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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
3 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
4 SUBCOMMITTEE ON HUMAN FACTORS

5 Nuclear Regulatory Commission
6 Room 1046
7 1717 H Street, N.W.
8 Washington, D. C.

Monday, November 25, 1985

9 The subcommittee meeting convened at 11:00 a.m., Mr.
10 David A. Ward, chairman of the subcommittee, presiding.

11 ACRS MEMBERS PRESENT:

12 MR. DAVID A. WARD

13 MR. CARLYLE MICHELSON

14 DR. FORREST J. REMICK

15 MR. CHARLES J. WYLIE

16
17 KRIS GIMMY, ACRS Consultant

18 JOHN SCHIFFGENS, Assigned ACRS Staff Member
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PUBLIC NOTICE BY THE
UNITED STATES NUCLEAR REGULATORY COMMISSIONERS'
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

MONDAY, NOVEMBER 25, 1985

The contents of this stenographic transcript of the proceedings of the United States Nuclear Regulatory Commission's Advisory Committee on Reactor Safeguards (ACRS), as reported herein, is an uncorrected record of the discussions recorded at the meeting held on the above date.

No member of the ACRS Staff and no participant at this meeting accepts any responsibility for errors or inaccuracies of statement or data contained in this transcript.

I MPBeb

P R O C E E D I N G S

MR. WARD: The meeting will now come to order.

This is a meeting of the ACRS Subcommittee on Human Factors.

I am David Ward, the Subcommittee Chairman.

Other ACRS members today are Carlyle Michelson, Forrest Remick, and Charles Wylie.

Also present is ACRS consultant Kris Gimmy.

John Schiffgens, on my right, is the assigned ACRS Staff member for this meeting.

The purpose of the meeting is to complete our review of current reactor operator requalification procedures, and to initiate review of proposed final rulemaking on 10 CFR Parts 55 and 50, and three related Regulatory Guides, 1.134, 1.149 and 1.8.

The meeting will begin with a Subcommittee discussion of reactor operator requalification.

Later today and tomorrow, the Subcommittee and the NRC Staff will discuss a proposed rule for revision of:

10 CFR 55, "Operators' Licenses;"

10 CFR 50, "Domestic Licensing of Production and Utilization Facilities;"

Reg. Guide 1.134, "Medical Evaluation of Licensed Personnel for Nuclear Power Plants;"

Reg. Guide 1.149, "Nuclear Power Plant Simulation

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1 Facilities for Use in Operator License Examinations;"

2 And Reg. Guide 1.8, "Qualification and Training
3 of Personnel for Nuclear Power Plants."

4 A transcript is being kept of the entire meeting,
5 and I request that each speaker first identify himself or
6 herself and speak with sufficient clarity and volume so that
7 he or she can be readily heard.

8 We have received no written statements from
9 members of the public, nor have we received requests for
10 members of the public for time to make oral statements.

11 During the first two and a half hours of the
12 meeting, I propose that we have a general discussion among
13 the Subcommittee members and consultant of the operator
14 requalification program. We have had two or three meetings
15 in the past months to gather information on the program.
16 The Staff or some representatives of the Staff are here to
17 answer any questions that we may have, and perhaps to help
18 us with our discussion and understanding.

19 But I don't propose to have any presentations
20 from the Staff this morning, except I think they will be
21 willing to answer particular questions we may put to them.
22 Our goal is to develop a Subcommittee position on the
23 questions that have been raised about operator
24 requalifications. And in fact hopefully at the end of the
25 day today, we will spend some time rather specifically

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1 thinking about what an ACRS letter might look like on the
2 subject.

3 If we do decide that we want to write a letter --
4 and I think we should, I think we owe the Staff and the
5 Commissioners a report on the topic -- at the December full
6 Committee meeting, we have allotted I think two hours, an
7 hour and a half or two hours to this topic, plus
8 letter-writing time.

9 So we will also want to decide today I think
10 during this morning's session what we think the agenda for
11 that one and a half or two hour session for the full
12 Committee should consist of relating to the Staff, or what
13 it is we would like to have the full Committee hear in order
14 to bring the full Committee along in understanding,
15 hopefully to support whatever position on requalification
16 the Subcommittee develops.

17 After this time we spend on the requalification
18 program, this afternoon and tomorrow morning we will hear
19 from the Staff at some length on the related subject of the
20 revised rules and the revised Regulatory Guides and some
21 other associated matters related to operator licensing.

22 Some of that will touch on the requalification
23 question, but it is a broader-- The rule changes and
24 Reg. Guides touch on things, operator licensing, more
25 broadly than this particular requalification question that

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1 we want to grapple with this morning. So we have heard a
2 good bit about it in previous meetings.

3 Also since our last meeting on the topic which
4 was -- when? -- in June, I guess, John,--

5 MR. SCHIFFGENS: The 20th.

6 MR. WARD: -- June 20th, I think each of us has
7 had an opportunity to hear a little bit more about
8 requalification. For example, last week when we were at
9 Millstone, we questioned the people at Millstone relative to
10 their experience with the new requalification practices.
11 And I think each of you may have had the opportunity to do
12 that sort of thing.

13 So probably there is some new information we have
14 since the June meeting.

15 DR. REMICK: Can you summarize basically what
16 their response was, Dave? I assume this was to the NRC
17 Administrator.

18 MR. WARD: Yes.

19 DR. REMICK: What kind of reaction was it?

20 MR. WARD: It turns out they have had only fairly
21 limited-- We were up there really to talk about the
22 Millstone 1 permanent license. They haven't had any NRC
23 administrative exams from Millstone 1 but they have had some
24 Millstone 2. It sounds like there haven't been many, but
25 their experience has been, as I say, just fine.

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1 Everything went very well; they experienced no problems, no
2 particular negatives about the program that they expressed
3 to us.

4 MR. MICHELSON: Is the Staff going to be prepared
5 this morning to talk about Crystal River and their
6 requalification program and what went wrong, and what the
7 problem is? They had a very, very high flunkout rate.

8 MR. WARD: Yes. Well, I think that can be one of
9 the questions we can address to the Staff.

10 MR. MICHELSON: I had asked that they come
11 prepared to talk about it some time ago. They did get the
12 message that we wanted to talk about Crystal River 3. Maybe
13 it got lost through a crack. It was about a month or so ago
14 when we talked about it. I remember I came in and pointed
15 out that the real problem -- their flunkout rate was almost
16 100 percent, so I thought it was a good case to look at as
17 at least one extreme where the utility must be having a real
18 problem.

19 MR. WYLIE: Was this NRC-administered?

20 MR. MICHELSON: Yes.

21 MR. WARD: Well, I think I got an indication they
22 are prepared to say something about it.

23 MR. MICHELSON: Okay.

24 MR. WARD: As a focus, I think we have got two or
25 three ways we can focus the--

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1 MR. MICHELSON: Before we get started, also,
2 Dave, I would at least like to thank John for putting
3 together what I thought was a very fine condensation of this
4 information along with plenty of material to read for the
5 details. I certainly appreciated the effort, and it was
6 extremely helpful. When I didn't have a whole lot of time
7 to look at it, it really allowed me to focus.

8 DR. REMICK: I already told John that this
9 morning. I appreciate it very much.

10 MR. WARD: For the typical lazy ACRS member it
11 was of great assistance. It really was.

12 Well, there are a couple of ways we can focus the
13 discussion. One is in this splendid write-up that
14 Mr. Schiffgens has provided he has given us some questions
15 to consider. In addition to that we have the questions or
16 the requests from Commissioner Asselstine way back in
17 February, and I think John's questions cover a couple of the
18 points that Commissioner Asselstine raised.

19 I would paraphrase Asselstine's comments or
20 questions in the four questions, and I think the most
21 important two perhaps are covered by John's, but I think two
22 others are not.

23 MR. MICHELSON: Right.

24 MR. WARD: In addition to that, I think we have
25 got -- each of us has some questions, specific questions

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1 which we might want to raise, and I have some.

2 So I would ask you if anybody has any strong
3 views about how you would like to proceed. We have got two
4 and a half hours to talk about it. I suspect it will be a
5 somewhat disorderly process, but that is probably all
6 right.

7 MR. MICHELSON: Well, if we go through John's
8 questions first, I think they kind of bring out a number of
9 the points. It would be better I think to do that and then
10 go to Asselstine and pick up those things that aren't yet
11 covered.

12 MR. WARD: Okay.

13 MR. MICHELSON: But John's seemed to bring out a
14 number of things that I had wondered about, and that might
15 be a useful starting point.

16 MR. WARD: Yes. I think they are in a more
17 appropriate order than are Asselstine's.

18 Any other?

19 (No response.)

20 MR. WARD: Well, we will proceed.

21 Forrest, do you have any questions?

22 DR. REMICK: What is our ultimate purpose? Is it
23 to respond to Asselstine's request, or is it broader than
24 that?

25 MR. WARD: Well, I think somewhat broader. I

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1 think we need to respond to Asselstine's request but I think
2 we also need to develop, you know, perhaps what we consider
3 to be a well-rounded position on the requalification program
4 in general, if we can do that. To the extent Asselstine's
5 questions define a well-rounded, you know, look at the
6 program, maybe they are the same thing.

7 DR. REMICK: Okay. Because I thought John's
8 questions were broader than necessarily Asselstine's.

9 MR. WARD: Yes.

10 DR. REMICK: Could I ask Staff one quick
11 question which would help me in my own thinking on
12 requalification? I think it could be a short one.

13 If 10 CFR 55 as changed would go through, would
14 the Staff still intend on the 20 percent of 50 percent
15 administered requal exams? Would they still anticipate
16 continuing that procedure if the new Part 55 went through?

17 MR. BOGER: This is Bruce Boger from the Staff.
18 The answer is Yes.

19 DR. REMICK: Okay.

20 MR. WARD: Okay.

21 Well, let's go ahead, and we will use John
22 Schiffgens' questions as the focus for discussion. The
23 questions have several parts, but let me just read the
24 general question and then we will start with the first part
25 of it.

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1 The first approach is-- The general question is:
2 Is the NRC requalification program philosophy
3 appropriate, and the first question is what are the NRC
4 objectives?

5 And I think of course we could ask the Staff
6 that, but I think they have told us. But I would like to
7 get an idea of what we believe the NRC objectives are.

8 MR. MICHELSON: Before we get into that, I think
9 at the June meeting which I wasn't able to attend, I think
10 you searched out whether there are comparable
11 requalification processes going on in this country in the
12 medical profession and elsewhere. Was that a part of your
13 June meeting?

14 MR. WARD: Yes, it was.

15 MR. MICHELSON: And could you tell me just real
16 briefly is there anything even comparable to this level of
17 requalification requirement?

18 MR. WARD: Yes, I think there is. First of all,
19 we didn't hear from the FAA at that time. We were scheduled
20 to, and we didn't, and we haven't had any further input from
21 the FAA other than written material that we had--

22 MR. MICHELSON: Is this relative to pilot
23 requalification?

24 MR. WARD: Yes, pilot requalification, and
25 particularly, you know, the use of check pilots because

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1 that is a part of this expression.

2 We also heard from -- I forget what it is called,
3 bu the American Board of Medical Examiners or something. I
4 found that to be kind of an interesting presentation.

5 MR. MICHELSON: How often do they require
6 requalification by examination?

7 MR. WARD: Well, it is quite scattered. It
8 depends on, you know, the segment of the medical profession
9 that you are talking about. For some it's zero; for others
10 it's-- I think five years might have been a more typical
11 number.

12 MR. MICHELSON: And that is by examination?

13 MR. WARD: Yes, by examination.

14 MR. MICHELSON: Written examination?

15 MR. WARD: In some cases it is a rather
16 comprehensive written exam, but at the present time, zero
17 might be more typical.

18 MR. MICHELSON: I think it is in the medical
19 profession. There aren't too many that require frequent
20 requalification.

21 MR. WARD: Yes. But some do. And if there was a
22 trend, my impression of the trend was that the trend was to
23 begin to require it more and more. This might have been
24 just the view of the Board of Medical Examiners.

25 MR. MICHELSON: And that came closest, besides

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1 the FAA which you didn't get the information on.

2 MR. WARD: Let's see. What else did we hear
3 from at that-- Do you remember what other groups we heard
4 from at that meeting, John?

5 MR. SCHIFFGENS: The medical examiner.

6 MR. WARD: Yes, the medical examiners.

7 MR. SCHIFFGENS: The FAA didn't come.

8 MR. WARD: Yes.

9 MR. SCHIFFGENS: We had the region
10 representatives.

11 MR. WARD: Yes, but we didn't hear from any
12 other--

13 MR. SCHIFFGENS: -- outside group.

14 MR. WARD: -- outside group, did we?

15 MR. SCHIFFGENS: No.

16 MR. WYLIE: But as I recall the basic general
17 practitioners' retraining quite often was just staying
18 abreast of the current training literature, as I recall. He
19 read certain documents periodically.

20 MR. MICHELSON: Yes. It is not very organized.

21 DR. REMICK: Dave, on the question before us, I
22 was licensed before the time that there were requirements
23 or requalification programs and was licensed at the time
24 that requalification programs came into effect. In my mind
25 there is just no question that the concept of

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1 requalification is a good one. I think it definitely
2 improves the status of operators.

3 The annual exam can sometimes be traumatic, but I
4 think the overall philosophy and the concept of
5 requalification training in my mind is a good one. And I
6 have a feeling that that's a general feeling out there
7 amongst operators. I think the thing that has changed that
8 has caused so much difficulty was a couple of years ago when
9 the Commission basically ordered the Staff to start
10 administering some of those annual examinations, but I think
11 the overall--

12 And I think that's a question before us, the
13 philosophy, the concept. From my perspective, there is just
14 no question in my mind that it is a good one and that people
15 need to be continually training to keep up to date.

16 When we talk about requalification training for
17 operators it is more than just theory, it is making sure
18 that you get experience on the simulator, that you are
19 updated on changes. You get a plant walk-around to make
20 sure you're familiar with the plant; a whole series of
21 things.

22 And I just think that is very good concept that
23 people are continually being trained, and it is not
24 necessarily limited to what you learned before. It is
25 learning new things, too, and I think this is always good.

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1 I think the fact that people are continuing to learn more,
2 it contributes to professionalism. They aren't stagnant,
3 just relearning what they learned before, although for
4 operator licensing, continuing training or requalification
5 training, much of it is relearning things that you learned
6 before, but there is the opportunity there to be learning
7 new things also.

8 So I come out-- I think the philosophy is a good
9 one.

10 MR. MICHELSON: Well, I haven't made up my mind
11 yet. The philosophy is a good philosophy, but we certainly
12 have apparently picked up the nuclear industry for an
13 inordinant amount of this retraining and requalification as
14 opposed to other high-impact industries -- occupations like
15 doctors, for instance, where certainly the public health and
16 safety must be heavily involved with them, and yet we do not
17 have that kind of a rigorous requalification process there.

18 DR. REMICK: Maybe we should.

19 MR. MICHELSON: Maybe we should.

20 MR. WARD: There is in-- You know, some of the
21 segments of the medical profession had I think rather
22 rigorous requalification departments.

23 MR. MICHELSON: But others like general family
24 practice, there is no requirement to ever requalify. And a
25 lot of other licensed occupations in this country--

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1 Engineers don't have to requalify. Why shouldn't an
2 engineer have to requalify every year to prove he is still
3 an engineer? You take the license exam once, and that's
4 it.

5 MR. WARD: Well, you know, to me that raises an
6 interesting question. You know, the purpose of
7 requalification -- or the purpose of professional licenses
8 in the first place, is the purpose to, you know, assure the
9 general competence of a profession, or is it to protect the
10 public against individual charlatans?

11 MR. MICHELSON: I thought it was just the
12 latter. I thought that was the basis for, you know, making
13 it legal, to protect the public health and safety. There
14 are certain occupations in this country that require
15 licensing. I am not authority on it by any means. In my
16 mind, that's what I thought the basis was.

17 MR. WARD: For example, the engineering license.
18 In most cases people hire engineers or engineering firms
19 because of the reputation of the engineer in the marketplace
20 or, more usually, the reputation of the institution that
21 engineer works for, I mean the corporation or the laboratory
22 or something else.

23 It seems to me that the general competence of the
24 engineering work in the country isn't affected too much by
25 the fact that they have a state licensing.

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1 MR. MICHELSON: Well, it's hard to tell because
2 it has been in existence for a long time.

3 MR. WARD: Yes.

4 MR. MICHELSON: But there are a number of small,
5 independent practitioners who build small buildings and
6 small bridges and whatever, and the public wants to be
7 assured that those are not going to jeopardize their health
8 and safety.

9 MR. WARD: Yes. So you're saying that it's
10 because the engineer or the medical doctor can practice as
11 an individual rather than as part of a kind of a visible
12 institution that the public needs the licensing of it.
13 Well, if you think about it,--

14 MR. MICHELSON: Well, I think that's the basis
15 because there was a time when it was much more prevalent
16 than it is now to see small practitioners.

17 MR. WARD: But if you think about it in those
18 terms, the parallel with licensing nuclear power plant
19 operators kind of breaks down somewhat.

20 MR. MICHELSON: Because they are not individual
21 practitioners. The operators are not operating as
22 individual practitioners but, rather, as a member of a large
23 corporate group which has organized checks and balances that
24 protect the public. You could argue that way.

25 MR. WARD: Yes.

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1 MR. MICHELSON: But if you argue that way, then
2 what is the purpose of licensing? There is this big
3 operation with its billions of dollars invested. It is to
4 them a very important self-interest to be sure of
5 operations even beyond public health and safety. So perhaps
6 you shouldn't have to have any special requirement, but we
7 do, and now the question is how much.

8 And I am wondering. What I am concerned with in
9 my own mind is have we gone too far with this kind of
10 requalification program. And I just don't have that
11 answer. And I am trying to hear the information that
12 assures me that we haven't gone too far.

13 MR. WARD: Yes. Well, it seems to me that the
14 purpose of licensing and maybe even of requalification --
15 that strikes me as pretty much the same thing -- is more to
16 give the NRC one handle on or one means of sampling the
17 competence of the overall organization rather than the
18 competence of individual practitioners. And if that is
19 really the purpose, then it seems to me that that influences
20 the sort of thing you're saying.

21 You know, why should the--

22 MR. WYLIE: It is really a question of who does
23 the examination, who administers the examination. That is
24 what it boils down to. Like Forrest, I think that the
25 general philosophy of requalification is sound for many

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1 reasons. And the parallel that you mentioned earlier, the
2 FAA and the testing of the pilots to ensure that they are
3 still competent to fly an airplane, because again it is sort
4 of like-- The kind of business like that, if they are not
5 you'll crash a plane and it is catastrophic.

6 And the same problem exists in the nuclear
7 industry. So I guess it is a close parallel between the two
8 from that standpoint.

9 The thing I have a little bit of a problem with,
10 though, is that we go through the process of reviewing
11 applications for construction permits and review the designs
12 from a programmatic standpoint as to how well they meet
13 criteria in Reg. Guides and this sort of thing, but that is
14 more of an auditing process, a review and auditing process
15 to see that the program is working.

16 If you were on the other side of the coin, and
17 where we get most of the objections from the utilities is
18 that the NRC goes further with this program in that they are
19 administering the examination of the individuals, and that
20 is a little different. I fail to see why there is a
21 difference.

22 MR. WARD: Yes. Well, the fact that they are
23 only administering 10 percent of them means that--

24 MR. WYLIE: 20 percent.

25 MR. WARD: Well, 15 or 20 percent means that that

1 MPB:b

1 is really kind of an auditing process, and I think that is a
2 good question. Why have they chosen to audit in that way?
3 Why not just audit the requalification in the more
4 traditional way?

5 MR. WYLIE: Why not audit to see that the program
6 has been accepted or is actually being enforced and
7 administered? It seems like to me that's the question.

8 The other one has to do with the thing we've
9 mentioned earlier about-- Forrest mentioned the
10 examinations and the content of the examinations. And most
11 of the criticism that I have heard from operators has to do
12 with the -- and it is not what we hear all the time -- the
13 highly academic questions that they get on the examinations.
14 And I think that maybe the Staff will speak more to this
15 later.

16 But the program that they have proposed and the
17 changes are based on job task analysis, and how much that is
18 going to change this type of question I would like to hear.
19 I think that's the right approach. And obviously there are
20 some basics that maybe need to be refreshed. Just like
21 engineers' licenses, you have to pass certain basics in
22 order to get that license, but that is a one-time
23 proposition and not an every-two-year proposition.

24 MR. WARD: Does that make sense, though?

25 MR. WYLIE: What?

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1 MR. WARD: I mean if there was something you need
2 to know in the first year, don't you need to know that in
3 the tenth year?

4 MR. WYLIE: Well, engineering is a little
5 different I think. There are a lot of checks and balances
6 in engineering. It is hard to get a bad design through, for
7 one thing. Being an electrical engineer, if it is not
8 designed right it is not going to work right, generally.
9 There are a lot of checks and balances in the process, and
10 you can always check on each other, you know, and there is a
11 lot of that.

12 And QA programs assure that they are checked, and
13 this kind of thing, so I think it is a little different.

14 MR. MICHELSON: The medical profession doesn't
15 necessarily have all these checks and balances, but it
16 doesn't get the re-examination either.

17 MR. WYLIE: No, that's true.

18 MR. MICHELSON: And it certainly is dealing with
19 public health and safety in the very closest sense.

20 MR. WYLIE: And I think you don't have to go very
21 far until you also find glaring examples of malpractice,
22 too.

23 MR. MICHELSON: Oh, yes. And with engineering
24 you get malpractice also. You may not call it that.

25 DR. REMICK: Carl, you had asked a question,

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1 have we gone too far. I guess I don't feel we have gone too
2 far if the requalification is aimed at what it is the
3 operators need to know to safely operate the plant, plus
4 learn new things related to that.

5 If it goes back and it is just theory, some of
6 which might not be needed, then I think perhaps it is going
7 too far. But if it really is a performance-based type of
8 thing, then I think it contributes to esprit de corps. If
9 it contributes to people being able to respond and so forth,
10 then I don't think it has gone too far.

11 I would like to respond to Chuck's comment about
12 the theory, and I realize I used to examine people for a
13 license, so you do get into those discussions of what theory
14 is necessary. And I remember -- and this is pre-TMI --
15 getting into an argument at a plant in Pennsylvania, not
16 Three Mile Island, in which I had a question on there, what
17 was the approximate melting point of UO2. And I thought
18 operators -- This was a senior operator exam -- should know
19 that. And I got into an argument with management that that
20 was an inappropriate question.

21 And then I thought later after TMI, with
22 hindsight, that that is a good question. And I wasn't
23 looking for the exact temperature, but I thought people
24 ought to know approximately at what temperature fuel would
25 melt. And I think they surely needed to know that during

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1 the TMI accident.

2 But you do get into these types of
3 discussions about what theory is needed, and what isn't.
4 You get into reactivity coefficients which-- My personal
5 view is that operators should have some kind of feeling what
6 things like temperatures and poisons and boron dilution and
7 all these things have on reactivity. There are people who
8 differ; well, yes, but we never really see those things in
9 the plant. Some of you do and some of you don't. So it is
10 a subjective type of judgment on what theory is
11 appropriate.

