICH HE SEEKS A LICENSE
- MANIPULATES FACILITY CONTROLS AND PERFORMS DUTIES HE WOULD PERFORM AS A LICENSED OPERATOR
- UNDER THE OBSERVATION AND CONTROL OF A LICENSED OPERATOR

- SENIOR OPERATOR

- 3 MONTHS OF SHIFT TRAINING
- NO OTHER CONCURRENT DUTIES
- AT THE FACILITY FOR WHICH HE SEEKS A LICENSE
- SUPERVISES THE MANIPULATOR OF FACILITY CONTROLS AND PERFORMS DUTIES HE WOULD PERFORM AS A SENIOR LICENSE OPERATOR
- UNDER THE OBSERVATION AND CONTROL OF A SENIOR LICENSED OPERATOR

INCORPORATION OF RECOMMENDATIONS 1, 2, AND

3 INTO PROPOSED REGULATION

- PARAGRAPH 55.10(A) REFERENCES APPENDIX B FOR MINIMUM ACCEPTABLE QUALIFICATIONS OF COMMERCIAL NUCLEAR POWER PLANT OPERATORS

- PARAGRAPH 55.4(H) DEFINES "COMMERCIAL NUCLEAR POWER PLANT"

- APPENDIX B (FOR OPERATORS AND SENIOR OPERATORS)
 - EXPERIENCE

 - TRAINING

 - EDUCATION

 - CLARIFIES PARAGRAPH 55.10(A) (B) BY STATING MINIMUM REQUIREMENTS FOR EDUCATION, TRAINING, AND CERTIFICATION REQUIREMENTS

RECOMMENDATION 4 OF SECY 79-330E

4. ESTABLISH REQUIREMENTS THAT SIMULATORS BE USED IN TRAINING PROGRAMS FOR HOT APPLICANTS.

COMMISSIONERS' ACTION

- RECOMMENDATION AGREED WITH
- SIMULATORS FOR OLDER PLANTS
- NAVY PHILOSOPHY ON SIMULATORS

INCORPORATION OF RECOMMENDATION INTO PROPOSED 10 CFR PART 55

- APPENDIX B, PARAGRAPH II.3.A AND III.3.A REQUIRES APPLICANT TO HAVE RECEIVED TRAINING ON A SIMULATOR.

RECOMMENDATION 7 OF SECY 79-330E

7. IN ADDITION TO THE PRESENT OPERATOR REQUALIFICATION PROGRAM REQUIREMENTS, ALL LICENSEES SHOULD BE REQUIRED TO PARTICIPATE IN PERIODIC RETRAINING AND RECERTIFICATION ON A FULL SCOPE SIMULATOR REPRESENTATIVE OF THEIR FACILITY.
- ANNUAL RECERTIFICATION ON A SIMULATOR
 - RECERTIFICATION ON A SIMULATOR FOLLOWING 4 MONTHS OF LICENSED DUTY INACTIVITY

COMMISSIONERS' ACTION

- RECOMMENDATION ACCEPTED
- CHAIRMAN AHEARNE-REQUALIFY FOR LICENSE IF HAVE SIX MONTHS OF LICENSED DUTY INACTIVITY

INCORPORATION OF RECOMMENDATION 7 INTO PROPOSED 10 CFR 55

- PARAGRAPH 3.E OF APPENDIX A TO 10 CFR 55 REQUIRES REQUALIFICATION TRAINING ON A SIMULATOR.
- PARAGRAPH 4.A OF APPENDIX A TO 10 CFR 55 REQUIRES AN ANNUAL PRACTICAL EXAMINATION ON A SIMULATOR.
- THE FOURTH PARAGRAPH OF THE INTRODUCTION TO APPENDIX A IS DELETED TO ELIMINATE THE IMPLICATION THAT USE OF A SIMULATOR IS OPTIONAL.
- PARAGRAPH 55.31(E) REQUIRES RECERTIFICATION ON A SIMULATOR AFTER FOUR MONTHS OF LICENSED DUTY INACTIVITY.