12 MR. WYLIE: Maybe, Forrest, you and the Staff can
13 enlighten me some, but the complaints that I have heard from
14 older operators is what they call highly academic,
15 mathematical type questions and as to what that really --
16 how useful that is to the operator and whether, you know, it
17 really buys anything, and those type of questions. And it
18 depends on whether or not his job task analysis requires
19 that he have a knowledge of that.

20 If in truth the objective of the Staff's program
21 here is to take job task analysis and to analyze those, to
22 the extent you then can say Yes, these are the things he
23 ought to know and be able to calculate if he has to
24 calculate these things, then that is a good question, but if
25 it is not, then it shouldn't be in there.

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1 MR. WARD: But it seems to me that if it depends
2 on -- the base, the training, and then maybe the requal
3 examination only on the job task analysis then that puts the
4 burden on the job task analysis to really be complete.

5 MR. WYLIE: Well, I personally feel that is where
6 you ought to put your emphasis.

7 MR. WARD: Okay. Then that is a good point.

8 But I mean, for example, on of Asselstine's
9 questions was something to the effect of is the
10 requalification program fostering a gradual increase in the
11 level of engineering expertise on shift? We might ask
12 "Should it?"

13 Well, some of those-- I mean if the job task
14 analysis is just dealing with the stuff the operator does
15 every day, I don't think that's enough. I mean you could
16 almost say the operator doesn't need the training in the
17 routine duties.

18 MR. WYLIE: Oh, no.

19 MR. WARD: What he needs training and hence
20 examination is in the rare things that he never encounters.

21 MR. WYLIE: Oh, yes. And as I look at this
22 program, that is part of the training program. Well, the
23 INPO program has the unusual event training, the emergency
24 procedure training, you know, and those types of things.
25 The knowledge that goes with that as to what is happening

1 MPBeb

1 should be there. That would be my thought.

2 MR. MICHELSON: The question of course is the
3 depth of that knowledge. Even in such simple-minded
4 questions as asking him at what temperature UO2 will melt,
5 that is a very complex question when it is placed in the
6 matrix of fuel. And with all of the other funny things that
7 happens then it gets to be very complicated, and it can melt
8 way below what UO2 itself would melt.

9 MR. WYLIE: But in a mix like that there is a
10 cutoff below which he really doesn't need to know what is
11 going on as far as the nuclear physics part of it goes. I'm
12 talking about an operator. So it is really how far you go
13 with what the level of the questions is.

14 MR. MICHELSON: Yes, I think an airplane pilot
15 has to understand the thrust characteristics of his engines,
16 for instance, in pretty good detail.

17 MR. WYLIE: Sure.

18 MR. MICHELSON: But as far as the bearing design
19 is concerned, he ought not to worry about that.

20 MR. WYLIE: Well, I'm not so sure about that.

21 MR. MICHELSON: Well, he is not going to be able
22 to do anything about it.

23 MR. WYLIE: For example, I think a TMI operator
24 could have benefitted by the fact that centrifugal pumps --
25 that you can't overpressure a system with a centrifugal

1 MPBeb

1 pump. And that's a knowledge of pumps.

2 MR. MICHELSON: Yes, I think that's the kind of
3 knowledge you do need. But I looked at some of these
4 examinations that are being given, the requalification
5 exams. We were sent a sample of I think five or six, and in
6 the theory part they asked very detailed theory questions I
7 thought.

8 MR. WARD: But are they appropriate or not?

9 MR. MICHELSON: No, I didn't think they related
10 to what he needed to know to respond in a reasonable time.
11 Now he isn't going to have six days to think about an
12 accident. He is going to have a few minutes. And what is
13 the kind of knowledge that he needs in those few minutes
14 that would be helpful in responding?

15 I fully agree he needs to understand the
16 knowledge needed for performance of his tasks. He doesn't
17 need to understand the theory involved. That would be nice
18 to know but he isn't going to make engineering evaluations
19 of designs and so forth. He hasn't got that kind of time,
20 you know, when he is in an accident situation.

21 TMI was unusually long, and they fiddled around a
22 long time there. But even two hours is not long to think
23 about a lot of theory.

24 MR. WARD: Yes, but didn't this whole question
25 arise from the TMI experience where the people on shift

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1 apparently didn't understand the steam table?

2 MR. MICHELSON: Yes, but it doesn't take all of
3 what we are doing now to understand steam tables, or even
4 the other fundamentals of thermodynamics that they need to
5 know. But the questions seem to be far beyond that, into
6 areas on which they are not going to be making calculations.

7 MR. WARD: Okay. So it seems to me like the
8 question isn't so much whether the exam should include
9 theory, but exactly what aspects of theory and what level of
10 theory--

11 MR. MICHELSON: That's right. I think the theory
12 associated with the short-term performance of their machine,
13 but not with the fundamental design because they are not
14 going to have time to deal with fundamental design.

15 MR. WARD: It seems to me they have to understand
16 fundamental concepts.

17 MR. MICHELSON: Sure. There's a difference.

18 MR. WARD: I mean the UO2 melting may be -- that
19 can be--

20 MR. MICHELSON: I'm not sure that that is going
21 to be helpful to them at all.

22 MR. WYLIE: That question I would say is one that
23 is on the original examination. It should have been on the
24 original examination, but maybe it shouldn't have been on
25 the requal.

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1 MR. MICHELSON: That's it. It is a good
2 question. The original examination should examine his
3 understanding of all these theories, but not ask him the
4 same questions again every year.

5 MR. WARD: You think he doesn't need to
6 understand the theories the second year?

7 MR. MICHELSON: The second year he needs to
8 understand that aspect of the theory that relates to the
9 performance of his job, as opposed to a lot of other
10 theories that it might be nice to be sure he understood at
11 least once in his mind, and perhaps can still recall it.

12 And that's the way doctors are examined, except
13 they assume there that they never need to be rechecked on
14 practice.

15 MR. WARD: I have a little trouble with the
16 argument that a person needs to know certain things for the
17 original license but he doesn't need to retain that
18 knowledge, unless you are just using it as an ability test
19 in the beginning.

20 MR. MICHELSON: No, the whole business is when
21 you store information that you can recall a fraction of it,
22 so you like to store a lot of information initially and
23 hopefully he can apply some of it later in an emergency.
24 But no one can recall 100 percent of what he has learned, or
25 you could never take the examination today that you passed

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1 when you were in college because you don't remember all that
2 kind of detail. But you remember a lot of things that are
3 important, but not all of the detail.

4 MR. WYLIE: It is sort of like, Dave, the
5 engineers' examinations, and the trend, and I think most
6 states are doing this now. You know there's two parts now.
7 There's the EIT, the engineering and training exam, where
8 it's a very broad exam and it covers many, many fields or
9 subjects. And then the later exam is more specific to that
10 particular degree.

11 MR. MICHELSON: But the thought is that the
12 student can't retain all of that detail for four or five
13 years of practice when he takes the final exam.

14 MR. WYLIE: The fact that he was trained in that
15 area, he can fall back on it.

16 MR. MICHELSON: Oh, yes.

17 MR. WARD: You seem to be making the argument
18 that he can fall back on it for the operator, he can fall
19 back on it in an emergency on Saturday night but he can't
20 fall back on it in an exam.

21 MR. MICHELSON: No, no, it is the other way
22 around. Just like an engineer, years later you will fall
23 back on it by pulling your book off the shelf and thinking
24 about it. In an emergency I don't have time to pull those
25 textbooks off the shelf and start thinking about it again.

1 MPBeb

1 Engineers do.

2 DR. REMICK: Carl, I differ that you should only
3 be teaching him what he is going to need in the case of an
4 emergency. Most of the time they are doing things that are
5 not emergency situations. He has to have judgment and he
6 has to know what the impact of doing this or that should
7 be. So I don't think that the requalification or the theory
8 that he gets should be restricted to what he is going to
9 remember at the time of the transient.

10 Every day they are making decisions. If they do
11 this or do that, what effect on reactivity or on releases
12 and the importance of them and so forth are. So I think you
13 are going too far towards being able to respond to
14 emergencies.

15 MR. MICHELSON: Well, we haven't, hopefully,
16 crystalized that narrowly. I was just trying to point out
17 that there is quite a difference between the kind of theory
18 he ought to be taught initially and the kind of theory he
19 ought to be expected to feed back ten years later.

20 MR. WARD: Is one of the differences that too
21 many of the exams-- I mean it seems to me the operator
22 should have some understanding of concepts, but it is less
23 important that he be able to make mathematical manipulations
24 which an engineer might have to make in designing or
25 analyzing something to deal with or make use of those

MPBeb

1 concepts.

2 MR. MICHELSON: As an example, that is right,
3 because he not going to have time during any kind of
4 normal emergency situation to do it, and his routine job
5 doesn't require it.

6 DR. REMICK: But once again, see, I disagree.
7 There are some things he has to know for routine. An
8 operator talks about a reactor period. He has got to have
9 some idea what a reactor period is so he has to have some
10 understanding of exponentials, and so forth.

11 Many operators have to do -- have to calculate
12 expected critical positions and so forth, so there are
13 things that operators have to do that require some
14 understanding. They're not doing them under these crisis
15 situations; they are doing them under routine, but they have
16 to do them right.

17 And so you can't scratch things away, and the
18 only things they need to know are--

19 MR. MICHELSON: And presumably he was trained and
20 examined on that basis initially. He demonstrated that he
21 understood how to do the calculations, and he was capable of
22 making such calculations. I think the question is whether
23 or not he has to redemonstrate that sort of thing on a
24 yearly basis.

25 DR. REMICK: Maybe not calculate a period. You

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1 would hope that he would have some feeling, but I would
2 expect your critical position-- That's something he has to
3 do every time he goes critical, and I would expect an
4 occasional check to see that he knows how to do that would
5 be appropriate for requalification training from my
6 standpoint.

7 MR. MICHELSON: Well, generally the nuclear
8 engineer does most of the calculations, not necessarily the
9 reactor operator.

10 DR. REMICK: It is a requirement of the operator,
11 an SRO.

12 MR. MICHELSON: It is a requirement to know what
13 to do and how to do it.

14 DR. REMICK: Right.

15 MR. MICHELSON: But not to do it. The SRO
16 doesn't necessarily do that.

17 DR. REMICK: In some plants they do.

18 MR. MICHELSON: In some plants.

19 I think the differences we have are, you know,
20 what sorts of things need to be reexamined. Is the
21 requalification examination just a sample out of the
22 original set of questions, or is it a directed sample based
23 on what he really needs to know now in terms of operation as
24 opposed to the kind of theory he ought to have been trained
25 in initially?

MPBeb

1 I think there is a lot that needs to be put into
2 his head initially that doesn't need to be reverified
3 because it is an unreasonable request I think of an operator
4 unless it really is needed. If it is really needed--

5 MR. WARD: Why is it needed, though, in the first
6 place?

7 MR. MICHELSON: Well, why does an engineer learn
8 all these good things that he learns when he goes to
9 college? Years later he asks why did I ever take surveying,
10 for instance? Well, there was a time when surveying was a
11 required course. There are a lot of things you take that
12 you don't necessarily use, and not knowing what you are
13 going to go into--

14 MR. WARD: Well, you gain an appreciation for the
15 concepts.

16 MR. MICHELSON: Sure.

17 MR. WARD: And I think you retain that
18 appreciation even on a exam.

19 MR. WYLIE: It is a matter of degree, though.
20 For example, like Carl says, I took surveying.

21 MR. MICHELSON: I did, too.

22 MR. WYLIE: But I would be hard-pressed right
23 today to do some calculations on surveying without boning up
24 on it.

25 MR. WARD: Okay.

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1 MR. WYLIE: But if I don't use surveying, and I
2 very seldom use surveying, then I have that knowledge and I
3 have got the textbooks over here. I can go look at them if
4 I want to, if I need to. And I have that broadened
5 experience so that I can read layouts and plans and this
6 kind of thing.

7 MR. WARD: Okay.

8 MR. WYLIE: But if I had to lay out a road and do
9 this kind of thing, I couldn't make that calculation without
10 sitting down and boning up.

11 MR. MICHELSON: And it wouldn't be needed for
12 your job.

13 MR. WYLIE: It goes back to the job task analysis
14 I think of what the operator needs to know.

15 MR. MICHELSON: But that was on the EIT exam, by
16 the way.

17 MR. WARD: But it seems to me you are putting a
18 lot into the original licensing exam that isn't on the job
19 task analysis -- I mean that doesn't derive from the job
20 task analysis.

21 MR. WYLIE: Well, I think there ought to be more
22 than just what he needs to know to operate daily in response
23 to emergencies. I think he needs to have a broader
24 knowledge of the plant and the impact. I mean that is like
25 an engineer needs to know many things. Even an electrical

1 MPEeb

1 engineer has to know chemistry.

2 MR. WARD: Well, I am trying to be a devil's
3 advocate in a way, I guess. For some reason I am
4 comfortable with that idea but intellectually I'm having
5 trouble reconciling it. I'm not sure it makes--

6 MR. WYLIE: He needs to be broader than--

7 MR. WARD: I'm not sure I could explain that to a
8 Martian, why it makes sense.

9 MR. MICHELSON: Well, you are an engineer. You
10 don't get regualified every year. Why does that make sense?
11 Why shouldn't I-- As a member of the public, if you are
12 dealing with a public health and safety occupation, why
13 shouldn't I insist that somebody check you every year to
14 make sure you are still smart enough?

15 DR. REMICK: I have no trouble, Dave, because in
16 my view I want operators to be professionals, and by
17 professionals, I think that they have to be inquisitive;
18 they want to be learning; they want to be cross-trained. It
19 is not just their narrow field. They want to learn more,
20 than to have blinders on and just how to operate.

21 So I have no problem with that. A lot of people
22 differ. They think you should train them just exactly what
23 they have to do, and no more, and if you train them more,
24 you are going to lose them to somebody else or to some other
25 field.

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1 I have no problem because I just think the type
2 of person that I would want to see in the control room is
3 one who would be interested in learning more.

4 MR. WARD: Yes.

5 DR. REMICK: That is a personal viewpoint.

6 MR. WARD: But why wouldn't he be interested in
7 maintaining that on a continuing basis?

8 DR. REMICK: Well, there I am torn, I guess. I
9 would say Yes, he would want to, but how important is some
10 of it to his day-to-day operation? That I am not sure. I
11 mean I don't know. If he has learned a lot, I think it is
12 unreasonable to expect that he is going to be able to
13 regurgitate that every year in exams. So somehow you have
14 to narrow it down to what is he responsible for.

15 At the same time I would hope that every year he
16 is interested in learning new things that he hasn't learned
17 before, either about the broad plant or about his company or
18 the world. That is just the type of person I would want to
19 see.

20 MR. MICHELSON: As a practical matter, one has to
21 remember, though, we are not dealing with intellectuals
22 necessarily. We are dealing with a cross-section of the
23 operators which generally are high school graduates, not
24 necessarily any college exposure at all. They have a little
25 different way of approaching it; this is a requirement of

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1 the job so they do it because it is a requirement of the
2 job.

3 They didn't get the job because they had an
4 intellectual curiosity. They got the job because they were
5 interested in getting it. And they were able to retain it
6 as long as they were able to receive enough training and
7 regurgitate it in the form of passing exams and whatever to
8 do the job. But that doesn't make them intellectually
9 curious.

10 DR. REMICK: I'm just saying that's the type of
11 person I would want.

12 MR. MICHELSON: Yes, but there is nothing-- Then
13 you had better have a different selection process--

14 MR. WARD: Or a different requalification
15 process.

16 MR. MICHELSON: -- in some way because
17 intellectual curiosity is not a requirement of this job.

18 DR. REMICK: Not an NRC requirement.

19 MR. MICHELSON: Not a corporate requirement
20 either. How do they know he is intellectually curious?

21 DR. REMICK: Some plant managers would say that
22 that is--

23 MR. MICHELSON: You would always like to have
24 intellectually curious people, I guess.

25 DR. REMICK: There are people who like to keep

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1 their intellectual operators barefoot and pregnant, not
2 encouraging them to learn at all because they might lose
3 them. I personally think that's a mistake.

4 MR. MICHELSON: But we do have to be practical
5 at this whole matter, too. I can't believe we should
6 approach this from the viewpoint that we are dealing with
7 intellectually curious people because I don't think we
8 necessarily are. We are dealing with good, honest,
9 hard-working people, but not necessarily like they are
10 anxious to learn all there is to learn about the world
11 because I don't think that's--

12 I have had a pretty fair amount of exposure to
13 operators, and I have never gotten that impression, by and
14 large, that they were that curious about the world.

15 MR. WARD: But I think Forrest is suggesting that
16 might be a problem.

17 DR. REMICK: It might be.

18 Kris, did you want to say something?

19 MR. GIMMY: Yes, I would like to expand on a
20 point that Carlyle raised about time.

21 Requalification is by definition a very limited
22 time sort of thing. You have limited time to get ready,
23 limited time to take it. And for instance on the initial
24 license they have got all the time in the world for that,
25 and usually they do it before the plant starts up, and if

1 MPBeb

1 the plant starts up late, they have even got another year to
2 get ready for it sometimes.

3 But on requal you are talking about pulling
4 people off a shift, relieving them, and all that sort of
5 thing. And it is a very tight thing.

6 I know at the June meeting one of the comments
7 that we got from several of the people that were here was
8 that they have limited time and they spend it all learning
9 to pass the exam. And so I'm getting back to your question
10 now:

11 Should the requal be just a mini-version of the
12 original thing? For instance, should it have all seven or
13 eight of the original categories, and should it be sprinkled
14 out equally, as it was in the original exam or, for
15 instance, should the theory and principles of operation, the
16 part that they complained the most about, should that indeed
17 be quite a bit watered down now?

18 Now in other organizations that do give requal,
19 namely, FAA which I am a little familiar with, when the
20 pilot comes up for his annual requal, it is primarily about
21 a 90 percent of flying thing, to see that he can handle
22 unusual attitudes, fires and stuff that he doesn't see every
23 day, and also they spend some time pointing out the tricky
24 parts of the new airplanes, like the 737 that likes to go
25 into a nose high stall, and they make sure to take him

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1 through that, or any modifications that they have made to
2 the plane recently, or any changes in the de-icing
3 procedures and stuff.

4 They don't go back and retest him on the
5 Bernoulli's theorem. Even though he had to have it to get
6 that first license, they don't make him do a Bernoulli
7 calculation on the wing cord or anything. They don't do any
8 of that.

9 On the medical thing, I would like to say
10 something there.

11 I have a good friend who is a doctor and I went
12 through school with him, and when he got over in med school,
13 one of the things they made him do -- you all know this --
14 was memorize the names of all the bones in Latin, and in
15 particular the foot bones. They gave him a hard time
16 because there are a lot of bones in the feet, more than
17 anyplace else, and he had to know every joint in Latin.
18 And of course he couldn't name hardly any of those today.

19 Now the question is would you want him to name 10
20 percent of the foot bones in Latin today, and the answer is
21 No.

22 And the reason they went through that I think was
23 that so in an emergency, he would remember hey, the foot has
24 got a lot of bones in it. And if there is an emergency and
25 your main leg bone is broken, you can strap it up with

1 MPBeb

1 belts and newspapers and stuff and you can walk out of
2 there. You can't wrap the foot in newspapers and walk out
3 of there. And I think that's about all they wanted him to
4 remember.

5 Now whether that is relevant or not, I don't
6 know. But I really want to get back to your question that
7 you raised but didn't follow, and that is giving limited
8 time for requal, should the requal be just a mini-version of
9 the original exam with 10 percent of it being theory
10 questions and 10 percent of it being this and 10 percent
11 being that, or should it be more over into problems peculiar
12 to this type of plant that we have uncovered, recent
13 backfits to this plant, new changes in how we operate, new
14 environmental regulations?

15 I don't know the answer. I would just like to
16 raise the question, given limited time.

17 DR. REMICK: And then you can subdivide that
18 further into the question-- You could say Well, are you
19 talking about requalification conducted at the plant, the
20 training program and their testing of it, versus if the NRC
21 comes in and gives a requal exam, should they be asking
22 questions on theory or should they restrict themselves to
23 making sure that the person can demonstrate that he can
24 operate the plant, say on a simulator?

25 In other words, you could subdivide that,

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1 depending on who is going to administer the exam.

2 MR. GIMMY: One of the comments that we got last
3 June was very strong on that, and that was that the outside
4 person tends to ask and check the theory questions because
5 those are the ones-- They are easier. And to ask anything
6 about the plant in great detail or to even observe a guy on
7 a simulator, you have really got to know the nuts and bolts
8 of that plant.

9 So by definition the outsider, whether he be a
10 consultant or from NRC, is going to tend to lean toward the
11 book-type question I would think. And the question I think
12 before us would be should there be the same representation
13 or even more, heaven forbid, of that type question in the
14 requal than there is in the original. I think it is the mix
15 that is important.

16 We heard the people testify last time they were
17 here. One guy just said flat out that they spent all their
18 time getting ready for the book questions, and that's a
19 shame.

20 MR. MICHELSON: Yes, that's right.

21 DR. REMICK: Yes, even that concerns me a little
22 bit because the whole philosophy of the annual exam
23 originally -- and it is still in Part 55 -- as written, the
24 purpose of the annual exam was to see basically whether
25 you -- well, I shouldn't say it this way -- was to assure

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1 that you knew everything at that point, and was to identify
2 the things you didn't know so that you could direct the
3 requalification training over the next two years to fill
4 those voids.

5 That was the purpose, and then the individual
6 exams that people take-- For example, let me go back.

7 Suppose you take the annual requal exam and you
8 found out that shielding was an area that you were weak.
9 The idea was that some time over that next two-year
10 requalification program you would cover shielding and then
11 at the end of those shielding lectures or whatever it was,
12 you would take the examination, and it was important then
13 that you passed that examination.

14 But the whole concept of the annual requal exam
15 was to identify those areas where your group was weak, or
16 individuals were weak and they needed requalification. Now
17 it has gotten around to be more like you are talking about,
18 that they are boning up ahead of time to pass that annual
19 exam, and I think that is putting the cart before the horse
20 on at least what was the original philosophy. And it is
21 still the written philosophy in Part 55.

22 MR. MICHELSON: So I think it kind of boils down,
23 doesn't it, to whether the requalification process should be
24 worrying too much about the old basic theory that was taught
25 to the student before he passed his first exam, or whether

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1 it should focus on the kind of things he ought to be aware
2 of and make sure he is aware of it. And that's the purpose
3 of giving the exam.

4 So you don't really go back and re-examine him on
5 all these fundamentals but, rather, you examine him now to
6 make sure that he understands how the plant is currently
7 configured, what changes might have been made, or if an
8 unusual safety problem has appeared, make sure by
9 examination that he is aware of that problem and what it
10 means to his plant.

11 That's the sort of exam I thought was going to be
12 involved in requalification, but that is not what I see when
13 I read these questions.

14 MR. WARD: Yes, but that isn't quite what Forrest
15 said, and that is I think what is in 10 CFR 50 or 55 now is
16 a little contradictory, but that is the argument that the
17 exam should-- I mean it seems to me you would have to
18 conclude that the exam should test the operator broadly
19 enough.

20 It isn't really a question of academic or
21 non-academic or practical, but broadly enough so you can
22 determine where the training should be concentrated in the
23 future. And if the weakness is in academic areas, you would
24 say the training should be concentrated in those areas. Now
25 whether that was supposed to apply to the individual or to

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1 the group isn't clear to me. I don't know if that was the
2 intent.

3 MR. MICHELSON: Well, related to that, it is not
4 clear to me what happens if a person fails the
5 requalification examination. Is he immediately ineligible
6 for further duty for instance, or has he got two years in
7 which to -- or six months or some other time period in which
8 to, you know, take the exam again, or what happens to him if
9 he fails in terms of his allowable duties?

10 MR. WARD: Well, I guess as John said in his
11 letter, it is not clear. I think one thing that is clear is
12 that the NRC does not revoke licenses based on the results
13 of the requalification exam. I think that's a principle.
14 But in practice there seems to be a more variable response
15 in that it seems to me there have been cases where the NRC
16 has requested that the utility remove from shift duty
17 operators who have performed unsatisfactorily on the exams.

18 Now maybe that it not taking away their license
19 but it sounds pretty close to me.

20 MR. MICHELSON: Yes, in terms of their allowable
21 duties. I was hoping maybe the NRC Staff could tell us what
22 happens to an individual if he fails to pass the exam, how
23 soon can he be re-examined or what can he do in the
24 meantime, and so forth. It is just not clear.

25 MR. WARD: Can you tell us what the practices

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1 are?

2 MR. BOGER: Basically what we try to do is
3 implement whatever the facilities' requal program told them
4 to do. Each facility has the requal program where it
5 identifies what they have to do to qualify. Included among
6 that is the written examination, and inside of that are the
7 criteria for what to do with somebody that fails.

8 Basically what happens is it depends on the
9 degree of failure. If it is-- Say if it looks like a small
10 deficiency in someone's knowledge, then typically they are
11 allowed to have an oral exam by somebody else who evaluates
12 whether that person has sufficient knowledge to remain on
13 shift.

14 If it is a big deficiency based on the written
15 examination, the person is typically taken off shift until
16 they have had time to review that material and then be
17 re-examined. That is typically by the facility.

18 MR. MICHELSON: Now there are no regulations
19 requiring him to be removed from duty then?

20 MR. BOGER: No. It is typically what we have
21 required in a requalification program. The people have to
22 be taking the NRC requal program.

23 MR. MICHELSON: You are saying as a part of the
24 requal program words are put in as to how the failures are
25 handled?

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1 MR. BOGER: That's correct.

2 MR. WARD: Is that consistent from one utility to
3 another, or are there cases where--

4 MR. BOGER: We found out there are some
5 inconsistencies in the requal programs that were approved
6 through the years, and so some had that requirement, some
7 didn't.

8 DR. REMICK: It might help you, Carl. In
9 Appendix A to Part 55 this is what it says about the annual
10 exam. It is under 4, "Evaluation."

11 "The requalification program shall
12 include (a), annual written examinations which
13 determine areas in which retraining is needed
14 to upgrade licensed operator and senior operator
15 knowledge."

16 So that is the purpose, to determine where they
17 need retraining.

18 Now later on in that, in Section (e) under 4, it
19 says:

20 "Provisions for each licensed operator
21 and senior operator to participate in an
22 accelerated requalification program where
23 performance evaluations conducted pursuant to
24 Paragraph 4(a) through 4(d)...."

25 And I just read 4(a)--

1 MPBeb

1 "....clearly indicate the need."

2 So they are supposed to have something, but I
3 think at least initially each licensee proposed something.
4 The Staff had a chance to review these and accept or not
5 accept.

6 MR. MICHELSON: None of these rules ever told me,
7 though, whether he was relieved from duty until he passed,
8 for instance.

9 DR. REMICK: That depends I think on the
10 individual licensee and what he proposed on requal and what
11 the Staff accepted at that time.

12 MR. MICHELSON: That is apparently where it is
13 identified.

14 DR. REMICK: Am I correct on that, Bruce?

15 MR. BOGER: Yes.

16 MR. WARD: That's what Bruce just said, and that
17 although the regulation doesn't require it.

18 DR. REMICK: No, it doesn't.

19 MR. MICHELSON: The regulation doesn't read too
20 badly to me because it doesn't say what the examination
21 shall really contain, and it doesn't say what happens if you
22 don't pass them, and so forth. It is pretty clean.

23 DR. REMICK: Under "Lectures" it tells you what
24 should be in it.

25 MR. MICHELSON: Well, it just gives you the

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1 reference. What section are you referring to?

2 DR. REMICK: Section Number 2. See it on the
3 left-hand -- over here. (Indicating.)

4 MR. MICHELSON: Oh, yes.

5 DR. REMICK: That is basically the same thing as
6 the initial test, roughly, if I recall.

7 MR. MICHELSON: Well, yes, but these are very
8 general words.

9 DR. REMICK: Yes, but you see theory and
10 principle of operation. Now Appendix A is all
11 requalification, but I think the fact that now the Staff is
12 coming in and administering requal exams, by administering
13 annual exams you have taken what was initially-- The
14 purpose of the annual exam was to identify areas where
15 people need training.

16 Now the Staff is coming in-- And I realize this
17 was Commission dictum that you are doing it, at least
18 initially. You are coming in and evaluating, and if people
19 don't pass that, or a certain number, you are judging the
20 requalification program. And I think you have distorted the
21 whole purpose of that annual exam, which was to identify
22 areas where people are weak and they needed training. So it
23 is a philosophic shift.

24 MR. WARD: It sure has been. I agree with that,
25 but let's see.

1 MPBeb

1 What guidance does the rule give to the Staff on
2 how it should judge a requalification program if it is not
3 on the basis of performance and exams? It doesn't really
4 give any.

5 DR. REMICK: No, because it originally was not
6 the intent that the Commission come in and do what they are
7 doing. That was just started in 1982, I believe, or a
8 little bit later when the Staff had resources to do it.
9 Before, remember, the licensee administered all of the
10 requalification exams.

11 MR. WARD: Yes. And with the intent supposedly
12 of following the regulations, I mean the purpose of the
13 regulation,--

14 DR. REMICK: Yes.

15 MR. WARD: -- which was to determine where
16 retrained needed to be emphasized. Is that right?

17 DR. REMICK: Correct.

18 MR. WARD: Bruce?

19 MR. BOGER: I think there is a piece that is
20 missing here and that is basically what we do to identify
21 which plants receive requalification exams at a given time.

22 In our Examiner Standards we consider things like
23 events that happened at that plant, whether the resident
24 inspectors have seen indications that the operators didn't
25 know something, whether there were other clues that perhaps

1 MPBeb

1 the operators were not being trained.

2 And so we rely on that, SALP inputs, resident
3 inspectors' comments, recent events, LERs, things like that
4 before we ever even go to a plant. And that's what we try
5 and focus on, where we may have programmatic problems rather
6 than individual problems.

7 MR. MICHELSON: But then what do you do to tailor
8 the examination to make sure that the operators have what
9 they need for proper performance as opposed to perhaps all
10 the nice-to-know things that they might have originally been
11 trained in? Because a poor performance on a given event
12 doesn't necessarily mean that you have to go back now and
13 re-review all the theory; it means you had better have-- If
14 you messed up on the theory that is associated with that
15 event, that you had better go back and retrain them on
16 the theory on that event.

17 Do you make the assumption because they missed on
18 one event then they are weak in theory and go through all of
19 it, or do you focus on the event?

20 MR. BOGER: I think we would look more at whether
21 that was a procedural deficiency or whether that could be an
22 overall problem with all operators. We don't try to go in
23 and pick on the particular shift that was there, but it may
24 be an indication that others on other shifts also have a
25 similar weakness.

1 MPBeb

1 MR. WARD: Bruce, it seems to me what you just
2 said was you used the requalification exam -- I mean the
3 NRC-administered requalification exam as kind of a constant
4 trade audit tool where you have indications that there is a
5 problem with the training program or retraining program, I
6 guess, in that if you find problems with it, as indicated by
7 low operator test scores, you know one reaction would be to
8 regard that as only softness in the program and then develop
9 some plan with the licensee to improve the program.

10 But part of your reaction I mean is sort of
11 codified in your approval of the requalification program.
12 It indicates softness in the ability of a particular
13 individual operator and that that operator is in fact
14 removed from his job until he is upgraded. That seems to be
15 two different things, and the second thing dealing with the
16 individual operator does not seem to have any basis in the
17 regulation or in the original philosophy of
18 requalification.

19 Where did that come from?

20 MR. BOGER: I think the problem is if we have
21 done an inspection or, in this case, an examination and
22 found a potential weakness, we feel we have the
23 responsibility to do something about it. And in many cases,
24 in the case or requal in particular, that is why we said if
25 we identify a weakness that person should have additional

1 MPBeb

1 training and reassessment.

2 We have thrown NRC in there as the assessor.
3 Where the facility used to have 100 percent of the
4 requirement, now they, you know, have 80 percent and we have
5 20 percent in a particular year.

6 MR. WARD: No, but the weakness is the weakness
7 in the program or in the individual? It seems that the
8 regulation and the original philosophy was to use this sort
9 of examination to identify weakness in the program, and the
10 individuals were just samples of the program and you weren't
11 to conclude anything about the performance of the
12 individual.

13 But somewhere there was a change made. You've
14 crossed over some boundary where you decided to use the
15 requalification exam scores as an indication of the
16 performance of the individual, not of the program. And
17 where did the justification or where did the drive for doing
18 that come from?

19 MR. BOGER: I am going to have to fall back to I
20 think that if we identify a potential flaw in an individual
21 and that individual holds a license that we have got to
22 assure ourselves that that person still has the minimum
23 level of knowledge or competence to hold a license.

24 MR. MICHELSON: How do you do that?

25 MR. BOGER: That's where we go back through the

1 MPBeb

1 exam, or additional training.

2 MR. MICHELSON: You go back and check his high
3 school chemistry and make sure that he still understands it
4 in order to continue to be an operator?

5 MR. BOGER: No, sir.

6 MR. MICHELSON: Well, that's what the examination
7 does. It goes back and tests all these basic theories
8 again.

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1 MPBwrb

1 MR. BOGER: If I could just talk about--

2 MR. MICHELSON: At least the exams I looked at
3 talked about that. My sample wasn't too great. I looked at
4 several plants--

5 MR. WARD: You mean all the questions dealt with
6 that sort of thing, or just some?

7 MR. MICHELSON: No, not all, some of them. Some
8 of them, not all of them.

9 Some of them were very good questions that, if an
10 operator didn't know, he ought not to be an operator. And I
11 think he ought to be able to sort out that kind of
12 information and test on it.

13 There are certain things that if he doesn't
14 understand, he ought not to operate until his mind is
15 refreshed, on perhaps a yearly basis. But there is a small
16 set of those, and there is a much bigger set that is covered
17 by the original exam, and it seems to be a fairly big set
18 covered by the requalification exam.

19 MR. WARD: Well, I think there might be some
20 difference of opinion about what exactly should be included
21 in that first set.

22 MR. MICHELSON: Yes, I know.

23 Well, I think the real difference of opinion is
24 what ought to be included on the requalification set. I
25 think the first set, I never heard anybody really say that

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1 the original operator exams were unfair, and so forth. Has
2 that been an issue?

3 MR. BOGER: I have heard that before.

4 MR. WARD: A time or two.

5 MR. MICHELSON: But I didn't look at it. My
6 assumption was that the original exam was fine.

7 MR. REMICK: The thing that has been said for
8 years, partly true and partly untrue, is the fact that you
9 have got to teach them to pass the NRC exam and then you
10 have got to teach them to operate the plant. There is some
11 true in that, and there is some overlap. That claim has
12 been going on for quite some time.

13 MR. MICHELSON: But sooner or later you get them
14 taught, and you have presumably plenty of time to do it.
15 And the fellow finally did learn it and he passed his
16 examination.

17 MR. WARD: Maybe that is why--

18 MR. MICHELSON: Why does he have to continue to
19 retain that kind of knowledge?

20 MR. WARD: That's the point Kris was making:
21 maybe that's why there isn't as much unhappiness about the
22 original exam as there is about the requal, because you've
23 got plenty of time to deal with the original.

24 MR. GIMMY: Dave, on your question of what is the
25 purpose of the thing anyway, is it to find a bad training

1 MPBwrb

1 program or to find a bad individual: well, in most equal
2 things it is both. But the only thing you can test is the
3 individuals. I won't say the only thing you can, the only
4 thing they are testing is the individuals.

5 You could test the program maybe if you had a
6 really smart bunch of people and a good job task analysis,
7 you could sit down and say okay, now what kind of test
8 should these guys make up; is this really representative of
9 this plant or isn't it?

10 But the way it's really done, both for pilots and
11 for operators, is you test the individual, first because you
12 may have an individual who is really slipping, the pilot who
13 really isn't with it any more, has poor reactions, stuff
14 that hasn't shown up, or the operator has got so many home
15 problems and other problems that he can't think about his
16 job long enough to do anything.

17 So you do want to catch the bad egg.

18 I would submit, though, that where you have a
19 case where a lot of the operators are having trouble, like
20 the Crystal River thing, then that tells you there's
21 something wrong with the program; either that, or they've
22 gotten a really poor sample of operators.

23 In practice, all you can do is test the
24 individual.

25 MR. MICHELSON: As long as Crystal River was

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1 brought up, maybe you can tell us a little bit about that,
2 and why so many operators have failed. Was there anything
3 wrong with the original examination process, or was it only
4 with the requalification process?

5 MR. GIMMY: That tells me there is something
6 wrong with their program. Before he answers, my guess is
7 there is something wrong with the program; either they are
8 not teaching it, or there is one other extreme: they have
9 made the test so hard that their own guys can't pass it.

10 MR. MICHELSON: Or a third possible extreme is
11 that the original test wasn't very darn good to begin with.

12 MR. GIMMY: Right.

13 MR. REMICK: This was an NRC administered requal,
14 wasn't it?

15 MR. BOGER: Do you want me to go through the
16 whole thing?

17 MR. MICHELSON: Yes.

18 MR. BOGER: Okay.

19 Basically, at Crystal River the NRC did
20 administer an examination where there were a lot of
21 failures. The company also--

22 MR. MICHELSON: How many is a lot, now?

23 MR. BOGER: It was on the order of 60 percent.

24 MR. MICHELSON: I thought it was 70, but I will
25 give or take. That's a lot.

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1 MR. BOGER: Yes, sir.

2 MR. MICHELSON: Yes.

3 MR. BOGER: The company also administered an
4 examination that also had high failure rates. They weren't
5 quite as high as the NRC's, but they were within the area
6 that we would have classified that program as marginal by
7 their own standards.

8 As a result of that, the NRC had a lot of
9 meetings with the management of the facility, and the
10 management -- or the facility conducted an evaluation, their
11 own evaluation of the requalification program, and they
12 found about four major items. One of them was inefficient
13 and inadequate management review of the training program;
14 another was training and administrative procedures with
15 vague and unclear requirements. A third was insufficient
16 indoctrination and training of training department
17 personnel. And a fourth was inadequate methods of showing
18 compliance with NRC requirements.

19 So I think what was found was that there were
20 programmatic problems at that facility, and the way we
21 identified it was--

22 MR. MICHELSON: Well, let me ask: How did they
23 do on their original examinations, which was the basis for
24 giving them a license to begin with? All these people
25 passed, of course; they must have passed an original exam.

1 MPBwrb

1 Did you go back to look to see if there was
2 something wrong with their original training program and
3 somehow these people all just slipped through the
4 examination process; which I assume was totally NRC
5 administered?

6 What happened to the people between the time that
7 they were qualified by your examination and the time that
8 they were attempting to be requalified? They lost some
9 knowledge or something? Because they passed to begin with.

10 MR. BOGER: That's right; they all had to pass an
11 initial exam.

12 MR. MICHELSON: And that was an NRC administered
13 examination. And it must have been a good one, or you
14 wouldn't have given it. So what happened to the operators
15 that they can't re-take it, or pieces of it?

16 MR. BOGER: Okay. We administered 100 percent of
17 the original examinations. I don't know how many times some
18 of them took to pass it. I mean, it is not like everybody
19 passes the first time through.

20 I think what they found is that people were
21 allowed to slip through the program after they obtained a
22 license, they didn't have to go to some of the
23 requalification lectures. The requalification program
24 didn't factor in some of the plant changes, things that had
25 happened to the plant, so that the operator would be made

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1 aware of it. And so when they got tested on it they didn't
2 know those things. And that's how we discovered it.

3 MR. MICHELSON: Did you go through a do a little
4 analysis to see what portions of the exam they were weak on
5 and which portions they were doing fine on?

6 In other words, was there a pinpointed weakness
7 that caused them to fail the exam, or was it
8 across-the-board?

9 MR. BOGER: I believe it was an overall weakness
10 across all categories.

11 MR. WYLIE: Let me ask you a question.

12 You said that they didn't factor in plant
13 changes. And principally, I guess, the NRC-administered
14 exams picked that up. Or did the licensee's exam pick that
15 up?

16 MR. BOGER: I don't know; I would assume that
17 ours did. We are the ones that identified the problem up
18 front. I don't know what their examination was.

19 MR. WYLIE: But now from the failure rate the
20 company had, you said you would have considered that too
21 high to be an acceptable program.

22 MR. BOGER: Yes, sir.

23 MR. WYLIE: Did that occur before you did yours?

24 MR. BOGER: I think it was after we conducted
25 ours.

1 MPBwrb

1 DR. REMICK: Bruce, I have a question.

2 Why didn't I&E catch the fact that people were
3 not attending requalification lectures? I&E used to come
4 around and audit requal programs to make sure that people
5 were attending. But the programs were being offered, and
6 the operator licensing branch used to come around and
7 actually pull out some requal exams and say "Does this have
8 the composition that we would normally administer on an
9 initial exam? Are they the right level questions?" They
10 would actually even grade some of the answers to see if
11 there was approximately the same weight being given.

12 These types of things used to be done by I&E and
13 NRR on an audit basis to be sure the requal programs were
14 reasonable.

15 Are they still being done? And why weren't they
16 caught at Crystal River?

17 MR. BOGER: Okay. In this case I believe that
18 the problems were identified earlier in the year, or in the
19 previous year. Roughly in December of that year a large
20 team went in to look at the Crystal River requalification
21 records and program, and determined that there were
22 deficiencies, and that some follow-up should occur.

23 That was one of the reasons why they conducted
24 the requal exams at Crystal River.

25 DR. REMICK: I see. So they did pick it up.

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1 MR. BOGER: Yes, they did.

2 DR. REMICK: So the NRC-- The point I would like
3 to make, I guess, is the NRC administered annual
4 requalification exam is not the initial thing that caught
5 it?

6 MR. BOGER: In this instance it's not.

7 DR. REMICK: In this instance, yes. And I guess
8 one thing that still disturbs me is the bit of placing
9 emphasis that people don't do well on that annual requal
10 exam, pointing out that that means that their program is
11 bad. Because, as I say, the original intent of that exam
12 was to identify areas where training was needed. It seems
13 somehow we have got it distorted.

14 I guess I personally would like to rely on I&E
15 and operator licensing branch doing what they have done in
16 the past, and that is audit and make sure that those requal
17 programs are up to speed.

18 MR. BOGER: Remember, we are auditing even in the
19 20 percent or 50 percent of the facilities.

20 MR. REMICK: I understand. But you are placing
21 completely different emphasis now on that annual exam.

22 MR. BOGER: Yes.

23 MR. REMICK: It is something we haven't gone
24 into. It will have an impact on those operators.

25 MR. BOGER: And size is important. We recognize

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1 that there are some things we have to think about when we go
2 on with the program.

3 MR. MICHELSON: It is a little hard for me to
4 come to grips with the idea that once you have a good
5 training program, presumably a good training program, at
6 least adequately good, to have the operators pass their
7 examinations, as all these operators did, they were all
8 qualified, and yet something is happening to their
9 knowledge, such that when they go to take the exam over
10 again -- and I don't know the important factor of whether
11 this is one year later or ten years later or what; but,
12 whenever it was, they took the exams over again and there
13 was a large fraction of them failing.

14 DR. REMICK: I think that stresses the importance
15 of the requalification training program: people do forget.

16 MR. MICHELSON: And I was wondering: did they
17 fail because they didn't remember all that good theory, or
18 did they fail because they just didn't -- weren't properly
19 educated concerning changes and all the other important
20 factors which they do need to have and do need to be tested
21 on?

22 Apparently it was across-the-board: they just
23 didn't pay any more attention to training, or not much
24 attention, I guess, to training after the initial exam was
25 passed.

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1 MR. WARD: Well, like Forrest says, if you accept
2 it at face value, it is a demonstration of the importance of
3 requal training.

4 MR. MICHELSON: Or at least of the program.

5 MR. WARD: The other point Forrest made earlier,
6 it seems to me this gets back to something kind of
7 fundamental: the NRC has a responsibility to audit the
8 training, the requalification training, and it has done
9 that. You know, for many years they did it in several
10 ways. One is the sort of I&E inspector activity that
11 triggered you to select Crystal River for NRC requal exams
12 in the first place. And the other was what you just told
13 us, that you audit the performance of the operators under
14 the company's requalification exams. You have access to
15 that information.

16 MR. BOGER: Yes.

17 MR. WARD: So it just raises-- You know, the big
18 question to me is whether this 20 percent of 50 percent is
19 really necessary as an additional audit tool, which is
20 really what it is. Because you have got these other two
21 audit tools for determining the effectiveness of the
22 training program.

23 In the Crystal River example apparently there was
24 a problem, but both of the other audit tools detected the
25 problem.

2 MPBwrh

1 Did the NRC administered requalification exam
2 really change the picture? Did it give you a better
3 understanding of what the problem was, or did it give you a
4 better club to use in getting some corrective action taken,
5 or what?

6 Why was this additional audit tool, what I have
7 called an audit tool, necessary? How necessary? How was it
8 useful?

9 MR. BOGER: Well, I think that what some of the
10 other presenters in the previous meetings, the original
11 folks, particularly, said that there was a lack of
12 management attention on the requalification, and, in fact, a
13 lot of them were emphasizing the initial licensing of
14 people, so that they really made sure that they did well,
15 and then kind of passed them off into this other requal
16 program where they did not have the same emphasis on
17 instruction and in making sure that people went to the
18 classes, and making sure that they were ready. And I think
19 that is what we are seeing now.

20 What we think we are seeing is, when we give
21 examinations, that the requalification program certainly has
22 more emphasis, and there is a lot more management attention.

23 MR. WARD: It seems to me that's what it is. If
24 you aren't able-- I mean, you detect the problem from the
25 more traditional audit methods. But then to get the

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1 attention of the licensee management you hit them over the
2 head with this club. And maybe that's necessary; I don't
3 know. But it sounds to me like that's the single purpose of
4 the 20 percent of 50 percent requal exam.

5 MR. BOGER: Okay. I think that there are
6 instances where the audit itself doesn't even require an
7 examination beyond that. It is not like we find the problem
8 and then go in and have to verify that the problem existed.
9 I think Region I indicated that it was Haddam Neck where
10 they had to go back, and they found that their
11 requalification program wasn't like the other
12 requalification programs for that company, and that the
13 management were shocked to hear that, and so they changed
14 things. But I don't believe that there was an examination
15 associated with that one.