INCORPORATION OF CHAIRMAN AHEARNE'S CONCERN INTO PROPOSAL

- PARAGRAPH 55.31(F) INSERTED TO REQUIRE PARTICIPATION IN REQUALIFICATION TRAINING AS A CONDITION OF LICENSE

- PARAGRAPH 4.A OF APPENDIX A REQUIRES ANNUAL WRITTEN, ORAL AND PRACTICAL EXAMINATIONS

- PARAGRAPH 50.54(R) REQUIRES THAT PROCEDURES BE DEVELOPED TO PROVIDE ASSURANCE THAT AN OPERATOR OR SENIOR OPERATOR IS PROFICIENT AT PERFORMING LICENSED DUTIES.

RECOMMENDATION 11 OF SECY 79-330E

11. APPLICANTS FOR OPERATOR AND SENIOR OPERATOR LICENSES SHOULD BE EXAMINED AT A NUCLEAR POWER PLANT SIMULATOR.

COMMISSIONERS' ACTION

- RECOMMENDATION ACCEPTED

INCORPORATION OF RECOMMENDATION 11 INTO PROPOSED 10 CFR PART 55

- SECTION 55.23 REQUIRES USE OF A SIMULATOR DURING THE OPERATING TEST

TYPE OF SIMULATOR TO BE USED

- REQUIREMENTS STATED IN APPENDIX B
- NO FINAL DECISION MADE
- FOR PUBLIC COMMENT
- CONTRACT RSP-NRR-80-117 WILL PROVIDE RECOMMENDATIONS

RECOMMENDATION 9 OF SECY 79-330E

9. AN INCREASED LEVEL OF CONFIDENCE IN THE EFFECTIVENESS OF REQUALIFICATION PROGRAMS SHOULD BE PROVIDED BY NRC EXAMINERS ADMINISTERING ANNUAL REQUALIFICATION EXAMINATIONS.

- NRC ADMINISTER SOME (10 %) OF ANNUAL EXAMINATIONS

COMMISSIONERS' ACTION

- NRC SHALL CONDUCT ALL REQUALIFICATION EXAMINATIONS
- IMPLEMENTATION PLANS MUST BE DEVELOPED SINCE SIGNIFICANT RESOURCES ARE INVOLVED

INCORPORATION OF RECOMMENDATION 9 INTO PROPOSED 10 CFR PART 55

- PARAGRAPH 4.A OF APPENDIX A TO 10 CFR PART 55 STATES THE NRC WILL ADMINISTER ANNUAL WRITTEN, ORAL, AND SIMULATOR EXAMINATIONS
- THE NRC MAY DIRECT SPECIFIC FACILITIES TO ADMINISTER THE EXAMINATIONS
- SECTION 55.31 REQUIRES, A CONDITION OF LICENSE, THE OPERATOR TO SATISFACTORILY COMPLETE THE ANNUAL EXAMINATIONS

RECOMMENDATION 10 OF SECY 9-330E

10. THE SCOPE OF THE WRITTEN EXAMINATIONS SHOULD PROVIDE INCREASED EMPHASIS ON UNDERSTANDING OF THERMODYNAMICS, AND RELATED MATTERS.

- USE SAME CATEGORIES THAT NOW EXIST

COMMISSIONERS' ACTION

- CREATE NEW CATEGORIES

INCORPORATION OF RECOMMENDATION 10 INTO PROPOSED 10 CFR PART 55

- SECTION 55.20 PROVIDES THE INCREASED SCOPE.
- SECTIONS 55.21 AND 55.22 PROVIDE AN ADDITIONAL CATEGORY AND ARE REGROUPED TO BE CONSISTENT WITH EXAMINATION FORMAT.