16 So there are occasions where the audit is
17 effective and does pick up things.

18 MR. WARD: Right.

19 MR. BOGER: And we may not always pick up things
20 in the audit.

21 MR. WARD: But I mean, you require the licensees
22 to use certain procedures and practices and in-service
23 inspection of primary system piping, for example. And
24 that's required. But the NRC doesn't find it-- And that is
25 audited; it is a requirement, and the NRC audits it. But

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1 the NRC hasn't found it necessary to go in, I don't think,
2 and actually do in-service inspections of, you know, 20
3 percent of half the plants, or something like that.

4 And I kind of wonder why this area of operator
5 licensing requalification has been singled out to be
6 different from all the other things the NRC requires of
7 audits for compliance. And I think one reason is because
8 the Commissioners told you to do it; but I don't know that
9 that's a very good reason.

10 You are supposed to-- You know, we were to have
11 technical scientific reasons for doing things that have some
12 sort of basis, and the Commission judgment may be a good
13 basis.

14 MR. BOGER: Unfortunately, any time there is a
15 transient or an event at the plant there is usually an
16 operator who was in the control room and his boss was in
17 there also, and we typically have to answer those questions
18 as to why didn't they know something, or why did they do
19 something a certain way. And we typically fall back on the
20 licensing process, the requalification process, facility
21 training programs, and they may just be visible when things
22 happen.

23 MR. WARD: Okay.

24 Well, we have talked about the general approach
25 and the reasons for it. Maybe a couple more specific

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1 questions.

2 Well, first of all, I guess there is a comment I
3 want to make about our June meeting. If you remember, at
4 our June meeting we had presentations from four or five
5 utility training managers, and they had what seemed at the
6 time to be rather persuasive stories about severe problems
7 with the NRC requalification exams. And they had some
8 anecdotes of, you know, terrible questions -- examples of
9 terrible questions, and that sort of thing.

10 I was, at the time, as it turned out, kind of
11 temporarily persuaded by their case. But then the Region
12 representatives came and gave us some anecdotes of their own
13 and some statistics, and I found, you know, the statistics
14 that were presented and the anecdotes to be kind of
15 persuasive that there really has been a problem in a lot of
16 utilities, and a lot of utilities seem to have pretty lousy
17 requalification programs.

18 Now, by this 20 percent of 50 percent thing, the
19 NRC seems to have gotten their attention. I guess one way
20 to look at it would be, you know: maybe this has been a
21 temporary expedient to try to improve the situation among
22 all the licensees, you know, get their recalcitrants doing a
23 better job. But maybe it has done its job and it is not
24 necessary as a permanent sort of thing, that the NRC could
25 fall back to, you know, the more usual, more traditional

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1 forms of auditing this particular -- for compliance with
2 this particular regulation.

3 That's one way to look at it.

4 MR. MICHELSON: Are there any cases wherein the
5 NRC audit was performed and things looked all right, but
6 they went ahead and gave requalification exams anyway to
7 that utility just to kind of verify, and they found by
8 requalification exam that things were not all right?

9 Unfortunately, I'm afraid we don't have that
10 statistic that we need, and that is--

11 MR. WARD: Would you say it again?

12 MR. MICHELSON: I will say it differently.

13 How do you know that your auditing program is
14 identifying the weak requalification programs? How do we
15 know that? Have there been any cases where we identified
16 one as looking good by audit, and then giving the exam
17 anyway and finding out it wasn't good?

18 I don't think there are probably any of those
19 cases.

20 MR. WARD: Have you been scientific, have you
21 gone in and given the 20 percent of 50 percent of a plant
22 that you didn't think needed it?

23 MR. MICHELSON: That looked good?

24 MR. BOGER: We, I think, have gone to all the
25 plants now over the last couple of years. So we had to hit

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1 some of those programs that were previously identified as
2 successful through our audit means. And I think we probably
3 have found some that, after we gave an exam, may have turned
4 out to be unsatisfactory.

5 MR. MICHELSON: Those are the ones I would like
6 to hear about a little bit, because that tells me if we
7 decided to recommend they use only auditing, then we would
8 have a feel for how many you might miss.

9 MR. WARD: That's a good point; is this more
10 extreme auditing tool necessary?

11 MR. MICHELSON: Yes. It may be necessary; I
12 don't know.

13 MR. WARD: Can you answer that, Bruce? Or are
14 there enough data?

15 MR. BOGER: I don't think we have looked at it
16 that way. We recognize that there are problems with some of
17 the questions we ask, and I hope you would realize that. I
18 was one of the ones who stood up in front of everybody and
19 pointed out some of the bad questions on those exams.

20 We think that our exam is improving. But I think
21 that right now we think that we are getting information as a
22 result of these examinations that we didn't get as a result
23 of our audits.

24 MR. MICHELSON: And that's important.

25 I am getting a little more convinced. You know,

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1 I have never been against the idea of requalification
2 programs, I was concerned, though, about some of the things
3 that they were trying to find. --you know, the type of
4 examination being given.

5 If the examination, the theory part is a little
6 more oriented toward the kind of theory that they ought to
7 never forget and ask questions, that they ought to always
8 know, that would be great. But when I looked at the
9 samples-- All samples I looked at of tests, they certainly
10 were asking a lot of questions. And I wondered how helpful
11 is it to the operator to even know about that at the time
12 that he would most likely have to respond in a hurry.

13 I think if you go back and tailor the exam on the
14 theory part a little better, the practical part-- I assume
15 there is no question about, and I haven't heard any
16 complaints about, the practical part, the walk-throughs or
17 the simulator exams: I haven't heard anybody complaining
18 that they were doing -- running them through some kind of an
19 exercise they ought not to run them through, but it has been
20 all focused on the theory part, I think.

21 Isn't that right?

22 MR. BOGER: We probably run in a different cycle,
23 or circle of friends. And I certainly receive complaints
24 about all aspects of the examination.

25 MR. MICHELSON: Oh, I suppose.

2 MPBwrb

1 MR. BOGER: We have a lot of effort under way to
2 make them better.

3 If I could take just a little short while to go
4 ahead and explain a little bit about how we intend to use
5 these performance based training programs in our
6 examinations.

7 As Forrest understands, way back when, we always
8 had complaints about our examinations not being
9 job-related. And we used the buzz word "operationally
10 oriented."

11 The discussions you have had today are very
12 similar to what we have when we have a new examiner come on
13 board, and we try to tailor this examiner's knowledge and
14 background into that of what we think an examiner should do,
15 what questions he should ask. And we get these, you know,
16 what level of theory do you ask?

17 Well, the way we try to address that was to make
18 our examinations content valid; that is, based on the job
19 knowledge and the job content. What we did is, we worked
20 with INPO to take their job task analysis and create what we
21 call a knowledge catalogue for PWRs right now that contained
22 those knowledges and abilities that an operator should have
23 to operate the plant.

24 We had a panel of subject matter, experts, people
25 who were licensed people that should have known the plant,

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1 SRO types, evaluate these knowledges and abilities, throw
2 out the ones that were unimportant, add ones that they
3 thought were important, and then rate each one as to its
4 relative importance to plant safety.

5 In addition to that, we developed a catalogue --
6 I'm sorry; a handbook to use that catalogue, so that we
7 would sample from those knowledges and abilities across the
8 board. So we wouldn't home in on any one.

9 In addition to that, we have had examiner
10 training on the use of the catalogue and the handbook with
11 the emphasis on how to take a given knowledge or ability, in
12 particular one that may reflect a facility learning ability,
13 and then turn that into a testing objective for the NRC.
14 That way we have a testing objective that relates back to
15 the operator's job through that facility's learning
16 objective, through, again, another process of peer review of
17 questions that an examiner developes to try and make sure
18 that that question really does reflect not only the job
19 knowledge but makes sense, reads well, is gramatically
20 correct, in trying to foster among the examiners this
21 awareness that we are trying to make the exam as job related
22 as possible.

23 We always get to the point where we disagree on
24 what level of knowledge that is, what level of theory we
25 have to address. In particular, calculations are one of my

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1 favorites. If it is a calculation that needs to be done on
2 the job, I think it is fair game; if it is one that has to
3 do with the design characteristics of a heat exchanger, then
4 I would disagree: I don't think that should be on the exam.

5 But we are working that area to try and focus on
6 the job requirements. And I have made a long story even
7 longer, but that is basically where we are headed on our
8 examination. And I think that you will see in the rule
9 change that that's what we plan to do, make more use of the
10 facilities training program and learning objectives to
11 arrive at an examination that we considered content valid
12 and reliable.

13 MR. MICHELSON: Apparently the Crystal River exam
14 didn't get that level of thought. Is that a correct
15 appraisal?

16 MR. BOGER: Right. Well, as far as the industry
17 goes, you know, with accreditation and approved programs,
18 the industry had a couple of years to come up to that
19 speed. Not all facilities have accrediting programs at this
20 time. So we are chicken-and-egg, we are trying to use our
21 generic catalogue of knowledges and abilities until we get a
22 facility--

23 MR. MICHELSON: Was Crystal River an accredited
24 program?

25 MR. BOGER: I don't believe so.

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1 DR. REMICK: No.

2 MR. MICHELSON: Have they applied for
3 accreditation and been examined yet?

4 DR. REMICK: I don't know. But isn't this the
5 one where the learning personnel were getting ready to go
6 through the accreditation, therefore the requal programs
7 were suffering from that? Am I right or am I mixing that
8 up?

9 There was one recently where one of the reasons a
10 requal program had broken down is that they were working on
11 accreditation and kind of ignoring requal. I'm not sure if
12 it is Crystal River or not.

13 MR. BOGER: I cannot address Crystal River, but I
14 am aware that that is--

15 MR. MICHELSON: Crystal River, it was several
16 months ago that they had this flap. Wasn't it six months
17 ago when they found out the operators were failing so badly?
18 It was several months ago. But I didn't know whether they
19 had ever been accredited.

20 DR. REMICK: No, they have not.

21 MR. MICHELSON: Okay.

22 MR. WARD: Thank you, Bruce. I appreciate it.

23 I would like to take a few minutes to talk about
24 the frequency of exams.

25 As I understand it, the operator's license is

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1 sort of legally renewed every two years on the basis of his
2 job performance and something else. That has almost gotten
3 to be somewhat unconnected with the requalification issue,
4 it seems to me.

5 Now the requalification exams that the company
6 gives and that the NRC gives in ten percent of the cases are
7 really annual. I mean they are every year rather than every
8 two years, right?

9 MR. BOGER: Yes.

10 MR. WARD: And the basis for that, the original
11 basis for that was the sort of thing that Forrest was
12 talking about, where you want to check how people are doing
13 on a fairly frequent basis so you can tune the program. And
14 whether that is for the group or for the individual, I guess
15 I am not completely clear.

16 But is that part of the problem with the whole
17 thing, that this is too frequent? I mean there might be a
18 need for, for example, for annual examinations of the
19 population of operators just for the purpose Forrest was
20 talking about, the original idea to tune the retraining
21 program.

22 But as far as the examination of individuals to
23 recertify their license, perhaps that should be, you know,
24 on a much longer period, maybe five years or something. I
25 mean it is now nominally two years except that it's sort of

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1 an unreal period. But maybe the requalification exams for
2 which the operators as individuals are held accountable
3 either by the NRC or by the company, should be something
4 much less frequent than every year, maybe every five years.

5 What do you think that would do to the process?

6 DR. REMICK: Well, under the new Part 55 the
7 written exam would be every two years.

8 Am I correct?

9 MR. BOGER: That's correct.

10 DR. REMICK: The performance exam annually. So
11 they are proposing a change.

12 MR. WARD: Is that enough? I mean is it
13 necessary that it be a written exam every year?

14 DR. REMICK: I guess it depends on what again is
15 the purpose.

16 MR. WARD: I am trying to separate the individual
17 from the program, maybe, if that is possible.

18 I think a part of the problem -- You know, we
19 hear that operators are spending -- There are six shifts.
20 They are spending 20 percent or 15 percent of their
21 professional time in training. And to the extent that is
22 helping them run the plant better for that 80 percent that
23 they are running the plant, that's fine. But to the extent
24 it is just for passing exams, it is, you know, of
25 questionable utility, it seems to me.

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1 DR. REMICK: I personally think the two-year is
2 reasonable. I think -- Beyond that, I haven't thought about
3 it. If it is going to be a lengthier period of time, if it
4 is going to be used to tune your requal programs, I guess I
5 would be concerned if it were less frequent than every two
6 years.

7 MR. WARD: But maybe those two things could be
8 separated more explicitly; requalifying the individual
9 versus tuning the retraining program.

10 MR. MICHELSON: Would there be any merit in
11 having the exam be anonymous? But if there is a certain
12 failure level on the exam then -- You have got to keep the
13 individual people doing their best; but if the whole program
14 drops below a certain point then each member knows he is
15 going to be reexamined personally.

16 MR. WARD: Maybe that is sort of the point.
17 Maybe there ought to be an annual examination --

18 MR. MICHELSON: But anonymous.

19 MR. WARD: -- with anonymous results to tell you
20 about the program. And then each individual would be held
21 accountable --

22 MR. MICHELSON: On a five-year basis.

23 DR. REMICK: Don't forget this is not the only
24 exam they are taking. They are being retrained on a routine
25 basis and taking exams at the end of modules or sessions.

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1 And so you have that.

2 MR. WARD: Maybe that is enough.

3 MR. MICHELSON: Well, that is the classroom exam
4 the NRC doesn't verify. This is the NRC exam that I have in
5 mind.

6 MR. WARD: Remember, 90 percent of these are
7 still given by the company, not by the NRC.

8 MR. MICHELSON: True. That's roughly right.

9 MR. WARD: Yes.

10 DR. REMICK: Well, I personally feel that what is
11 now called annual, whether it is going to be every two years
12 or whatever, the exam should be used to tune your program
13 and not be used as a club or given greater importance on
14 making conclusions, strong conclusions about the
15 requalification program.

16 I do think you need something to direct your
17 program, and I think that's useful. But I think we are
18 putting too much weight on it now. And so people are
19 studying to pass that exam. And I think that is twisting it
20 around, though maybe that should be the philosophy. I don't
21 think it should be the philosophy.

22 I think that exam is a useful one to know where
23 you have gross weaknesses, and therefore you want to address
24 those. And if an individual has really severe gross
25 deficiencies you might even want to pull him off and get

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1 him accelerated training before you allow him to operate
2 it.

3 I think that is a good concept myself, but I
4 think it is being distorted by the NRC coming in and using
5 that to make judgments. I can't fault them that they can
6 make judgments from them, but I think the cost of
7 demoralization of people and so forth is perhaps not worth
8 the price. The cost is not worth the benefit.

9 MR. WYLIE: Certainly for the newer and larger
10 plants there have been so many changes to the plant itself
11 in the first several years that you almost have to train and
12 give exams on just the modifications that have been made in
13 those few years. And get a plant out further in time and
14 hopefully when it settles down you can take care of all
15 these changes. But that might be something else.

16 Most of the plants I have been associated with
17 have spent more money on changes in the first five years
18 since that plant was built than the original cost. There
19 are a lot of changes being made.

20 But the license period was proposed to be six
21 years, wasn't it?

22 DR. REMICK: Yes.

23 MR. WARD: It is proposed to be what?

24 MR. WYLIE: Six years.

25 DR. REMICK: Six years.

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1 MR. WARD: Well, what does that mean, though?

2 MR. MICHELSON: You have got to requalify every
3 two years by examination anyway.4 MR. WARD: Yes. But what happens after the sixth
5 year that is different than after the second or fourth year?

6 DR. REMICK: You get a three-year license.

7 MR. WARD: But is that the same thing as you do
8 after the sixth year?9 MR. MICHELSON: Any special exam for the sixth
10 year?

11 MR. WARD: Mr. Boger nods his head yes.

12 MR. BOGER: All it does is extend the period for
13 us to process the paperwork from two years to six years.
14 That is probably the biggest change, short of having an
15 indefinite license, moving it up to six years.16 DR. REMICK: This is a sideline that you might be
17 interested in.18 The Japanese, they only have one required license
19 on shift and that is for a three-year period. And for
20 renewal the person gets, I think it is two days in lectures
21 mostly on law and regulations, and then must pass an
22 examination. That's their philosophy.23 MR. MICHELSON: What kind of an exam do they have
24 to pass?

25 DR. REMICK: Initially?

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1 MR. MICHELSON: No, at the end of three years, or
2 whatever?

3 DR. REMICK: That's what I'm saying.

4 MR. MICHELSON: Just on law?

5 DR. REMICK: At the end of three years he has to
6 go and, if I recall, it is two days of lectures on law and
7 regulations, those type of things, and then pass an
8 examination on those two days.

9 MR. MICHELSON: On those two days.

10 DR. REMICK: Yes.

11 MR. MICHELSON: But never what he learned
12 initially.

13 DR. REMICK: Right.

14 MR. MICHELSON: And he can do this forever?

15 DR. REMICK: Initially he took a simulator exam.
16 He spent several weeks on a simulator. And it is a team
17 type of thing. He is assigned a couple of operators.

18 By the way, the only license is for someone at
19 shift supervisor level.

20 He is assigned several operators and he trains
21 for several weeks and has to pass apparently a fairly
22 complete simulator exam. Then he goes and gets I think,
23 once again, something like -- Yes, I think it is two days of
24 lectures on law and regulations. He must pass it.

25 But for renewal it is just that portion of it

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1 that he has to pass.

2 MR. MICHELSON: Initially he has to have a theory
3 exam as well?

4 DR. REMICK: No. As I say, it is simulator.

5 MR. MICHELSON: But no theory?

6 DR. REMICK: And then laws and regulations, yes.

7 MR. WARD: Well, what other retraining is there?
8 I mean there are no other exams?

9 DR. REMICK: No. The company gives him a
10 simulator. They call it a family training. It is
11 interesting, their family concept, the family team. They
12 don't get as much, I think, simulator training as our people
13 do. But there is not the --

14 MR. WARD: Originally or in retraining?

15 DR. REMICK: In retraining.

16 Of course there are only two simulators in Japan,
17 two sites, a PWR simulator and a BWR simulator. So they
18 don't get quite as much. They do get some, but not as much
19 as we do.

20 But they don't have the full-fledged
21 requalification program that we have going back to theory
22 and things like that. Initially they don't have it for
23 their exam.

24 MR. MICHELSON: Who else is in the control room
25 besides the operator? Is that the only requirement?

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DR. REMICK: That is the only on-shift license.
Now they have three --

MR. MICHELSON: I'm thinking in terms of
technical knowledge available on-shift.

DR. REMICK: Incidentally, one thing I should
add--

MR. MICHELSON: There may be a difference there.

DR. REMICK: I should add that that license does
not require a college degree, but they point out that it is
pretty tough if you don't have a college degree.

The other people on shift, they have a -- they
are very much organized like we are. That is, a shift
supervisor that must have it.

We have assistants; they call it a sub-shift
operator. Then they have a lead operator; then typically
two, what we would call ROs, and two what we would call
auxiliary operators. Then they have patrolmen who are kind
of trainees.

MR. MICHELSON: Do they have an STA or something
like that?

DR. REMICK: No.

MR. MICHELSON: So they have less technical
knowledge on the shift than we have.

DR. REMICK: Yes, although many plants have
another shift during the daytime that handles a lot of the

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1 -- To get the administrative duties off the people on shift,
2 they have another set of operators, a duplicate set during
3 the daytime handling procedural changes and checklists and
4 things like this to relieve them. So they have those
5 additional people on the day shift. But no engineering
6 expertise, no nothing like an STA that I can recall.

7 Now they do have, that is very interesting -- I
8 don't want to divert our discussion here -- but they have
9 three other licenses that are required. They are not
10 required on shift, they just must have them to plan. One is
11 called -- It is a nuclear engineer, but there is another
12 word that comes with it. And then they have one -- a chief
13 nuclear engineer, excuse me.

14 Then they have a chief electrical engineer and a
15 chief boiler and turbine engineer, something like that. But
16 these are usually technical department heads, all
17 engineers. They are not required to be on shift, as I say,
18 and the two of them --

19 MR. WARD: They are not required?

20 DR. REMICK: They are not required to be on
21 shift.

22 The electrical and the turbine -- and the boiler
23 turbine type of person are carryovers from fossil plants.
24 That is a legal requirement of fossil plants too. So it
25 just means that somebody in your organization has to have a

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1 license, and they added the chief nuclear engineer for
2 nuclear plants.

3 MR. MICHELSON: They are licensed, these people?

4 DR. REMICK: They are licensed.

5 MR. MICHELSON: They are examined once?

6 DR. REMICK: Yes, unless they don't perform for a
7 while. Then they might have to take -- In other words, they
8 do that a couple of years and then they are removed and then
9 they come back, they might have to be reexamined again. And
10 they typically -- The utilities will have one chief nuclear
11 engineer for every two units. But, as I say, their
12 technical department heads who carry that license don't have
13 to be on shift. But their responsibility is to make sure
14 that that plant is operating within the laws and
15 regulations.

16 MR. MICHELSON: There is some other licensing
17 group? I thought you said there were three licenses, one
18 for operators and one for these engineers.

19 DR. REMICK: That's correct. There is one
20 license for on-shift. That is the equivalent of our shift
21 supervisor. And then these three, chief nuclear, chief
22 electrical and chief boiler and turbine.

23 MR. MICHELSON: And that's it?

24 DR. REMICK: That's it.

25 MR. WYLIE: These people who claim to be college

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1 graduates, are they the same level as our college graduates?

2 DR. REMICK: I'm sorry?

3 MR. WYLIE: I mean they claim -- I know even in
4 their fossil plants they claim their operators are college
5 graduates.

6 DR. REMICK: You have to be careful. They will
7 call anybody who has a technical education an engineer,
8 whether he is a college graduate or a graduate of a
9 technical high school. That's an engineer. So in that
10 sense there is a difference.

11 But I think if you say that -- if you find out
12 the person has a college education, the chances are it is
13 equivalent to our saying it is a college education here.

14 MR. WYLIE: Oh.

15 DR. REMICK: But when they say engineer --

16 MR. WYLIE: Okay, yes.

17 DR. REMICK: -- it could be a high school
18 graduate or a college graduate.

19 MR. WYLIE: That throws me off track because they
20 claim on their fossil plants their operators are technical
21 engineers.

22 DR. REMICK: That's correct, and he could be a
23 high school graduate.

24 MR. WARD: As I recall it, the French also have a
25 different system with less emphasis on the examination and

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1 licensing of individuals.

2 As I recall, there is the group -- I mean the
3 shift crew is examined as a group on the simulators, and
4 that's the only examination there is, I think. I'm not sure
5 that's right; but it is markedly different.

6 Let me ask Bruce: Has there been any interest in
7 the NRC in qualifying groups as opposed to individuals?

8 MR. BOGER: Not in the licensing. And we have a
9 lot of activities that are related to team training, and
10 that's typically crew-based and after-the-fact. And in my
11 mind there is no intention of licensing crews of people as
12 opposed to individuals.

13 MR. WARD: What do you mean by related to team
14 training?

15 MR. BOGER: One of the I guess outputs of the TMI
16 action plan was to consider team training as one of the
17 elements of a qualification or requalification. And I'm not
18 sure where that study ended up, but that was one of the
19 things that we had considered.

20 I think -- I look at my staff and they are all
21 looking the other way.

22 (Laughter.)

23 MR. WARD: So it has been rejected as a proposal
24 or it hasn't been adopted?

25 MR. BOGER: Yes. So far as I know we are not

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1 pursuing it right now.

2 MR. WARD: All right. Well, that answers my
3 question.

4 Okay. Back to the subcommittee.

5 We have talked around about this a good bit.
6 There are a couple of points that we haven't addressed.

7 And one of Commissioner Asselstine's questions
8 was -- concerned the impact -- I think the way it was stated
9 in the transcript was the impact of this requalification
10 program on regionalization. I don't think he really meant
11 that. Let's say he meant the impact of regionalization on
12 this.

13 What have we got to say there?

14 As I recall, the burden of what we heard from the
15 Staff about the effect of regionalization on licensing exams
16 and requalification exams is that it was permitting them to
17 have a better quality of people do the NRC job. I forget
18 whether it has Staff full-time employees or contractors.
19 The fact that examiners could live in the regions and work
20 from there seemed to be a benefit to the NRC in attracting
21 the sorts of people they wanted for the job. That's the
22 only thing I recall from what we have heard.

23 MR. BOGER: That's true.

24 MR. WARD: Do you see any other impacts of
25 regionalization on this requalification issue?

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1 MR. BOGER: In a positive or negative sense?

2 MR. WARD: Well, either way.

3 MR. BOGER: Well, obviously if you don't have a
4 centralized group you have to deal with the effects of five
5 individual groups conducting examinations. So, you know,
6 from that sense we have really tried to issue guidance on
7 the qualification on how to give exams, which facilities to
8 consider for requalification exams. So from that
9 standpoint, you know, it was a negative influence as far as
10 additional concerns on our end.

11 From a positive standpoint we did indicate that
12 we have been able to track more examiners and it has been a
13 chance for resident inspectors to perhaps use their
14 knowledge of a particular plant in the examination field.

15 And the locations of some of the regional offices
16 has proven to be quite an attractive improvement means.

17 MR. WYLIE: Would this perhaps to some extent
18 account for the differences between regions, the plants that
19 we have heard where in some cases we hear horror stories
20 about the examinations, and then in other cases that
21 everything is a bed of roses, everything is just great?
22 Would that account for that?

23 MR. BOGER: I think it is fair to say that the
24 regions do have different points of view. And each one
25 determines the amount of resources that they are going to

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1 devote to a particular plant or set of examinations, and
2 that could in fact change the results of the positive
3 actions, the more thorough approach.

4 I should indicate another positive approach is
5 that in the regions you do have a lot more indication from
6 the resident inspectors, who then can feed back recent plant
7 occurrences, things to be aware of, more detailed plant
8 knowledge. There are issues like that that are a positive
9 effect.

10 MR. WARD: You mean the examiners would have more
11 personal contact with --

12 MR. BOGER: With the facility. They would know
13 the facility better. Plus they would know the resident
14 inspector, so that the resident inspector could in some
15 cases look at their exams and make sure that the terminology
16 was correct and that the procedure referenced was indeed the
17 latest procedure, and that there wasn't an additional plant
18 change that had been implemented without updated training
19 material that the examiner had. So there are a lot of
20 positive influences that way.

21 DR. REMICK: I think the major negative I have
22 heard is the inconsistency from Region Three to people who
23 bless that they are in a particular region or curse that
24 they are in a particular region from the requalification
25 standpoint.

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1 MR. WARD: Okay.

2 Let me go back again to something we've talked a
3 little bit about, another one of Commissioner Asselstine's
4 questions. And maybe we can get a little bit more of a
5 discussion.

6 The question, paraphrased, is: Is the
7 requalification program fostering the gradual increase in
8 the engineering expertise on-shift.

9 Now I don't know whether that is -- whether you
10 think that is even a desirable goal, that there be an
11 increase in engineering expertise on all the shifts across
12 the country. So that might be a question.

13 But does the requalification program as it stands
14 now or as it could be have anything to do with this
15 particular issue?

16 DR. REMICK: I think probably -- I don't quite
17 understand it, unless there is something I am missing. I am
18 not sure I know what the connection is.

19 MR. WYLIE: Well, I have some changes. If it
20 says does the requalification program cause a gradual
21 increase in technical competence on the shift, I would have
22 to say yes.

23 MR. WARD: Well, I would interpret that as the
24 same thing, engineering expertise and technical competence.

25 MR. WYLIE: I think it does.

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1 MR. WARD: How so?

2 MR. WYLIE: Well, in absence of it I don't think
3 you would have the same quality of technical competence,
4 personally. I mean that is my opinion. In the absence of
5 it, say you didn't even have it, you know, I think you would
6 have poorer operations.

7 MR. WARD: But just -- Because the requal
8 training programs include engineering subjects, is that it?

9 MR. WYLIE: Well, yes, I think so, the technical
10 subjects. That makes them look better, more qualified
11 technically and competent operators.

12 MR. MICHELSON: I interpreted the question
13 somewhat differently. I don't seem to have Asselstine's
14 wording here.

15 DR. REMICK: Here it is.

16 MR. MICHELSON: You have got his wording?

17 DR. REMICK: Yes.

18 MR. MICHELSON: We had better bring that one
19 along. It is a little different than what John had put in
20 his letter, I think -- Well, no, I guess it is the same.

21 I didn't know what it meant by "engineering
22 knowledge" as opposed to an understanding of how your plant
23 operates and things of this sort, which is not engineering
24 knowledge necessarily. So it is a question of was he
25 thinking in terms of increasing the depth of comprehension?

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1 Is that what he meant by "engineering knowledge" as opposed
2 to some other term he might have used?

3 MR. WYLIE: I think it is a lawyer's way of
4 saying competence in terms of operation of the plant.

5 MR. MICHELSON: Clearly it will increase the
6 competence, continued operation. Whether it will increase
7 the engineering knowledge, I don't know. It depends on how
8 you define it.

9 And I didn't know if he was seeking something
10 deeper or what. In other words, there are those who think
11 they would like to have graduate engineers operating the
12 plant, and does requalification somehow help that. And I
13 think the answer is it does not. I don't think it gives you
14 the kind of background that maybe a graduate engineer might
15 have, nor is that necessary either. It's not necessary to
16 have graduate engineers running the plants. That's another
17 argument.

18 MR. WYLIE: Nor is it necessary to make that a
19 prerequisite.

20 DR. REMICK: Does the Staff have any insight on
21 that question?

22 MR. BOGER: I think in the context of a lot of
23 the material that has been before the Commission lately has
24 been engineering expertise on shift. Should the STA be
25 there? Should the SRO have to agree? And I think he may

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1 have been looking at that context when we were developing
2 engineering type knowledge among the operators as a result
3 of requalification.

4 MR. MICHELSON: That's what I thought. And if
5 that is the case I would say the answer to that question
6 would be I don't think the requalification program is making
7 a significant change in that kind of availability on shift.

8 MR. WARD: Could it or should it?

9 MR. MICHELSON: I don't think it -- Well, that
10 gets back to the question should you have engineers running
11 the plant as operators. If the answer is yes, then the
12 requalification program had better do something to bring
13 operators up as close to that as you can get. But I don't
14 believe it has ever been decided that you need engineers to
15 operate the plant.

16 MR. WYLIE: Well, I am frankly disturbed about
17 the use of STAs anyhow. I think it varies from utility to
18 utility, but in the last several plants that we have looked
19 at in our ACRS work what we are finding is they are taking a
20 junior level engineer that just came to the company and they
21 are making him the STA and they are doing some training.
22 Basically he is a new kid on the block, wet behind the
23 ears.

24 And here you have got experienced, well trained,
25 highly technically competent operators. And I have asked

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1 several of them a question: Would you listen to this guy in
2 an emergency? And basically they say no. So I mean, that's
3 what you've got.

4 So I think the requal program is, if you want to
5 say, it may well -- to answer that, I think it does
6 gradually increase the technical competence on the shift.

7 DR. REMICK: I think we could answer, if we are
8 in agreement, that we don't see a relationship between
9 requalification and engineering knowledge necessary, however
10 -- and then make your point. I think that would be the way
11 to handle that.

12 MR. WARD: But I suspect his question really was
13 -- as Bruce said, he was really groping to see if there was
14 anything here related to the engineering expertise on shift
15 question.

16 MR. MICHELSON: Are we upgrading operators
17 somehow to make engineers out of them?

18 MR. WARD: Yes.

19 MR. GIMMY: I think the answer is no to that
20 because --

21 MR. MICHELSON: Yes, I hope so.

22 MR. GIMMY: -- the questions they complain about
23 are the same old questions that they had to pass on the
24 first license test. So, A, they are not learning any more;
25 B, if they were slowly but surely getting bites of an

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1 engineering education, why, if we define that as four years
2 of college, at the requal rate it would take 100 years to
3 get there or something.

4 So it is not going to make degree-holding
5 engineers out of them.

6 DR. REMICK: There is an interesting sideline to
7 this:

8 One could argue that the NRC requalification
9 requirements, and the answer is no. But the INPO
10 accreditation process where -- The STA is one of those
11 positions that is accredited, the training of it, and that
12 requires retraining or continuing training. And presumably
13 that STA, if he's in an accredited program, is going to
14 continue to learn engineering things.

15 But it's not the NRC requalification requirement
16 because that's just for operators and SROs. But the INPO
17 accreditation process should add some engineering expertise,
18 that requalification program. But that's not what he's
19 asking.

20 MR. GIMMY: The answer to his question is no.

21 MR. MICHELSON: But the INPO accreditation
22 process is only based on if you have an STA then here is the
23 kind of program to get him accredited.

24 DR. REMICK: Every plant has to have an STA, even
25 if that STA is an SRO on shift.

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1 MR. MICHELSON: It is not going to remain
2 indefinitely that way, is it? I thought you could
3 substitute an SRO later.

4 DR. REMICK: No.

5 MR. WARD: He has to meet the qualifications of
6 the STA.

7 MR. MICHELSON: Yes.

8 Oh, he has to -- But he has to be degree-holding,
9 then.

10 DR. REMICK: Absolutely, yes.

11 MR. WARD: Well, that is what is a little
12 controversial now.

13 DR. REMICK: That is on the street, isn't it?

14 MR. MICHELSON: Is it on the street now, he must
15 be degree-holding?

16 MR. WARD: I mean a separate STA doesn't have to
17 have a degree. He has to have some sort of equivalency.
18 But if he is combined with the SRO, that person has to have
19 a degree.

20 MR. MICHELSON: Oh, if the SRO happens to be the
21 STA then he must be a degree-holding person? Is that what
22 you're saying?

23 DR. REMICK: Degree-holding with a couple
24 exceptions.

25 MR. BOGER: If you want to use the SRO as the

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1 STA, he must hold a degree.

2 MR. MICHELSON: He must then hold a degree in
3 engineering or science?

4 DR. REMICK: Or physical science?

5 MR. BOGER: If he really has a dual role he has
6 to have the elements of both.

7 MR. MICHELSON: But if he is the STA alone he
8 doesn't have to be degree-holding?

9 MR. WARD: Well, he has to have some
10 equivalency.

11 MR. MICHELSON: But it is pretty broad.

12 MR. WARD: Yes, it is.

13 MR. MICHELSON: Pretty loose.

14 MR. WYLIE: What is the rationale for that?

15 DR. REMICK: The five-man Commission.

16 (Laughter.)

17 MR. WARD: The Staff proposed something
18 different.

19 The Staff proposed that the requirements -- for
20 as long as the person met the existing requirements for STA
21 and SRO that a single person could hold the dual role.

22 MR. MICHELSON: Yes.

23 MR. WARD: But the Commission changed that and
24 tightened it up. It said, 'Okay, if there is going to be a
25 dual role we are going to tighten down the requirements and

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1 say it really has to be a degree.'

2 DR. REMICK: Of course you could argue that
3 probably over the long term it is a possibility the
4 Commission might get rid of the separate STA because that
5 was always a possibility. So you may make an argument that
6 basically in time with future Commission actions that that
7 difference may not exist.

8 MR. MICHELSON: I would say there would be at
9 least an SRO on every shift with a degree if you eliminate
10 the STA. They are backing into the idea that they want a
11 degreed person.

12 MR. WARD: Okay.

13 Well, we are going to take a little time later
14 this afternoon to, if not draft a letter on this subject, at
15 least talk about the elements of what will be in a letter.
16 But at this time, while the Staff is -- You know, the Staff
17 might not be with us then.

18 While the Staff is still with us I would like to
19 talk a little bit about the presentation at the full
20 committee meeting next week or whenever it is -- the week
21 after next, I guess.

22 We have got -- Let's see.

23 John, I have got the schedule here. We start out
24 Thursday morning with that, 8:45 to ten a.m. This is the
25 agenda as it stands now, Thursday, December 5. So it is

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1 two and a quarter hours.

2 And to the Subcommittee now, how do you think we
3 should present this information to the full committee so
4 that we can end up writing a report of our advice on the
5 subject?

6 DR. REMICK: This may sound like an educator, I
7 guess, but it always worries me about -- On an issue like
8 this, the chances are that a good portion of the full
9 committee isn't going to understand what even are the
10 requirements of a requalification program. So it makes it
11 awfully hard to focus because people have misconceptions.

12 It seems to me that we ought to have some kind of
13 a -- It has to be brief, but maybe a 15 minute tutorial on
14 what we mean by requalification; what are the requirments,
15 basically.

16 MR. MICHELSON: And there has to be a little bit
17 of experience presented so that they know it is a problem.
18 We have to talk about the program, the difficulties, why are
19 we here.

20 MR. WARD: Yes.

21 MR. MICHELSON: We should have a little bit of
22 time so that they can focus on the seriousness of the
23 problem, if it is serious and so forth.

24 MR. WARD: Okay.

25 MR. MICHELSON: In other words, what has gone

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1 wrong with the ideas of the requalification program. And we
2 will tell them first what the program is.

3 MR. WARD: Okay. I guess in the introduction we
4 can talk about that and remind them of Asselstine's
5 questions.

6 MR. MICHELSON: Yes.

7 And you need to remind them of the present
8 auditing process and the requalification exam by the NRC as
9 opposed to by the utility, and the fact that there have been
10 some discrepancies between what the utilities thought they
11 had done and what the NRC's exam verified that they had not
12 done.

13 MR. WARD: Okay.

14 So if we had a tutorial on just the requirements
15 for requalification in the regulation and in practice, and
16 then talk about how the NRC audits that, and then talk about
17 the 20 percent of 50 percent NRC administered
18 requalification exam, and then give sort of a balanced
19 presentation on recent experience.

20 Now how could we get that? Should we ask someone
21 representing the licensees to come in and give a part of
22 that?

23 MR. MICHELSON: It takes so much time, though.
24 They would want a half an hour. If you asked Crystal River
25 or Florida Power to come in they would want at least a half

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1 an hour.

2 MR. WARD: What about asking KMC to come in to
3 give a short -- I mean could someone from the Staff give
4 the, you know, a summary of the regional experience?

5 MR. BOGER: Yes.

6 MR. WARD: And if we could get someone from KMC
7 to give the industry perspective on the experience. We
8 would have to get these all to add up to --

9 MR. MICHELSON: Tell them to include Crystal
10 River because that is the main one I studied a little bit.
11 And it looked like a pretty bad experience, as near as I
12 could tell.

13 MR. WARD: Okay.

14 What else?

15 MR. MICHELSON: I was on the subcommittee.
16 That's why I spent so much time on it.

17 MR. WARD: Okay.

18 Well, what else then?

19 John, can you think of anything? We could work
20 out the times for this a little later, and you could get
21 with Bruce.

22 MR. SCHIFFGENS: Okay.

23 MR. WARD: I guess that kind of closes all
24 the....

25 Okay. If you will plan on that, John will get

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1 with you on the details. We have an hour and forty-five
2 minutes, but you have got to allow a lot of time in there.
3 Those sound like several ten- or fifteen-minute
4 presentations at the most. The committee members will have
5 a lot to say.

6 MR. BOGER: If John can identify those areas he
7 would like us to address, certainly we will respond.

8 MR. WARD: Okay.

9 MR. WYLIE: Might I ask something? It is not
10 pertinent, I don't think, to writing the letter. But back
11 in February, you know, we discussed with the Commissioners
12 the check-operator concept of administering the regual
13 exams. And then later the Commission met with Newmark and
14 at that meeting discussed that with them. And the chairman
15 said that he would request the Staff to work with Newmark
16 toward the trial program.

17 And I don't know whether Mr. Boger can address
18 what has happened on that request or not, what has taken
19 place.

20 MR. BOGER: Newmark has formed I guess a working
21 group to address the check-operator concept. They have had
22 a couple of discussions with the Staff and they have not
23 really come back to the Commission to present any sort of a
24 program.

25 MR. WYLIE: So the ball is in Newmark's court?

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MR. BOGER: As I see it, yes, sir.

MR. WARD: I see.

MR. MICHELSON: Does the check-operator have anything to do with the theory part or just with the practice part of the exam?

In other words, the walk-through could be a check-operator or the simulator exam could be a check-operator. But would the theory part be a check-operator?

DR. REMICK: As I envision it, it would be the entire exam.

MR. MICHELSON: Would that mean that the check-operator decides what kinds of questions to ask and so forth out of perhaps a library of questions?

DR. REMICK: As I would envision it, yes.

MR. MICHELSON: I had never thought of the theory part being anything other than an exam put together by NRC, for instance, for this particular plant, and the check-operator just administers the exam.

DR. REMICK: As I would envision it -- And if the Staff wants to respond to it -- personally I thought that this would take you back to what was the case before the Commission imposed this NRC audit, that you would be back -- that the utility would be responsible, but if you had a check-operator you would have somebody designated as

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1 somebody who the Commission had confidence in could
2 administer a good requalification examination. So you
3 wouldn't be letting it necessarily entirely to the utility,
4 but maybe having the training manager being the one doing
5 it; that there would be somebody who is named as the
6 check-operator, that he has experience and that we have
7 confidence in, that he is going to administer the
8 requalification examination. I always envisioned that would
9 be the entire exam.

10 MR. MICHELSON: Would he have to take the
11 questions out of a standard library of questions or would he
12 make up his own?

13 DR. REMICK: Personally, I hadn't thought that
14 through. I would hope it would be performance-based. And
15 certainly a library is helpful to anybody writing an exam on
16 ideas.

17 If that library was good performance-based
18 questions, I would say why not. In fact, it would be very
19 helpful. You could get some kind of consistency across the
20 entire country by doing that.

21 So my answer would be I would think so, yes, if
22 it was a good library of questions.

23 MR. MICHELSON: Somehow I had always thought of
24 the check-operator as the one who goes up with the pilot to
25 see if he knows how to fly the plane.

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1 DR. REMICK: He is that. But, as I say, that was
2 just my own personal view when we had talked about it. I
3 could see that this is somebody administering the
4 requalification exam, the written, the walk-around, the
5 simulator.

6 MR. WYLIE: Let me ask a question.

7 The FAA concept, the check operator, isn't he
8 certified by FAA as the check-operator in that airline?

9 DR. REMICK: The check-pilot, yes, sir.

10 MR. WYLIE: The check-pilot. So in concept --

11 MR. WARD: There might be a number of them on a
12 given airline.

13 MR. WYLIE: But the concept we were looking at
14 here, then, it would be the NRC certifying the utilities'
15 check-operator?

16 DR. REMICK: Yes.

17 MR. WARD: Well, does the NRC now -- I mean there
18 is someone in the utility who signs off on the performance
19 of the operator every two years now, right?

20 MR. BOGER: Right.

21 MR. WARD: Certifies to the -- And who is that?
22 Does the NRC certify that person or does it have any
23 requirements for who that is?

24 MR. BOGER: It is typically a senior vice
25 president or someone.

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1 MR. WARD: Yes.

2 MR. BOGER: We don't have any licensing
3 requirements on such a person, but we hope that he is high
4 enough in the chain that he is responsible for the
5 operations of the plant and the operators.

6 DR. REMICK: Actually, Dave, there are two
7 people:

8 The one that Bruce was talking about, the person
9 who certifies that this person has performed as an operator;
10 he has successfully passed the requalification program and
11 this type of thing is the senior VP. But there is another
12 person who administers the annual exam. And I think this
13 varies across the industry. But quite typically there is
14 somebody who is deigned to be able to prepare the questions
15 this year, and he is exempt from them. But quite often,
16 then, he cannot do that next year or he can't do it many
17 more than two years. Somebody else has to do it so he can
18 be tested.

19 Am I correct? That's the way it generally
20 works.

21 MR. BOGER: Yes.

22 DR. REMICK: So there are two people. One is the
23 person who certifies and the other is the person who writes
24 the annual requalification examination. And many utilities
25 I know have a system where they make sure that that guy

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1 isn't exempt for years and years.

2 MR. WARD: He might take the exam every other
3 year. But is he typically the plant manager, the operations
4 superintendent or the head of the training department, or is
5 he a shift operator?

6 DR. REMICK: It is one of the former, but I think
7 it varies from plant to plant, in my understanding. But
8 that is not the gospel. It is just an impression I have.
9 It could be the training manager, if perhaps he was
10 licensed.

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1 MR. MICHELSON: It has to be a licensed person,
2 doesn't it?

3 DR. REMICK: I don't think it has to, but
4 typically it is.

5 MR. BOGER: Typically that person used to be an
6 SRO but what happens a lot of times now is the people who
7 are responsible for developing the examination, the writing
8 of the questions and reviewing those questions, do not have
9 to take the exams. That's one of the sore points you
10 mentioned if somebody can do it year after year and just
11 review the exam rather than taking the exam.

12 MR. WARD: But a lot of the thrust of some of the
13 emotion behind the check-operator sort of thing is that this
14 should be a peer of the people taking the exam. I would say
15 that means it should be a working SRO and, under the
16 existing system, the person who now does that may be an SRO,
17 may hold an SRO license, but he doesn't really work as an
18 SRO, he works as the office manager or as the training
19 supervisor or something like that. And so I think a lot of
20 people who are behind the check-operator kind of thing are
21 behind it to get it over to where it is a real peer
22 evaluation and not just by someone who holds an SRO.

23 MR. MICHELSON: Now I gather it doesn't even have
24 to be a licensed person.

25 MR. WARD: No.

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1 MR. MICHELSON: -- who does the examining.

2 MR. WARD: But just requiring that it be someone

3 who holds an SRO won't get the peer evaluation part in

4 there.

5 Okay. Well I guess we have yakked about this
6 enough. Let's take a break for lunch. We will come back
7 at, as the agenda says, at 2:30 for the remainder of the
8 agenda.

9 Thank you very much.

10 (Whereupon, at 1:30 p.m., the meeting of the
11 Subcommittee was recessed, to be reconvened at 2:30 p.m.,
12 this same day.)

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AFTERNOON SESSION

(2:30 p.m.)

MR. WARD: We will reconvene and the first topic on the agenda this afternoon is a review of the final rule on 10 CFR Part 55 and Ms. Shankman -- or first you have an introduction?

MR. BOGER: Yes, I do.

MR. WARD: Okay. Go ahead, please.

MR. BOGER: First of all, I would just like to thank the Committee for getting together with us. We appreciate the opportunity to present this rule change, it's an item that has been of considerable interest in the NRC and the industry and we recognize the tight timeframe you have between now and next week's full Committee meeting. So what I'd like to do is basically tell you a little bit about the history or refresh your memories on why we have proceeded with the rule change.