LICENSES FOR SIMILAR FACILITIES

- PRESENT REGULATION IMPLIES IN 55.11(c) THAT AN OPERATOR'S SERVICES MAY BE UTILIZED ON A FACILITY THAT IS SIMILAR TO THE FACILITY FOR WHICH HE IS LICENSED.

- PRESENT LICENSING PRACTICE DOES NOT ALLOW THIS

- PROPOSED REGULATION DELETES THIS IMPLICATION

- PROPOSED REGULATION, IN PARAGRAPH 55.4(c), INCLUDES THE CONCEPT OF LICENSING ON MORE THAN ONE FACILITY.

LICENSE EXPIRATION

- PRESENT REGULATIONS IN 55.33(B), ALLOW EXTENSION OF LICENSE EXPIRATION DATE DURING NRC REVIEW OF RENEWAL APPLICATION IF APPLICATION SUBMITTED 30 DAYS PRIOR TO ORIGINAL LICENSE EXPIRATION DATE.
- ALLOWS OPERATOR TO PERFORM LICENSED DUTIES BEYOND THE ORIGINAL EXPIRATION DATE OF HIS LICENSE BEFORE THE COMMISSION FULLY DETERMINES ACCEPTABILITY OF THE RENEWAL APPLICATION.
- IN SOME CASES EXTENSION NECESSARY FOR COMPLETING MINOR PORTIONS OF MEDICAL EVALUATION.
- PROPOSED REGULATION, SECTION 55.33(B), LIMITS THIS EXTENSION TO A MAXIMUM OF SIX MONTHS.

1. Appendix B, Paragraph II.1.b should require a minimum of 60 semester hours instead of 30 semester hours to be consistent with commission direction (Page 19 of Enclosure "A").
2. Appendix B, Paragraphs II.2.c, II.3.c, III.2.b and III.3.c should be changed to make experience waivers and practical training waivers applicable only to precritical applicants (Pages 19, 20, 21, 22 and 23 of Enclosure "A").
3. Appendix A, Paragraph 3a should be changed to allow expansion of required control manipulations in requalification programs. The following item should be added to Enclosure "A".

Paragraph 3.a of Appendix A to 10 CFR Part 55 is amended as follows:

- a. Each licensed operator of a production or utilization facility manipulates the plant controls and each licensed senior operator either manipulates the controls or directs the activities of individuals during plant control manipulations during the term of their licenses. For reactor operators and senior operators, these manipulations shall consist of a variety ~~[at least 18 reactivity control manipulations in any combination]~~ of reactor startups, reactor shutdowns ~~[or]~~ and other control manipulations which demonstrate skill and/or familiarity with ~~[reactivity control systems]~~ the facility controls.

4. Paragraph 55.33(c)(2)(iii) should be changed from requiring an initial application to requiring additional training or examinations or both if the conditions of 55.33(c)(2)(i) and (ii) are not met (Pages 16 and 17 of Enclosure "A").

12. Paragraph 55.33(b) is revised as follows:

(b) In any case in which a licensee not less than thirty days prior to the expiration of his existing license has filed an application in proper form for renewal or for a new license, the existing license shall not expire until the application for renewal or for a new license has been finally determined by the Commission or until six months after the original expiration of the existing license, whichever comes first.¹²

13. Paragraph 55.33(c) is amended as follows:

(c) The license will be renewed if the Commission finds that:

(1) The physical condition and the general health of the licensee continue to be such that they will not [as-not-to] cause him to make operational errors which might endanger public health and safety; and

(2)(i) The licensee has been actively and extensively engaged as an operator or as a senior operator under his existing license, has discharged his responsibilities competently and safely, and is capable of continuing to do so.

(ii) The licensee ~~has completed a requalification program or is presently enrolled in a requalification program if the completion of the requalification program will occur after the expiration of his license as provided in subparagraph (a)(4) of this section:~~ has completed a requalification program meets the requirements of 55.31(f).¹³ pursuant to Appendix "A",

¹²Limits the extension of license expiration dates during NRC review of license renewal applications to six months. Also see Enclosure "B", item 6.