Basically a lot of it is outgrowth of the TMI-2 accident where we came up with a lot of potential changes to the operator licensing program and we felt that we needed to put them all in one place.

In addition, in December of 1982, the Waste Disposal Act came out requiring us to take some action in this area.

(Slide.)

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1 As you will remember, this was all combined in a
2 training and examination type package and then in February
3 of '84, SECY 84-76 was our proposed rulemaking on training
4 and qualifications.

5 In September of that year, after considerable
6 discussions with industry and Newmark and INPO, the
7 Commission decided that we would defer the training rule but
8 we would continue on with the operator licensing portions of
9 it.

10 So we went ahead and we published the proposed
11 changes to Part 55, which is the operator licenses, and we
12 also published the associated Reg. Guides to implement this
13 regulation in the November/December 1984 timeframe.

14 The public comment period lasted about 90 days,
15 it ended in around March of 1985, and we went through a lot
16 of discussion on the resolution of the public comments. As
17 you see, we had over 1600 comments from individuals or
18 corporations and we, in fact, encouraged this comment period
19 and this amount of comments. We sent the copy of the
20 proposed rule change and Reg. Guides to every licensed
21 operator and also to training organization and facilities,
22 so we tried to send them to the people that were directly
23 affected by the rule and we had considerable comments.

24 We received regional input on the resolution of
25 comments to make sure that we were hitting those issues that

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1 the folks that are actually conducting the exams now were
2 having problems with and we also tried to factor in the
3 Commission's policy statement on training and qualification;
4 in particular, we tried to make use of industry initiatives
5 in this area to make sure that our regulations were focusing
6 on the direction that the Commission has guided us and also
7 the direction that we believe the industry is taking anyway.

8 (Slide.)

9 Okay. There are three main objectives to the
10 rulemaking: basically one is to improve the safety of
11 nuclear power plant operations by making sure that the
12 operators are better qualified or better able to do their
13 jobs.

14 Second was to improve the basis for licensing
15 exams and conducting operating tests. This was to make sure
16 that we were looking at the operator's job and make sure
17 that the exams reflect that job and also to make our
18 operating tests reflect the job through the use of
19 simulators and simulation devices.

20 Finally, it was to respond to the Public Law,
21 Section 306 of the Waste Disposal bill which required us to
22 establish regulations in the area of examinations,
23 particularly in simulator examinations.

24 MR. WARD: Let's see, did the Section 306 of the
25 law require you to establish regulations in the area of

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1 training?

2 MR. BOGER: Training and qualifications, also to
3 establish regulations in the examinations of operators.

4 MR. WARD: Yes, but I mean the training part of
5 the rule was deferred to wait and see what Newmark and INPO
6 would come up with. How did you get away with it under the
7 law?

8 MS. SHANKMAN: Section 306 said regulations or
9 other appropriate guidelines. And I think Jay can speak to
10 how that's been interpreted.

11 Jay, do you want to....

12 MR. BOGER: Jay Persensky was responsible for the
13 whole rule but primarily the training rule at the start and
14 he might be able to better address that.

15 MR. WARD: Well I mean specifically the point is
16 somehow you've been able to interpret things so that the 306
17 didn't -- permitted this action of deferring to Newmark and
18 INPO on the training.

19 MR. PERSENSKY: Jay Persensky, NRC Staff.

20 The way the Nuclear Waste Policy Act was written,
21 it said regulations or guidance. And using the guidance
22 guidance and the many negotiations and discussions with the
23 industry, we elected to put out the training and
24 qualifications policy statement which we feel constitutes
25 guidance but we also have the two-year evaluation period in

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1 order to follow-up on that if necessary.

2 DR. REMICK: I have a slightly different
3 question:

4 Now taking the policy statement in which the
5 Commission said that it would not issue other rulemaking for
6 a period of at least two years, how do you satisfy yourself
7 that this is not inconsistent with that policy statement?

8 MS. SHANKMAN: They exempted on-going work in
9 operator licensing and specifically culled that out. That
10 was not part of the policy statement and didn't preclude us
11 from issuing these regulations.

12 MR. PERSENSKY: The policy statement specifically
13 excluded licensed operators and senior operators with regard
14 to the licensing process itself.

15 DR. REMICK: I see. So this fits within that
16 category of on-going activities at that time?

17 MR. PERSENSKY: Correct.

18 MS. SHANKMAN: I'm Susan Shankman, I'm with the
19 Operator Licensing Branch. And John asked us to go through
20 this package by the numbers and so that's what we're going
21 to do. You can stop me at any time.

22 MR. WARD: That sounds a little ominous, put it
23 that way.

24 MS. SHANKMAN: What, by the numbers?

25 MR. WARD: Yes.

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1 MS. SHANKMAN: Yes, well.... Is your package as
2 big as mine, did John....?

3 MR. WARD: Yes.

4 MS. SHANKMAN: Okay.

5 MR. WARD: We just want it explained to us. You
6 don't have to go through it by the numbers.

7 MS. SHANKMAN: Well.... We'll try to follow it
8 in terms of the way it's organized in the rule. And
9 obviously some parts relate to other parts, not sequentially
10 the way they're organized in the rule. So that may -- bear
11 with us anyway.

12 (Slide.)

13 The beginning, of course, is the general purpose,
14 scope, as it has been in the past, it applies to individuals
15 who manipulate controls and those who direct licensed
16 activities.

17 The definitions in this particular rule follow
18 others that the Commission has issued, except there are a
19 few that are particularly new since we issued it for public
20 comment. And rather than discuss them absent the context,
21 I'll just tell you that as we get to them we'll discuss
22 actively performing the duties of a licensed operator,
23 simulation facilities and the systems approach to training.
24 Those are now in the definitions section.

25 DR. REMICK: Could I ask you to try to point out

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1 one other thing?

2 The copy that John sent us several weeks ago, I'm
3 told, has been revised. We would be particularly interested
4 in your pointing out any changes in today's version versus
5 what we received a couple weeks ago.

6 MS. SHANKMAN: For this particular section, we
7 have added the definition of a systems approach to
8 training since we mentioned it under requalification and
9 under content of exams. We've put in the five basic
10 elements that appear in the policy statement as the NRC's
11 definition of what we mean when we refer to a systematic
12 approach to training or a systems approach to training.

13 And then as we get to the pages, I'll tell you
14 where there's something different.

15 DR. REMICK: All right.

16 (Slide.)

17 MS. SHANKMAN: The exemptions in this are pretty
18 much what they've always been under operator licensing, that
19 is, students in nuclear engineering courses are exempted
20 from having to be licensed.

21 We've also clarified what we meant by "trainees."
22 We've always exempted trainees from needing a license to
23 manipulate the controls, but we've now made it trainees in
24 NRC-approved operator training programs. And that came out
25 of some experiences where....

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1 DR. REMICK: A question of kind of academic
2 curiosity: have you ever had any difficulty with
3 universities that don't have nuclear engineering courses;
4 they might have a research reactor but they don't have a
5 nuclear engineering department hence, literally, nuclear
6 engineering courses but they give a nuclear engineering
7 title? I'm thinking of Rensselaer, for example, I don't
8 think they have a nuclear engineering degree. Have you ever
9 run into this problem?

10 MR. BOGER: We've never had anyone bring it up
11 before.

12 DR. REMICK: I remember once some years ago at
13 our university we ran into a problem where people were in a
14 radiochemistry course and wanted to use a reactor and we
15 took a literal meaning, no, they couldn't do it in
16 radiochemistry it was intended to be nuclear engineering. I
17 think that's a little strict.

18 But I was wondering -- I was reading this the
19 other day, I was thinking have you ever run into a problem
20 there, so sharply defining it as nuclear engineering
21 courses.

22 MR. BOGER: We never have.

23 DR. REMICK: Okay.

24 (Slide.)

25 MS. SHANKMAN: The medical requirements are

1 AGBagb

1 basically the same as when we put out the proposed rule.
2 We've done some clarifying, when we have to be notified
3 about disabilities. This originally came from a petition by
4 KMC that said won't you please simplify the process by which
5 medical evaluations are made and documented. We keep the
6 biennial medical exams. I'll talk tomorrow about Reg. Guide
7 1.134 where we specifically endorse the ANSI standard, the
8 3.4 1983.

9 But instead of having the complete documentation
10 sent on every applicant for operator, we're now asking for a
11 certification by the facility on a revised 396 form and the
12 form is basically a certification. I have copies of
13 anybody's interested. It asks the facility to certify to us
14 that the candidate, applicant, operator has been examined by
15 a licensed medical practitioner and meets the standards in
16 the ANSI standard and where they don't, we ask them to send
17 in medical documentation.

18 And this is a way in which NRC can get out of the
19 medical business and only in the unusual case will we ask
20 for documentation and then we will send it to one of our
21 medical experts for review.

22 In terms of notifying us about incapacitation
23 because of disability or illness, we've always asked for
24 that. We've asked for it within 15 days; we're now asking
25 for it within 30 days because the agency is going to 30 days

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1 on everything as a consistent standard.

2 And we're also saying that if that incapacitation
3 is less than 30 days they don't even have to let us know;
4 that takes care of temporary conditions. But if it is going
5 to be longer, then we require that we be notified and also
6 that they send us documentation when the operator returns to
7 license duties and justify it based on medical evidence.
8 I think it is straightforward and hopefully less paperwork
9 and less problems.

10 (Slide.)

11 MR. WARD: I guess the only -- what are you
12 saying, that it becomes important is when -- or difficult
13 is with a psychiatric illness.

14 MS. SHANKMAN: In the Reg. Guide, we --

15 MR. WARD: Is where you talked about that?

16 MS. SHANKMAN: Yes.

17 MR. WARD: I'll wait until tomorrow then.

18 MS. SHANKMAN: Okay. Thanks.

19 Okay, in terms of applying to us to be licensed,
20 as you may remember -- I don't know, when we came down last
21 time we were all -- this was tucked in with the training
22 rule so it may not have been highlighted, but we've been
23 using Form 398 for a long time and now we have the rule to
24 say what we've been doing.

25 There are a lot of changes like that in this rule

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1 where we have cleaned up the rule to make sure that it
2 conforms with what we're doing.

3 The difference here -- and this is new on your
4 package -- on page 26, under 55.31(A)(4) we have added words
5 that basically say if an applicant has completed an
6 NRC-approved training program that uses a simulation
7 facility acceptable to the NRC that we will then administer
8 an appropriate licensing exam and operating test.

9 So you can also decode that -- because in the
10 rule we don't mention INPO -- but what we're saying in the
11 statement of considerations is that an NRC-approved training
12 program will be an INPO-accredited program, will fall under
13 that category, if they use a simulation facility. It also
14 allows us the option if the INPO program is not working to
15 not approve it, so it gives us the most flexibility.

16 So if they're in an approved training program
17 with a simulation facility, they do not have to document all
18 the training as they have in the past.

19 (Slide.)

20 DR. REMICK: Do I infer from that then if they
21 have decided not to go the INPO-accreditation route that you
22 would require documentation of specific training received?

23 MS. SHANKMAN: No, if it's an NRC-approved
24 training program, not necessarily.

25 DR. REMICK: But if it was not NRC-approved --

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1 MS. SHANKMAN: If they are not in an NRC-approved
2 training program that uses a simulation facility, no, they
3 would have to document their experience and their training
4 courses the same way as they do now based on the Reg. Guide.

5 DR. REMICK: I'm not if this is the appropriate
6 place to ask this question but I had better do it or I'll
7 forget: On the medical exam there you have the statement
8 that this is not to change the current requirements for
9 procedures for non-power reactors.

10 MS. SHANKMAN: Right.

11 DR. REMICK: Does that mean that non-power
12 reactors will continue to get the medical doctor to submit
13 these forms directly to the NRC, or will the non-power
14 reactor licensee certify?

15 MS. SHANKMAN: We're caught in a bind. I
16 understand they're redoing -- the ANSI-15 committee is
17 redoing the medical requirements and so until that occurs,
18 we're going to maintain the status quo, which is yes to have
19 them....

20 DR. REMICK: Right.

21 MS. SHANKMAN: But we hope that that's going to
22 change and then we would have to update our Reg. Guide that
23 endorses -- you know, the 15-point instead of the power
24 reactor Reg. Guides.

25 The written examinations and operating tests, the

1 AGBagb

1 content of them has been a concern, as you all expressed
2 earlier. And in a perfect world, the utilities would have
3 done a systematic analysis of job requirements, they would
4 have a training program that reflected that, the learning
5 objectives would be measurable, we'd know the conditions and
6 standards through which somebody would be judged as
7 mastering those things and we could take the learning
8 objectives from any given facility and turn them into
9 excellent testing objectives and our tests would reflect job
10 requirements perfectly.

11 But I noticed it's not a perfect world, so in the
12 interim we have, as was described before, this catalog, more
13 of a generic job test analysis that speaks to what is
14 important knowledges and abilities for an operator. We're
15 using that and as information becomes available from the
16 facility, we will use those learning objectives, as they
17 become accredited, as there is a job task analysis in place
18 that reflects job performance. And we're also working
19 really hard to train our examiners on how to do that
20 transformation from the facilities learning objectives into
21 testing objectives and into questions.

22 The biggest problem, as I'm sure you're aware,
23 when you have a test is to keep the test from getting in the
24 way of testing -- of showing what quality you're testing.
25 And if we're looking at confidence of operators, you don't

1 AGBagb

1 want to have a test that tests test-taking instead of
2 confidence as an operator.

3 And the job task analysis, learning objectives
4 and then testing objectives and good questions makes the
5 test less obtrusive and makes the exchange between the
6 examiner and the applicant one of can they do the job
7 instead of can they take the test.

8 The rule now has been written in such a way -- I
9 hate to describe it as an accordian, but as the job task
10 analyses get better in any given plant, we will be able to
11 use the learning objectives more and more, and that is
12 stated in the introduction to the content of the exams. But
13 as a licensing agency, we had to list minimum categories in
14 which we would test, so that's also included.

15 So that we have drawn a box that allows us to use
16 the learning objectives but we have also stated what
17 categories we expect somebody to have competencies in.
18 That's under 55.41 for the operator and 55.43 for the senior
19 operator. Those categories are not -- well I'm not a
20 reactor operator so I'm going to say that to me they don't
21 seem significantly different than they have been in the
22 past.

23 The one area where we did revise the categories
24 based on public comment was under the operating tests, where
25 there were two categories that seemed to be confusing to

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1 those people who were reading them, and based on public
2 comment we rewrote them to make it clearer that in an
3 operating test, in the walk-through and the simulator or
4 simulation-facility part of the test, we expect operators to
5 demonstrate the knowledge and ability to assume the
6 responsibilities of their assigned position and that we also
7 expect them to be able to function within the control room
8 team.

9 Now obviously we license individuals but there
10 are certain team behaviors that we expect them to be able to
11 demonstrate.

12 DR. REMICK: Let me ask a question:

13 The NRC is using the terminology "knowledge and
14 ability" and INPO has been using "knowledge and skills."
15 And is there any reason for why you selected "ability?"

16 I'm not necessarily -- it's caused me to do a lot
17 of thinking and now I say "knowledge, skills and abilities"
18 because I can see there are differences --

19 MS. SHANKMAN: Well KSA's are the standard
20 terminology used when you talk about job task analysis leads
21 you to a delineation of the knowledge, skills and abilities
22 needed to do those tasks and that's the way it's talked
23 about in the literature.

24 But "skills," depending on which author you're
25 reading, often means psycho-motor and "abilities" usually

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1 means an application of psycho-motor plus some underlying
2 learned behavior. So I think we chose "abilities" to make
3 it very clear that it's not enough to be able to turn the
4 knob if you don't know why you're doing it and you don't
5 have something else going on with it.

6 INPO, why they chose "skills," I don't know. I
7 think the way they use it they're using it the same way we
8 use "ability."

9 But ability is different from knowledge because
10 knowledge implies cognition. And ability would mean -- I
11 like to make the distinction I talk a wonderful game of
12 tennis but you could beat me just by standing on the court.
13 So I have the knowledge to play good tennis but not the
14 ability. And I might have the skill, I might be able to hit
15 the ball and move around but somehow getting my act together
16 on the tennis court is like a whale, you know, on land.

17 DR. REMICK: And that ability, you might not be
18 able to keep score.

19 MS. SHANKMAN: Whatever -- no, that might be
20 knowledge, I don't know.

21 DR. REMICK: But I think isn't ability that you
22 interpret that that you might have to plot this or calculate
23 that or estimate this --

24 MS. SHANKMAN: Yes, it's much more applied, much
25 more applied than knowledge and much less connected to your

1 AGBagb

1 muscular skills and physical reality than skills.

2 Jay, do you want to add anything? No.

3 But KSA's you'll see in the Army and any of the
4 services and the government agencies that talk about
5 delineating things, they just put KSA's. And I just think
6 that our book was so thick we said Gee what could we take
7 out and we took out skills: you know, reading and answering
8 the phones, things that were clearly related.

9 DR. REMICK: That cut the pages down by a third,
10 right?

11 MS. SHANKMAN: And then we tried writing on the
12 backs and.... No one ever said the operator's job was
13 uncomplicated.

14 Okay. I'm trying to just think whether we added
15 anything. We added something to page 38 which is the
16 integrity of exams and tests. We now have a page 38A and
17 the reason is simply that when press reproduced it we
18 deleted something and they continued the deletion beyond the
19 point where we meant to have it deleted. So the 38A is just
20 putting back in what should have been there last time --

21 DR. REMICK: My copy doesn't have a 38A.

22 MR. WARD: Mine doesn't either.

23 MS. SHANKMAN: Well so much for integrity of
24 exams and waiver of examination requirements.

25 DR. REMICK: What section is that?

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1

MS. SHANKMAN: It's under examinations and

2

tests.

3

MR. PERSENSKY: 55.47, I believe -- 49, I'm

4

sorry.

5

MS. SHANKMAN: It's behind page 38 and it looks

6

like this.

7

(Displaying document.)

8

Not only was it left out of your copy last time,

9

it was left out this time.

10

MR. WARD: It doesn't look like that's --

11

well....

12

MS. SHANKMAN: Let me tell you what it had on it.

13

MR. WARD: I mean in my copy page 38 ends with an

14

Item A and 39 begins with an Item B so I suspect --

15

MS. SHANKMAN: Right, because 38A belongs in the

16

middle of the page. It is 55.47 and 55.49. Just so that

17

you'll know that we really did mean it, it is in the table

18

of contents in front of the rule and it really was only a

19

clerical error to leave integrity of exams out.

20

DR. REMICK: It would be good if John could get a

21

copy of that --

22

MR. WARD: He's got it.

23

MS. SHANKMAN: But it hasn't changed from the

24

proposed rule and it spoke to waiver on 38A, you'll find

25

waiver of examinations and test requirements, and that's

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1 based on past experience: if you passed our test in another
2 context than you may have it waived if it's just recently
3 you held a license from one plant to another and that hasn't
4 changed much. But the integrity of examinations and tests
5 was something that we added to this rulemaking that hasn't
6 been in operator licensing. And it says simply:

7 "Applicants or licensees shall not
8 engage in any activity that compromises the
9 integrity of any application, test or examination
10 required by this part."

11 I think that it's always been implicit, but for
12 various events of which I'm sure you're aware we felt that
13 it was a good idea to make it explicit, so that's been added
14 to the rule.

15 Okay. Under operating tests, we have not only
16 asked that the quality of the tests change, that it be a
17 demonstration of ability, more so than it has been in the
18 past, but we've also said that the place in which we're
19 going to give the exam is going to be more than just a plant
20 walk-through, and we've put extensive requirements having to
21 do with simulation facilities.

22 Jerry Wachtel, who has worked on this and has
23 delineated those requirements, is going to talk to you about
24 that.

25 (Slide.)

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1 MR. WACHTEL: There have been many changes made
2 to Part 55.45 on simulation facilities since the draft
3 version of this directly as a result of public comments that
4 we received and I will explain to you what those are as I go
5 through this.

6 First, as Susan mentioned, the operating test
7 will be performed in a plant walk-through and within the
8 simulation facility; that is not to change from what has
9 gone before. That is essentially a continuation of our
10 present policy.

11 The major difference, however, is in the
12 simulator portion of that operating test. At the present
13 time we don't require simulator or a simulation facility and
14 we have no specifications for those simulators that may be
15 used for the conduct of operating tests.

16 Now at a plant without a simulator we may merely
17 expand the scope of the walk-through portion of the
18 operating test and at a plant with a simulator or one plant
19 that has access to a simulator, we essentially are forced to
20 take the utility's word for the fact that their simulator is
21 of sufficient fidelity and representation of the plant as to
22 make it suitable for the conduct of exams. This often is
23 the case, despite our examiners' and others telling us that
24 there are problems with simulators and with the fidelity of
25 those simulators as they mirror the plant.

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1 So although the policy itself is a continuation,
2 the two major changes to it are that a simulator will be
3 required -- and we're using the term "simulation facility"
4 which I will describe -- and that the simulator itself will
5 have to meet certain requirements before it will be
6 acceptable for its use in the conduct of operating tests.

7 We have written the rule to encourage the use of
8 the industry-accepted ANSI 345 simulators. But we have also
9 written the rule explicitly to permit the use of other types
10 of simulators which, for whatever reason, may not meet the
11 industry standard, which is ANSI 3.5.

12 For example, some other devices that might be
13 proposed for use and might be acceptable for use under Part
14 55 are simulators that were designed in earlier years of the
15 ANSI 3.5 standard and while they might have met an earlier
16 version they may no longer meet the current version of the
17 standard.

18 Another case might be a simulator that might meet
19 the ANSI 3.5 standard for a reference plant but such a
20 simulator might also be proposed for use in conducting exams
21 at other plants or at multiple units of one plant and that
22 might not be referenced to the particular simulator being
23 proposed.

24 Other devices include part-task trainers,
25 engineering simulators, basic principles trainers or even

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1 the use of the plant itself for certain start-ups and
2 shutdowns. Any one or more of these devices could
3 conceivably be proposed for use in the conduct of the
4 simulator portion of the operating test and if it meets
5 certain requirements that we'll talk about that could be
6 permitted by us.

7 As I said, we are going to encourage the use of
8 ANS 3.5 simulators by accepting such simulators for use
9 based upon the utilities' certification to us that they have
10 a simulator that is a plant reference device and that meets
11 ANS 3.5 -- and the current version of that standard just
12 came out a month ago, so it's a 1985 standard.

13 For other simulators, for those other than those
14 which are suggested to us as being certified to meet ANS
15 3.5, the obligation will be on the utility to submit an
16 application to the NRC which the NRC will then have to
17 review and approve before that simulation facility could be
18 used.

19 The major difference here between the rule in its
20 current form and that which was proposed and went out for
21 public comment is that we are now going to accept the
22 utility's certification that it has an ANS 3.5 simulator and
23 we will accept that certification and proceed to conduct
24 exams on that simulator, whereas in our draft version of the
25 rule we required even ANS 3.5 simulators to be proposed in

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1 an application that we would have to review and approve.

2 The rule permits one year for a utility either to
3 submit to us a certification for an ANS 3.5 facility or to
4 submit a plan under which it will develop a simulation
5 facility as an alternative device.