¹³Revised to refer to the conditions of license in paragraphs 55.31(f) Also see Enclosure "B", item 4.

(iii) If the requirements of paragraph (c)(2)(i) and (ii) of this section are not met, ~~the Commission may require the applicant for renewal to take additional training or examinations on both, to take a written examination or an operating test or both; the applicant~~ ^{the Commission may require the applicant for renewal} shall be required to apply for a license in accordance with Section 55.10.¹⁴

(3) There is a continued need for a license to operate or direct operators at the facility designated in the application.

14. A new paragraph 55.40(c) is added as follows:

(c) Any license may be revoked or suspended for failure to satisfactorily complete annual examinations as required by Appendix A of this part.¹⁵

15. Appendix A to 10 CFR Part 55 is amended by deleting the fourth paragraph of the introduction.

~~[The requalification program requirements involving manipulation of controls may be performed on the facility for which the operator is licensed;--However,--the use of a simulator as specified in Paragraphs 3e and 4d of this appendix is permissible and such use is encouraged.]~~¹⁶

16. Paragraph 3.e of Appendix A to 10 CFR Part 55 is revised to read as follows:

e. A simulator of the type specified in Appendix B may be used in meeting the requirements of paragraphs 3a and 3b. ~~[if the simulator reproduces the general operating characteristics of the facility involved; and the~~

¹⁴~~Requires~~ ¹⁴an applicant who does not meet the requirements for license renewal to apply for an initial license. This ensures he is properly retrained for the license. Also see Enclosure "B", item 4.

¹⁵Reinforces the importance of completing annual examinations. Also see Enclosure "B", item 4.

¹⁶Deletes the implication that use of a simulator is optional in the requalification program.

may be required to take additional training or examinations or both.

the applicant, and evidence that the applicant has learned to operate the controls in a competent and safe manner. The minimum acceptable qualifications of commercial power plant applicants are listed in this appendix.

II. QUALIFICATION REQUIREMENTS: SENIOR OPERATOR LICENSE

APPLICANTS

1. EDUCATION:

- a. The applicant holds a high school diploma or general education development certificate
- b. The applicant has had a minimum of ^{SixTy (60)} ~~t~~irty (30) semester hours of college level education, in technical subjects such as mathematics, reactor physics, chemistry, materials, reactor thermodynamics, fluid mechanics, heat transfer, electrical and reactor control theory.

2. EXPERIENCE: The applicant has had a minimum of:

- a. Three (3) years of power plant experience (not necessarily nuclear power plant experience).
- b. Two (2) years of nuclear power plant experience. These two years may be used to meet two of the three years required in Paragraph II.2.a. of this Appendix.
- c. One year of experience as a licensed operator at the facility for which he seeks a senior operator's license. The year as a licensed operator may be used to meet one of the two years required in paragraph II.2.b of this Appendix. For applicants who show that it is impractical to obtain the one year experience as a licensed operator

(e.g., prior to initial facility criticality) and that there is an immediate need for their services (e.g., no other candidates with the appropriate qualifications are available), this requirement may be waived by the commission and unique qualifications designed to accomodate the circumstances will be required.

3. TRAINING: The applicant has:

- a. Received training on and has demonstrated ability to satisfactorily operate a simulator which, in comparison to the facility for which he seeks a license simulates:
 - (1) The same type of facility (e.g., PWR, BWR, HTGR).
 - (2) The same type of control room (e.g., conventional, advanced);
 - (3) The same type of steam generator (e.g., once through, u-tube);
 - (4) The same number of loops;
- b. As a minimum, received instruction in the areas listed in Sections 55.21 and 55.22 of 10 CFR Part 55 (a portion of this instruction may be used to fullfill education requirements specified in paragraph II.1 of this Appendix);
- c. As a minimum, received three months of shift training, with no other concurrent duties, at the facility for which he seeks a license. During this training, under the observation and control of a licensed senior operator, he has supervised the manipulation of the facility controls and performed duties he would perform as a licensed senior operator.