6 That, too, is a change from the draft rule, we
7 had originally required a 120 day period before we required
8 these plans to be submitted; as a result of public comment
9 that's been extended to a year.

10 The rule also now permits a four year grace
11 period, if you will, during which time we have a phased in
12 implementation program -- and I'll talk more about that
13 tomorrow when we discuss Reg. Guide 1.149 -- but we will
14 grant a four year period before which every utility will
15 have to have in place an accepted or an approved simulation
16 facility. That, too, is a change from the draft version of
17 the rule in which we required a three year period. Based
18 upon public comment, that's been extended to four years.

19 As I said, the rule has been written to make it
20 easier for the utilities to have and use an ANS 3.5 machine
21 referenced to the unit for which they want to conduct
22 exams.

23 The process that those utilities will follow is
24 basically this: they will certify to the NRC that they have
25 a simulation facility that is a plant-reference simulator

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1 meeting the Commission requirements and that will mean -- as
2 you'll see when you look at the Reg. Guide -- an ANS 3.5
3 1985 simulator and then we, the NRC, will permit operating
4 tests to be conducted on that simulation facility by
5 accepting the utility's certification.

6 The initial certification that they submit to us
7 will have to be based on the successful completion of
8 performance tests that the utility conducts on that
9 simulator and the description of the performance tests that
10 are acceptable is also contained in the Reg. Guide and shows
11 up in the present version of ANS 3.5 and the initial
12 certification also must include a schedule demonstrating a
13 four year cycle in which they will conduct a continuing
14 series of performance tests so as to document a continued
15 fidelity of the simulation facility and that it continues to
16 mirror whatever changes made be made to the plant over that
17 four year cycle.

18 DR. REMICK: A question on that point: why do
19 you specify at least 25 percent per year versus if they
20 decided that they would do 50 percent and 50 percent over
21 that four-year period? Are you specifically trying to have
22 them distribute that over a four year period? I thought it
23 was curious that you told them at least how much to do each
24 year rather than to do it over a four year period.

25 MR. WACHTEL: Part of that -- I guess there are

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1 two parts to that answer: part is a throwback to the 1981
2 version of ANS 3.5 which was current until one month ago
3 today in which a four year cycle of performance tests was to
4 be conducted.

5 Part of it is because we, the NRC, are in the
6 process now of developing an evaluation strategy whereby we
7 will have the capability to going out to simulators and
8 evaluating their fidelity against criteria that we are
9 developing now and that will be made available to the
10 industry and we are trying essentially to equalize the
11 workload and the burden on the people who are going to be
12 doing that work to make sure that they can get out and
13 conduct the kinds of reviews and audits that will be needed
14 to conduct in order to insure continued acceptability.

15 DR. REMICK: I'm not sure how I see that that
16 relates to the utility doing at least 25 percent per year; I
17 can see how you might want to distribute NRC load but why
18 are you specifying that they distribute that validation
19 or....

20 MR. WACHTEL: We're essentially going to be
21 auditing the work that they do. It's not our intention to
22 conduct that work ourselves but only go back and audit and
23 it is conceivable that we will want to go back and reconduct
24 some of the tests if we're not satisfied with the results.
25 But essentially we will be satisfied for them to conduct

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1 the tests and have the results of the tests available for
2 our inspection and review.

3 DR. REMICK: Have you gotten any comments on
4 that, the at least 25 percent per year?

5 MR. WACHTEL: We got very few comments on that.
6 There were some questions that asked why it was necessary,
7 why we couldn't just leave the process up to the utilities
8 but they were, I would say, no more than two or three
9 comments on that. For the most part, that breakdown was
10 pretty much acceptable.

11 DR. REMICK: Okay.

12 MR. WACHTEL: Let me tell you about the procedure
13 to be followed for the non-ANS 3.5 simulation facilities:
14 First of all, instead of submitting to us a certification,
15 they will instead submit an application. The application
16 will include a complete description of the facility, what
17 components it may contain and how those components will be
18 used in the conduct of operating tests; they will include in
19 that initial application a documentation of the performance
20 tests that they have conducted to insure the acceptability
21 of that simulation facility and the results of those tests
22 and they, too, will present to us a four year program for
23 the conduct of performance tests on an on-going basis.

24 The application process for the non-ANS 3.5
25 facilities is not any different than it was when it went out

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1 for public comment in draft form except when we get to
2 periodic re-application. In the draft version of the rule,
3 we required a re-application process with a complete
4 refiling of all of the performance tests every four years.
5 We have done away with that, we are essentially saying in
6 this version that the initial application will be
7 satisfactory; the only thing we will require is an annual
8 report stating that the simulation facility continues to
9 meet the standards established for it and that the four year
10 cycle of performance tests will essentially be refreshed
11 every four years as part of that fourth annual application.
12 So we have essentially simplified the process and greatly
13 diminished the paperwork.

14 Another simplification we've made is that which I
15 mentioned a moment ago that we are not requiring, as we did
16 in the draft rule, that each utility send in the results of
17 the performance tests to the NRC before our review. We are
18 requiring only that they maintain the data for a four year
19 period for us to be able to come out and inspect and audit.
20 So we dramatically cut down on the paperwork burden of that.

21 (Slide.)

22 There are some provisions of the rule that will
23 apply to all simulation facilities, whether they are
24 certified ANS 3.5 simulators or other devices. The first,
25 as I just mentioned, is that the data that is collected

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1 during performance tests shall be maintained on-site for a
2 four year period which, of course, will cover the full cycle
3 of the performance tests and enable us to inspect or audit
4 as the case may be.

5 We have also -- and this is not a change from the
6 draft version -- the NRC retains the right to inspect or
7 audit the simulation facility or any tests that have been
8 conducted on that facility at any time and, as a result of
9 that inspection and/or audit, we may withdraw our acceptance
10 or our approval; acceptance, of course, in the case of a 3.5
11 facility, approval in the case of other devices.

12 After the four year phase-in period, we may cease
13 to conduct operating tests if we withdraw our acceptance or
14 our approval.

15 And if -- the fourth point, if we do withdraw our
16 acceptance or approval and therefore cease to conduct
17 operating tests, then the utility may begin at any time to
18 submit to us a certification or an application for their
19 simulation facility as appropriate so that we can begin
20 again to conduct tests once the facility is back in shape.

21 That essentially sums up the rulemaking on
22 simulation facilities. We'll go into much more detail
23 tomorrow on the Regulatory Guide and the performance testing
24 and the details of that.

25 DR. REMICK: When do you want any nits on the

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1 ones that we are referring to, do you want them now or do
2 you want them at the end?

3 For example, on 55.45(a) -- I realize that you're
4 talking about (b) -- it's minor, but when I read it I had to
5 read it several times and in the second sentence of 45(a)
6 you say "...the content will be identified in part from
7 learning objectives derived from a systematic analysis....,"
8 you don't say systematic analysis of what. You're talking
9 about job analysis, a systematic job analysis. I think one
10 word in there will make people know what systematic analysis
11 you're referring to.

12 MS. SHANKMAN: That's a typo. That paragraph
13 should be exactly the same as the one that's before the
14 written exam. So thank you. Before the written exams is
15 there a paragraph that speaks to contents....?

16 Then it's a mistake.

17 DR. REMICK: Yes, it just says "systematic
18 analysis." I think it would be helpful if "job" was put in
19 there.

20 MS. SHANKMAN: It's a mistake. I'll fix it.

21 MR. WACHTEL: I'll turn the musical microphone
22 back to Susan.

23 MS. SHANKMAN: It's those kind of things, that's
24 why we're sending it around to a million people. I must
25 have read that sentence six times and it made perfect sense

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1 to me.

2 All right. On page 39 of your package, I hope,
3 there are conditions of the license.

4 (Slide.)

5 There has been a requirement as a condition of
6 the license to actively perform the duties or functions of a
7 license operator. And it was a very confusing requirement,
8 because under requalification we had that you had to be
9 actively and extensively engaged as an operator. And these
10 words were confused. And in the public comments, it was
11 very clear that our guidance in this area was, at best,
12 fuzzy in terms of how much participation one had to have in
13 plant operations to be considered active or actively and
14 extensively engaged and therefore able to maintain your
15 status as a licensed operator.

16 And in August representatives from all the
17 regions came in and hashed out the response that we were
18 making to the public comments and this issue came up full
19 force from each of the regions in one way or another.

20 And, as a result of that meeting and then some
21 debate within the division and the branch, we came up with a
22 definition of actively performing which is down on page 18
23 and it says "...actively performing the functions of an
24 operator or senior operator means that an
25 individual takes responsibility for and carries

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1 out a position on the shift crew that requires
2 the individual to be licensed as defined in
3 the facility's technical specifications."

4 Okay. So you have to be in a licensed position
5 and that's defined in the tech specs for that particular
6 plant. Then we're saying under 55.53(E) that you have to be
7 doing that, actively performing the functions, for a minimum
8 of three shifts per calendar quarter. And in the
9 definitions sections we've also added the word "shift," so
10 that it's a minimum of an eight-hour shift. So that a
11 two-hour shift will not be sufficient.

12 And we said calendar quarter. That means a
13 minimum then of 24 hours in three months. And if you are
14 actively performing the functions of an operator 24 hours in
15 three months, you can maintain your status as an active
16 licensed operator or senior reactor operator.

17 DR. REMICK: That's all very clear to me except
18 when then you talk about over a four month period and I keep
19 saying --

20 MS. SHANKMAN: That's been deleted.

21 DR. REMICK: Well I hoped it was but I just see
22 on page 12 it's there. I scanned to see --

23 MS. SHANKMAN: Page 12?

24 DR. REMICK: Page 12, it's the second paragraph,
25 the last two sentences. It says:

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1 "However, to return to active
2 performance after a period of not participating
3 on shift..." -- oh, for four months, I'm sorry. That
4 is a different item.

5 That's an absence of four months.

6 MS. SHANKMAN: No, that's a mistake. That's a
7 mistake. You're doing very well.

8 DR. REMICK: I thought I was but now I'm not
9 sure.

10 MS. SHANKMAN: It's deleted in the rule, it just
11 wasn't deleted in the summary of the rule.

12 DR. REMICK: Are you sure? Because isn't there
13 another one though that you are completely absent and is
14 this what we're talking about here?

15 MS. SHANKMAN: Yes. Let's look on page 39 of the
16 rule and I will change the summary to conform to the rule,
17 because that is a change that's been made since the last
18 time this came down to you.

19 If you look on page 39 it says (E):

20 "If the licensee has not been actively
21 performing the functions of an operator or senior
22 operator, the licensee shall not resume activities
23 authorized by a license issued under this part
24 except as permitted by (F)."

25 Now we have defined "actively performing" so

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1 that's three shifts in a calendar quarter. And if you
2 haven't done that, then you have to go to (F), where it says
3 if (E) is not met then you have to do the three things.

4 And we tried to be as specific as possible: you
5 have to complete refresher training that has been approved,
6 and that would mean -- it's particular to the facility and
7 most facilities, I understand, have some kind of plan
8 already in place but that may need to be updated.

9 Then it has to be certified to us that your
10 qualifications and status are current and valid, and that
11 would be the medical qualifications or whatever else, that
12 something hasn't significantly changed.

13 And the third thing is a 40-hour parallel shift,
14 and that's to bring you back up to -- it's currency in the
15 Air Force, I think, and -- it's the issue of currency.

16 And it also really -- by doing this we've
17 established an inactive license, because you could be fully
18 participating in requalification and not be on shift and
19 maintain your license but you wouldn't maintain your ability
20 to go on-shift without going through these three things.

21 DR. REMICK: Okay. So you're going to take out
22 the reference to the four months then?

23 MS. SHANKMAN: Yes. That was -- and it was in
24 here up until -- in fact when it came down to you before and
25 then there was a lot of discussion -- in fact we were

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1 drawing time lines and it was unclear, how would you know.

2 DR. REMICK: Right.

3 MS. SHANKMAN: Okay.

4 MR. WARD: Well let's see, do you expect that
5 people will maintain inactive licenses and they could do
6 that indefinitely?7 MS. SHANKMAN: Renewing it every six years, yes.
8 Or if you fully -- the intent was if you fully participated
9 in a requalification program you could maintain your
10 license. And there is a need at plants to maintain backup
11 licensed personnel. But they're -- they don't participate
12 on-shift, no.13 We always have the option to make exceptions, so
14 that if somebody is a plant manager and is participating in
15 the daily plant routine and not necessarily on-shift, as
16 we've defined it, it may be that an exception is made for
17 that particular person. But as a matter of rule, that's not
18 what we intend to do.

19 Bruce, did you want to add anything?

20 No, okay.

21 DR. REMICK: So you could maintain your license
22 but not operate unless you met this?

23 MS. SHANKMAN: Right.

24 DR. REMICK: So at times of strike or something
25 people would have the license but they'd have to have this

1 AGBagb

1 training to be able to take over.

2 MS. SHANKMAN: Right. And we've taken out --
3 we've deleted under requalifications, when we get to that,
4 we've deleted those words "actively and extensively."
5 Nobody seems -- let's say everybody had an explanation of
6 what it was but none of them were the same, so with so many
7 -- you'd have two people and three definitions We decided
8 it was too confusing. And the public comments reflected
9 that confusion.

10 Okay. As a condition of the license we've added,
11 and this was added in the proposed rule, that we be notified
12 of any change in status and we've included under that
13 permanent re-assignment. You know, when you apply to have a
14 license the facility certifies the need for that license.
15 Well if that need goes away and you're changed to a
16 different position we want to be notified. If you are
17 convicted of a crime we want to be notified. If you're
18 disabled, we want to be notified. So that's maintained in
19 there.

20 We also say that if you want to maintain your
21 license you must fully participate in requalification,
22 successfully complete requal programs and continue the
23 biennial medical. So those are the conditions of the
24 license.

25 And we've changed the expiration of that license

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1 to be six years.

2 DR. REMICK: You make me recall a case a couple
3 of years ago where somebody -- an operator was convicted of
4 a crime and license terminated and this was appealed. Was
5 that ever resolved, that one can remove a license because of
6 conviction of crime? Was that ever resolved in the courts
7 or by lawyers?

8 MR. BOGER: If I remember that case, what
9 happened was the facility didn't want to use him anymore so
10 they didn't submit his re-application or his renewal of his
11 license so we did not have to act on that.

12 DR. REMICK: But do you run into a problem here
13 that that might come up in the future, that there's somebody
14 convicted, you get notified but he possibly could continue
15 to operate, is that right?

16 MS. SHANKMAN: No, I think the intent is that --
17 the reason that he continued to be licensed was because we
18 weren't notified, I don't think the issue of whether we
19 could revoke his license -- that's covered in a different
20 section and my understanding from the attorneys that
21 assisted me in this particular section was that if we had
22 been notified we maybe could have taken action. But the way
23 it was left is that he was sitting convicted of a crime and
24 holding a license. And it wasn't clear that that was a
25 condition of the license, that we be notified.

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1 DR. REMICK: In the case I'm thinking of I think
2 he was removed as an operator by the Licensee, I thought --
3 I think the NRC was notified but then I think the individual
4 appealed whether he could -- his license could be revoked
5 for that. But maybe I'm wrong on the exact circumstances.

6 But you're saying that the Commission feels it
7 can revoke the license if a person is convicted of a crime.

8 MS. SHANKMAN: Right. The problem was that we
9 were not aware, fully aware of the circumstances.

10 DR. REMICK: I see.

11 MS. SHANKMAN: And if you want, I can follow up
12 and check with that attorney and let you know.

13 DR. REMICK: I'm more interested in knowing
14 that if the Commission wants to revoke a license that it can
15 for something like conviction of a crime.

16 MS. SHANKMAN: All right. I'll check.

17 MR. BOGER: Yes, we can. That's what the purpose
18 of this is. It depends on the nature of the crime, of
19 course. That's why it's there.

20 (Slide.)

21 MS. SHANKMAN: The six years -- we had proposed
22 five years and, I guess, we can't count so good, so if you
23 have a biennial medical, a lot of commentators said, then you
24 go two, four, five and that means you have to have an extra
25 medical exam, so we made it six to conform to the biennial

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1 medical.

2 Okay. The renewal of a license is not changed
3 significantly in that you still have to submit your
4 paperwork, your Form 398, you still have to document that
5 you continue to operate, that you're current in
6 requalification and you successfully have completed the
7 requalification program approved for your facility and that
8 your medical status is up to date and that your performance
9 -- this has been added again by the attorneys -- that your
10 performance is satisfactory to the Commission.

11 And the intent of that is that that will reflect
12 any finding that we have, notifications, letters of
13 reprimand, and that's how we would evaluate satisfactory
14 -- satisfactory to the Commission.

15 (Slide.)

16 Well, our favorite subject.

17 Requalification, there were 1600 comments, 1599
18 were on requalification. That's the way it felt. There was
19 a lot of comments. As Bruce told you, we sent it out to all
20 licensed operators. They had comments, the facility had
21 comments. Most of the comments we got from facilities
22 included requalification.

23 And some of the commentators were particularly
24 concerned that it was too rigid: it had to be annual, we
25 were locked into lectures, that there wasn't any

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1 flexibility, that you had to take a comprehensive exam every
2 year.

3 So based on those comments and review and
4 discussion, the requirements now say that you need an
5 NRC-approved program -- that's the same -- and that the
6 cycle of that program can be no less than 12 months but can
7 be as great as 24 months. We're now saying that the written
8 exam is given biennially but that it be comprehensive; but
9 that there continue to be an annual assessment but it be
10 basically the operating tests: the walk-through and the
11 simulator.

12 And that that would be something -- in fact, some
13 commentators said that an annual operating test they thought
14 was appropriate because any operator who's operating should
15 be able to pass an annual operating test.

16 And I think the operating test, if you look at
17 the requirements now, we're basically saying that the
18 operating tests for requalification will be similar to the
19 initial operating test but it will not have Category 1,
20 which has the theoretical emphasis. We're also suggesting
21 that the comprehensive biennial written exam will be very
22 similar to the initial exam drawn from the same job task
23 analysis and learning objectives.

24 DR. REMICK: Could I give you a nit related to
25 that?

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1 MS. SHANKMAN: What page are you on?

2 DR. REMICK: Well it's 41 and it's under renewal
3 of license but it refers to the biennial exam, item number
4 four near the top of page 41 where you talk about annual
5 requalification program. And I think you want to change it
6 to, like you did on the next page, biennial
7 requalification --

8 MS. SHANKMAN: It should say "requalification
9 program."

10 DR. REMICK: Right.

11 MS. SHANKMAN: -- because whatever is approved at
12 that facility could be annual -- I mean could be a 12 month
13 program, it could be.... Good. Thank you.

14 In the requalification program, as you looked
15 earlier at Appendix A, that's a very set delineation of a
16 program but it has more to do with traditionally-deriving a
17 program, so many hours of this and so many hours of that.

18 The systematic analysis of job requirements is
19 an option now under this rule, so that instead of the
20 program content delineated under old Appendix A, now
21 55.59(C), you can substitute a systematic analysis of job
22 requirements. And because we wanted to be clear on what we
23 meant by a systematic analysis, we've added that definition
24 on page 20 and, as I said, it's the five elements from the
25 policy statement.

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1 So that if you have a program that has those five
2 elements: the job task analysis, learning objectives
3 derived from those, program evaluation, the trainee
4 evaluation and the move back into that from job performance,
5 that would constitute the elements of an acceptable program
6 and we would, based on those elements, approve a
7 requalification program that had those parts and it wouldn't
8 have to then follow so many lectures on this and that.

9 The program might not feel that different to the
10 trainee but it would be based on job requirements rather
11 than those delineated in the rule.

12 MR. GIMMY: If the program is going to reflect
13 the job content, is that going to clash with the
14 comprehensive biennial written exam where "comprehensive"
15 means the same thing as the original license exam?

16 MS. SHANKMAN: No, because if they are -- I don't
17 think so. If the original license exam is based on the job
18 task analysis and learning objectives at a facility then the
19 requalification program, if it's also based on a job task
20 analysis -- this is all an imperfect world -- and learning
21 objectives then that exam should also be similar to their
22 initial exam. Because it's the same job. And the job
23 requirements and underlying knowledge and abilities should
24 basically be the same.

25 The program might not emphasize all parts of the

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1 job because some of them are frequent, you use them on the
2 job and they're reinforced all the time. But the infrequent
3 and, in our case, high-consequence things that are part of
4 the job would I think still be the same and they would
5 probably be the things on the operating tests and in the
6 written exam.

7 Do you see a conflict?

8 MR. GIMMY: That's what all the discussion has
9 been about all morning here was the fact that on the initial
10 licensing, whether it be for this or medical or anything
11 else, you tend to cover a lot of ground that you may never
12 cover again just for that background that it gives you.

13 And on the requal, because of the limited time
14 factor, you may want to stress only those aspects of the job
15 that would he actually performs.

16 MS. SHANKMAN: Well I think the requal program
17 should stress those things that are not frequent on the job
18 where, you know, you practice and those things that may be
19 required of you as an operator. But the comprehensive exam
20 is, I guess, to check that you're still proficient in all
21 aspects of the job including the frequency. Because my
22 opinion is you're assuming that frequent tasks are
23 reinforced and done correctly and the comprehensive exam is
24 maybe a chance to check on that.

25 The annual operating test, I would think, is

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1 going to emphasize infrequent, high-consequence -- you know,
2 much the same as FAA does on missed approaches and engine
3 fires and things like that.

4 MR. WARD: You're still not getting what he's
5 saying here and that's because you're from Mars and I think
6 I'm from Mars, too. I didn't quite understand the logic
7 that these gentlemen were giving us all morning.

8 What you've said here is just, you know, contrary
9 to what everybody was saying -- most people were saying
10 around the table this morning: there seemed to be a
11 consensus which is that the content of an original licensing
12 exam, by some logic, should include more material, more
13 theoretical material or broader scope than the content of a
14 relicensing exam.

15 MS. SHANKMAN: I thought we were talking about
16 the content of our program, our training program, for
17 initial would have more. I don't know.

18 MR. WARD: Well same thing. Well maybe not.

19 MR. BOGER: Let me try to jump in because I think
20 that the whole theory question is something that we have
21 been also trying to evolve at the same time as we're
22 developing the requalification:

23 We have always come under the gun for too
24 theoretical on the original exam as well as requalification
25 and in both areas we've been trying to change our

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1 examination to be less theoretical and more job-related.

2 So what Susan was saying was as you get more and
3 more job-related we would sample from the same piece of
4 material, we may change the sampling rate based upon whether
5 somebody had seen that in normal operations or whether that
6 was an infrequent operation.

7 But the training program is still going to have
8 to have the theory and the basics so that somebody will have
9 the basis to be able to understand some of the other parts
10 of the training program. But our intent in both the
11 original or initial licensing and requalification exams is
12 to hit items that are job-related and that may make them
13 less and less theoretical as we go along.

14 MR. WARD: So if you've got surveying on the
15 original licensing exam, you'll probably have on the --

16 MS. SHANKMAN: If the job task analysis shows
17 that surveying is something that you need as an operator and
18 the underlying knowledges and abilities are needed --
19 whether it's frequent or infrequent but it's of high
20 importance, that would be something that we would sample on
21 both exams.

22 DR. REMICK: More important to me is what's the
23 intent of that biennial exam now? I don't think we have
24 those statements anymore that it's to identify the area
25 where people need training, am I correct? That's now been

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1 wiped out.