For applicants who show that it is impractical to obtain the three months shift training (e.g., prior to initial facility criticality) and that there is an immediate need for their services (e.g., no other candidates with the appropriate qualifications are available), this requirement may be waived by the commission and unique training designed to accomodate the circumstances will be required.

4. CERTIFICATION:

- a. An authorized representative (the highest level of corporate management responsible for operations) of the facility has certified that the applicant has completed the training required by the facility license and this Appendix and has demonstrated to the satisfaction of the facility licensee, his ability to supervise the operation of the controls in a competent and safe manner.
- b. The certification contains details on: (These items may be incorporated by reference to other correspondence)
 - (1) The courses of instruction;
 - (2) The number of course hours;
 - (3) The number of hours of training;
 - (4) The nature of the training used to fulfill the requirements of paragraph II.3 of this Appendix;
 - (5) The differences between the simulator used to meet the requirements of paragraph II.3.a of this Appendix and the facility for which the applicant seeks a license and the actions taken to ensure these differences will

not result in the applicant misinterpreting plant response or taking incorrect action.

III. QUALIFICATION REQUIREMENTS: OPERATOR LICENSE APPLICANTS

1. EDUCATION: The applicant holds a high school diploma or General Education Development Program Certificate.

2. EXPERIENCE: The applicant has had a minimum of:

a. Three (3) years of power plant experience (not necessarily nuclear power plant experience);

b. One (1) year of experience at the facility for which he seeks an operator's license, including six (6) months of duties as a non-licensed operator. This year of experience may be used to meet one year of the three years experience required in paragraph III.2.a of this Appendix. For appli-

cants who show that it is impractical to obtain the year of experience at the facility for which he seeks a license or to obtain the six(6) months of duties as a non-licensed operator (e.g., prior to facility initial criticality) and

shows that there is an immediate need for their services (e.g., no other candidate with the appropriate qualifications are available), this requirement may be waived by the commission and unique qualifications to accomodate the circumstances will be required.

3. TRAINING: The applicant has:

- a. Received training on and has demonstrated ability to satisfactorily operate a simulator which, in comparison to the facility for which he seeks a license, simulates:
 - (1) The same type of facility (e.g., PWR, BWR, HTGR);
 - (2) The same type of control room (e.g., conventional vs. advanced);
 - (3) The same type of steam generator (e.g., once through vs u-tube);
 - (4) The same number of loops;

b. As a minimum, received instruction in the areas listed in Section 55.21 of 10 CFR Part 55 (a portion of this instruction may be used to fulfill education requirements specified in paragraph III.1 of this Appendix);

c. As a minimum, received three months of shift training, with no other concurrent duties, at the facility for which he seeks a license. During this training, under the observation and control of an licensed operator, he has manipulated the facility controls and performed duties he would perform as a licensed operator. For applicants who show that it is impractical to obtain the three months shift training (e.g., prior to initial facility criticality) and that there is an immediate need for their services (e.g., no other candidates with the appropriate qualifications are available), this requirement may be waived by the commission and unique training designed to accomodate the circumstances will be required.

REGULATORY GUIDE 1.23, REVISION 1, UPDATES:

- TITLE CHANGE
- PREOPERATIONAL AND OPERATIONAL PROGRAMS
- INSTRUMENT SYSTEMS AND DATA COMPILATION
- QUALITY ASSURANCE
- EMERGENCY PREPAREDNESS

THREE MILE ISLAND LESSONS LEARNED:

- EMERGENCY RESPONSE METEOROLOGICAL DATA
- REMOTE INTERROGATION
- REAL-TIME DISPERSION ESTIMATES
- BACK-UP DATA OR PROCEDURE