2 MS. SHANKMAN: No --

3 DR. REMICK: Did it stay in there somewhere?

4 MS. SHANKMAN: I don't know if those words are in
5 there but I think in the discussions that we had with the
6 region and I also think it may be in the resolution of
7 public comments report, we did speak to it, identifying
8 individual weaknesses and being areas in which accelerated
9 retraining would be needed after weaknesses are identified.
10 And that is part of the justification in having -- in
11 maintaining a comprehensive exam every two years and not
12 just having an annual operator test.

13 MR. BOGER: What happened is in the systematic or
14 systems approach to training, that includes in it the loop
15 of taking a look at the results and revising the program
16 based upon what you find your candidates are doing. For the
17 people who didn't happen to have that then the Part 55
18 that is in existence today still requires that same
19 evaluation.

20 DR. REMICK: Right, but is that statement in
21 there?

22 MR. BOGER: Yes.

23 DR. REMICK: That was a pretty good statement,
24 what the annual exam was intended to do. Is that still in
25 50.59(C)?

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1 MR. BOGER: Yes, our intent was just to recopy
2 Appendix A into the --

3 MS. SHANKMAN: That would be on page 46.

4 MR. BOGER: I think it's page 47.

5 DR. REMICK: It's 47-4.1, yes, it's still there.

6 Because I think that's important and when we get
7 down to what's in that exam in theory, I don't get so
8 concerned if that examination, the biennial examination on
9 theory is one that identifies weaknesses. But if it's
10 something that people get crucified on, the NRC comes in and
11 gives an exam and then from that determines the guy can't
12 operate or he's no good or the requalification program is no
13 good, but then I have a problem. And that's the direction
14 we seem to have gone in the last couple of years under the
15 circumstances. But I don't get too concerned if it's to
16 identify potential weaknesses. I do get concerned if it's
17 something else.

18 MR. BOGER: Let me step back. Remember we talked
19 -- or at least I was talking about the handbook where we
20 were using this catalog and the catalog had in it identified
21 the higher importance or at least the rated importance of
22 items. Hopefully if our examinations are doing the right
23 thing then we'd be sampling the more important items more
24 frequently. And the way things have worked out, most of the
25 theory items are on the lower end of the stick. You still

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1 have to sample from those items but I think you'll sample
2 them less frequently. But we will at least have some idea
3 as to how important they were to the job.

4 MR. MICHELSON: Why do you say you have to sample
5 them?

6 MR. BOGER: We are evaluating the overall
7 program, which would teach --

8 MR. MICHELSON: But you don't have to do
9 anything. You sample them because you think it was
10 important to sample them and why do you think it's important
11 to take these lesser-graded items?

12 MR. BOGER: Well they have all been deemed of a
13 certain level of importance.

14 MR. MICHELSON: Yeah, but these are admittedly
15 the lowest -- or you just said they were the lowest and yet
16 you feel that you have to include some of those.

17 MR. BOGER: The training program is supposed to
18 be teaching them across all items. We're just --

19 MR. MICHELSON: Well where did it say that it's
20 supposed to be teaching across all items?

21 MR. BOGER: Well that's what an overall program
22 should --

23 MR. MICHELSON: Well yeah but I thought that's
24 what the whole morning discussion was about, maybe your
25 overall has gone too far. You're encompassing too many

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1 things that are not really important. That's what we're
2 wrestling with, of course, is is that the case?

3 MR. BOGER: Is the question whether we're
4 sampling too frequently or at all?

5 MR. MICHELSON: At all. These lowest-ordered
6 items, the things that are thought least important to the
7 program you're still sampling. I think that's kind of where
8 the complaint's coming from.

9 MR. GIMMY: It's the interpretation of the phrase
10 "comprehensive written exam," "biennial written exam" which
11 you said is essentially the same as the one they took to get
12 the license in the first place.

13 MR. MICHELSON: Yeah.

14 MR. GIMMY: Maybe if that said something like a
15 biennial written exam on the higher-rated -- the
16 higher-scoring job-related items or something like that.

17 MS. SHANKMAN: The initial exam should be on the
18 more important items. In our catalog we've rated items, all
19 of which have been included as statements of knowledges and
20 abilities that licensed SRO's are empaneled and the INPO job
21 task analysis felt were important to have to be a licensed
22 operator. And then from that group we rated them one to
23 five and those that have an average rating below two were
24 not included in our initial exam.

25 So we have already taken the lower order, if you

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1 want to call them, items out of the initial exam and they
2 wouldn't be -- well I don't know, Bruce --

3 MR. BOGER: They wouldn't be in the
4 requalification exam.

5 MS. SHANKMAN: -- requalification exam either and
6 then we're saying that 70 percent of the exam should be 3.0
7 or above, because the panel, you know, you know graders,
8 you're not going to get 5.0 so we've closed the range even
9 smaller, allowing for plant-specific variability. We're
10 saying with that catalog that we're only testing those
11 things that are important and have been rated important and
12 have been rated important.

13 Are you familiar with the catalog?

14 MR. MICHELSON: No.

15 DR. REMICK: Are the questions that you would
16 envision in the theory area, are these to be from the
17 learning objectives that the facility has determined from
18 the job task analysis?

19 MS. SHANKMAN: Yes.

20 DR. REMICK: That seems reasonable to me.

21 And you have identified them as fundamentals of
22 reactor theory including fission process, neutron
23 mollification, source effects, control rod effects,
24 criticality indications, reactivity coefficients and poison
25 effects. You have identified the general effects.

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1

MS. SHANKMAN: Right.

2

DR. REMICK: But the specific questions would be related to learning objectives from the job analysis.

3

4

MS. SHANKMAN: Yes. And in the interim we're using the job task -- the catalog that we have, because -- in the absence of better information.

5

6

DR. REMICK: And as plants come along and are getting accredited and have learning objectives, you will use those, is that correct?

7

8

9

MS. SHANKMAN: Yes. If they're learning objectives that are measureable and safe conditions and standards --

10

11

12

DR. REMICK: They should be to be accredited.

13

14

15

MS. SHANKMAN: Right. In other words, they have to be learning objectives.

16

17

MR. MICHELSON: Maybe I missed a part of your earlier statement. When you said that you were sampling from among the lower-rated questions, what did you mean by that, how low a rating?

18

19

MR. BOGER: It's in the two to three.

20

21

MR. MICHELSON: Well yeah, but then what I heard just a moment ago here that you didn't go below three at all.

22

23

MS. SHANKMAN: No.

24

MR. BOGER: I don't think so.

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1 MS. SHANKMAN: No, 70 percent of the exam should
2 be three or above.

3 MR. MICHELSON: And then the other 30 percent can
4 be up to three.

5 MS. SHANKMAN: -- can be between two and three.

6 MR. MICHELSON: -- between two and three, nothing
7 below two.

8 MS. SHANKMAN: Right.

9 MR. MICHELSON: So these are pretty far down.

10 MS. SHANKMAN: Yes.

11 MR. BOGER: I wish I had the listing of what a
12 two means as opposed to a one or a zero.

13 MR. MICHELSON: Yes, an example.

14 MS. SHANKMAN: -- essential, the rating for five
15 equates to essential and one is of minor importance -- I'm
16 not sure that was the exact word we used. The assumption
17 was that everything in the catalog had to be somewhat
18 important at one plant or another or the panel wouldn't have
19 included it. But then when they rated it, unless there was
20 a consensus that it was two or above -- our guidance in the
21 handbook to examiners is to not sample from those items,
22 that they have just so much testing time.

23 Unless -- and I guess I want to say this because
24 it's not as cut and dried, you can't say oh well this is a
25 1.8 and you could never ask it, because if they know

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1 something about that particular plant, given that
2 snowflakes, you know, no two are the same but they're
3 basically the same, you may know something but they require
4 a sign-off by their section leader and they have to justify
5 that they're not capriciously asking that, that there is
6 some justification at that particular plant to ask that
7 particular question.

8 So as I said before, I think we're working really
9 hard to have examiners document the content of their exam
10 and then document that it is important. I think in the same
11 sense that you're saying.

12 Okay. On page 47, we've changed the annual exam
13 to the biennial written exam which we've been talking about
14 and then on page -- well, I'll get to page 53 in a minute.

15 (Slide.)

16 We didn't really change much in terms of
17 modification and revocation of licenses or the enforcement.
18 This is basically the same as it has been in operator
19 licensing. But just to call to your attention that
20 willfully violating any of these provisions is when we feel
21 that we have justification for revoking licenses.

22 Now on page 53 of your package, I hope you have
23 an addition of 50.54, it's -- I'm sorry, it starts on page
24 52 and in 50.54 of the regulations we spoke to Appendix A in
25 the regual and we have revised that to now match 50.59(C),

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1 but in particular we're asking for the submittal of
2 requalification programs by each facility for NRC approval
3 and we've tried to rotate the work a little by making the
4 anniversary date their effective date of their license.

5 Do we get points, John, for finishing early?

6 MR. SCHIFFGENS: Yes.

7 DR. REMICK: I have something that it surprised
8 me you don't have in here. I have a contention, and I think
9 I'm right: nowhere in Part 50 do you require licensees to
10 have training programs. You require them to have
11 requalification training programs but nowhere -- and I
12 thought this would be an appropriate time to fill that
13 void. Now maybe that could be interpreted as being an
14 inconsistent policy statement, but I've always thought it
15 surprising that there's no requirement that a licensee have
16 training programs. They all do, of course.

17 You do require them in Part 50 that in the PSAR
18 or FSAR or both they have to describe programs, but there's
19 no requirement like you have in Part 50 that thou shalt have
20 -- well you just referred to it here, 50.54, that they've
21 got to have a requalification program within three months of
22 getting their OL. There's no such requirement for training
23 programs. It's a major inconsistency in the regulations
24 that I don't know if anybody's even thought of.

25 MR. GIMMY: Weren't there some utilities way back

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1 when in the very early days that had their operators trained
2 by somebody else, like General Physics, totally, all the way
3 through license and then showed up at some plant to run it?

4 DR. REMICK: I wouldn't be surprised.

5 MR. GIMMY: I thought there were in the early
6 days. Some far-flung utilities, one-reactor types, that
7 would have everybody trained by General Physics clear up
8 through getting the license, they'd show up at their plant
9 and run it but eventually they're going to have to be
10 requalified and, of course, I guess theoretically they could
11 get that done by a contractor. I think that's where that
12 came from.

13 DR. REMICK: No, but the question is should it be
14 permitted. According to the regulations now you could still
15 do that because there's no requirement to have training
16 programs.

17 MR. BOGER: What the regulation does is require
18 people to provide evidence that somebody has successfully
19 completed the facilities requirement to become an operator.
20 And then it talks about they have to provide evidence of the
21 courses and the number of hours of instruction and things
22 like that. I guess it implies it but you're right, it does
23 not specifically say thy shalt have a training program.

24 DR. REMICK: But if we do say that for requal
25 then it seems like it would be logically consistent that it

1 AGBagb

1 should say that you should have training programs?

2 MR. GIMMY: Again a one-reactor company might not
3 want to have a training group in requal, they might want to
4 contract it out.

5 DR. REMICK: Well it doesn't necessarily say you
6 have to have them yourself.

7 MR. MICHELSON: It just says your program says
8 I'm going to hire somebody else to do it.

9 MR. GIMMY: Yeah, that's your program.

10 MR. MICHELSON: That's your program.

11 DR. REMICK: Well but that program would still
12 have to be described.

13 MR. MICHELSON: -- described and approved, but
14 I'm sure the NRC would approve such a program if that
15 trainer, whoever it is out there, that contract trainer does
16 a good job.

17 MR. GIMMY: Some of these little airlines, you
18 know, don't train their own -- have no pilot training
19 thing. They get them trained someplace else and get them
20 tested someplace else.

21 MR. BOGER: But we require the training program
22 as part of the license -- Part 50 license application, not
23 Part 55.

24 MR. GIMMY: Well again the program might be,
25 though, to hire Contractor A to do it.

1 AGBagb

1 MR. BOGER: There are people that were not
2 facility employees that operate the plant, that's true.
3 They still have to maintain some sort of eligibility
4 requirements and the facility has to certify them to us and
5 they have to pass the test. That's true.

6 DR. REMICK: I honestly --

7 MR. WARD: But that's not really what he's
8 talking about.

9 MR. GIMMY: That's parallel to what some of the
10 little airlines do. You know, I can't think of --

11 MR. WARD: No, the airline situation would be
12 where the pilot is not an employee of the airline. He was
13 talking about where their non-employees are qualified and
14 licensed to operate --

15 MR. GIMMY: I don't think they have any of that.

16 MR. WARD: But you're talking about the case
17 where an employee of the licensee for the plant is
18 trained --

19 MR. GIMMY: -- sent to General Physics --

20 MR. WARD: -- in somebody else's training program
21 and gets licensed at his own plant.

22 Aren't there some --

23 MR. GIMMY: Like Westinghouse did that for their
24 contractors.

25 MR. BOGER: Most of the old plants -- licensed

AGBagb

1 -- plants before they got licenses had to contract out that
2 training because they just didn't have the capability
3 in-house and typically Westinghouse or the vendors would
4 supply a generic-type training program that would equate
5 them with the NSSS system. Then they would come back home
6 and receive specific plant training on their facility
7 procedures and individual systems. That's still happens.

8 MR. GIMMY: And what I'm saying here, as written
9 it would permit them to even do that for requal. The
10 programs could be, theoretically, could be to send them back
11 to Westinghouse to get requalified. That's okay, as long as
12 they've passed --

13 MR. PERSENSKY: As long it's approved.

14 MR. BOGER: As long as NRC approves it.

15 MR. GIMMY: -- as long as NRC approves the
16 program.

17 MR. PERSENSKY: Forrest, you're correct in that
18 Part 50 does -- the only requirement is that a program be
19 describe in their Preliminary Safety Evaluation Report.
20 When we were proposing the training and qualification
21 examination rule, that's one of the things we were trying to
22 correct, was to require training programs beyond the
23 operator licensing, you know, the licensed operator
24 program. And because of the change from the rulemaking to
25 the policy statement, the policy statement is about the only

AGBagb

1 thing that would provide guidance for the program to apply
2 that meets the --

3 DR. REMICK: But now you're changing 55 which has
4 to do with training programs and the corresponding sections
5 of 50. It seems to me that if it's the intent of the
6 Commission that people have training programs -- and I
7 believe it is intent, I think that's a hole that nobody has
8 realized until recently. Everybody I asked in general say,
9 oh, you've got to be kidding, it's in there. It's not, at
10 least that I can find and I'm going --

11 MR. PERSENSKY: It is not.

12 DR. REMICK: And I question if it isn't an
13 oversight and if it isn't oversight if this is not the time
14 to correct it unless it would be inconsistent in some way
15 with the agreed-upon policy statement of the rulemaking in
16 this area and it is not considered on-going at the time of
17 the policy statement.

18 MR. PERSENSKY: Our interpretation to date has
19 been that it would be inconsistent with the policy
20 statement.

21 DR. REMICK: And yet that's unfortunate, it's
22 taken so many years to get 55 revised that it's a shame to
23 not go out and correct what I consider to be a deficiency.
24 It has no practical significance, everybody has training
25 programs --

AGBagb

1 MR. PERSENSKY: And in order to receive a
2 facility license, at least for the last several or many
3 years you had to have a training program described in your
4 FSAR, because it is part of the SRP, the Standard Review
5 Plan, that we do review training programs.

6 DR. REMICK: Well you can handle the same thing
7 -- you can handle requal that way, too, don't require
8 requalification but ask them to describe their
9 requalification programs. But I think it is properly done
10 in the case of requal programs and I think there's a void
11 there and it's a question in my mind, it's a policy question
12 of whether the Commission wants that void filled or not.

13 There is a legal question related to it. It
14 seems to me it came up in TMI in the proceeding, if I
15 recall, a question related to that and whether they are
16 required to have a program. At some hearing I think that
17 point was raised.

18 MR. PERSENSKY: It may well have been.

19 DR. REMICK: It might have been TMI.

20 MR. WYLIE: I had a question.

21 Under 55.53, I guess it is -- yeah, okay,
22 condition of the license, 55.53, Subitem (G)(4), under your
23 Other Conditions, is that other conditions defined?

24 MS. SHANKMAN: Where are you?

25 MR. WYLIE: 55.53(G), Subitem (4). It says

1 AGBagb

1 you've got to record other conditions which affect or could
2 affect the performance of an operator or senior --

3 MS. SHANKMAN: No, they're not defined.

4 MR. WYLIE: It's not defined.

5 MS. SHANKMAN: And in the resolution of public
6 comments we went around on that, a few people mentioned
7 that. The attorneys felt that it was better to leave it the
8 way it is because it is supposed to be something which the
9 operator or senior operator feels would affect their
10 performance of duty. And it's left to the licensee's
11 discretion, the individual operator.

12 MR. WYLIE: Okay. It's something they're not
13 penalized if they don't do?

14 MS. SHANKMAN: No. But the conviction of --

15 MR. WYLIE: It says they shall notify.

16 MS. SHANKMAN: Yeah. But the conviction of a
17 crime is specifically included to give a flavor of the
18 gravity of items that would be expected.

19 MR. MICHELSON: It doesn't say such as, though.
20 It says including.

21 MS. SHANKMAN: Right.

22 MR. WYLIE: That's a condition of the license
23 though, I mean, presumably if you didn't report something
24 then if somebody thought that you should have reported you
25 could revoke the license.

1 AGBagb

1 DR. REMICK: I would think so.

2 MR. BOGER: He would probably be subject to a
3 little more review. If we found someone --

4 MR. WYLIE: It seems to me you ought to define
5 it. That's open-ended there.

6 MS. SHANKMAN: Yes, it is.

7 MR. WYLIE: You know, the wife ran off with the
8 barber or something.

9 MR. MICHELSON: That might affect performance.

10 MR. WYLIE: I'm sure it would.

11 MS. SHANKMAN: Let me see if I can find the page
12 in which we responded to that very comment.

13 (Pause.)

14 On page 34 of the resolution of public comments,
15 Enclosure B, number 11 is --

16 DR. REMICK: What are you referring to?

17 MS. SHANKMAN: Enclosure B of your full package,
18 on page 34 -- it's like a jigsaw puzzle. Enclosure B, page
19 34, item 11.

20 MR. WYLIE: Page 34?

21 MS. SHANKMAN: Yes. And I think that that is the
22 same thing that I just said, that it is intended to be a
23 catch-all category and that the idea was certainly something
24 that in the opinion of the licensee that it could or
25 actually does affect their performance.

1 AGBagb

1 That would include changes in their physical
2 condition....

3 So it's Enclosure B, page 34, item 11.

4 DR. REMICK: I have 10 on 34, I don't find 11.

5 MS. SHANKMAN: You're at page 34, Enclosure B?

6 DR. REMICK: Yes, and it goes down to 10(A).

7 MS. SHANKMAN: Look in the new package.

8 The package that you got originally had not been
9 to an editor so the content of this item would changed.

10 MR. SCHIFFGENS: Item 11 is the one that you
11 want, regardless of the page.

12 MS. SHANKMAN: Well you'd want the one that says?

13 DR. REMICK: What comment number?

14 MR. BOGER: Subpart F, 13-12, 16-4 --

15 MS. SHANKMAN: -- et cetera, et cetera

16 "...suggests Section 55.53(F)(4) be deleted as ambiguous or
17 further defined if meaningful..." et cetera, et cetera.

18 I'm sorry. In our attempt to have everything
19 sent to you it was sent --

20 MR. MICHELSON: I didn't even bring it with me.

21 MR. WARD: I think our Reporter is having a
22 little trouble keeping up. Would one person talk at a time?

23 (Document displayed.)

24 MR. WARD: Are you happy with that?

25 Bruce, I guess it does that for your presentation

2 AGBagb

1 then?

2 MR. MICHELSON: Well could we ask a question on
3 this follow-up? Does this mean that if an operator has
4 smoked marijuana, for instance, you have to report it even
5 if he wasn't convicted of it or whatever?

6 MS. SHANKMAN: I would think if it's not going to
7 affect his job performance --

8 MR. MICHELSON: Well how do you make that
9 determination? Because it says "or could affect," and that
10 could affect him. It depends on which doctor you talk to.

11 MR. BOGER: I'm going to defer that to the people
12 who worry about the fitness for duty.

13 MR. MICHELSON: I that how you're going to cover
14 -- whatever that finally says you'll do here. That's a good
15 way to interpret it.

16 MR. WYLIE: It seems like to me there ought to be
17 a definition then.

18 MR. MICHELSON: Yeah, that ought to be in this
19 document, well you can't reference it yet though. But
20 that's right, that's where you'd pick it up.

21 DR. REMICK: The Staff is coming back after our
22 break?

23 MR. BOGER: Yes.

24 MR. WARD: I was just going to let them go if
25 you're finished.

2 AGBagb

1 DR. REMICK: I'd like to have --

2 MR. MICHELSON: We're through with our --

3 MR. WARD: You've got a few more questions.

4 Let's take a 10-minute break.

5 (Recess.)

6 MR. WARD: We will reconvene, perhaps for just a
7 short time. I think there might have been a few more
8 questions the Subcommittee would like to ask of the Staff
9 and then after that I would like to go into Executive
10 Session, which means we won't need a record after that, the
11 Staff can go home if they want to but with the Subcommittee
12 I would like to begin to discuss the contents of our letter
13 on the first requalification.

14 So let's take the time now to go into any more
15 questions that you had. I know Forrest had some, I'm not
16 sure if anybody else did or not.

17 Did you satisfactorily get an answer to the
18 question about the -- Charlie?

19 MR. WYLIE: I think it's sort of ambiguous, sort
20 of open-ended. I don't know how you implement it.

21 MR. WARD: They agreed. Do you think it should
22 be tightened up?

23 MR. WYLIE: Well it looks to me that some way to
24 define what that condition is, what is the criteria by which
25 you measure what you report.

2 AGBagb

1 MS. SHANKMAN: You wouldn't suggest that there
2 would be a list.

3 MR. WYLIE: A list?

4 MS. SHANKMAN: Yeah, not a list of conditions --

5 MR. WYLIE: I wouldn't think a list but some type
6 of criteria by what basis you report. I don't know what
7 that is....

8 MS. SHANKMAN: Yeah. I think the fitness for
9 duty issue is an excellent one but we can't put it in, per
10 se, and we can't -- we've addressed it tangentially maybe in
11 the beginning in the statement of considerations when we
12 mention that we expect a Commission policy statement on
13 fitness for duty and alcohol and drug-related problems and
14 programs would come under that and not under the medical
15 provisions.

16 MR. WYLIE: I know you had said like conviction
17 of a crime but say a guy is indicted for a crime;
18 unfortunately he's not convicted yet but it is certainly
19 traumatic as far as he's concerned. The way that's worded,
20 you know, it says if anything could affect his performance
21 and I'm sure if I were indicted for a crime it would sort of
22 affect my performance, I would worry about it.

23 MS. SHANKMAN: I can go back to the attorneys and
24 work on that because it is definitely, that particular
25 section -- this comes out of the enforcement attorneys'

1 AGBagb

1 experience.

2 MR. WYLIE: Okay.

3 MR. WARD: Forrest, did you have a question?

4 DR. REMICK: I'm sorry I'm late, I was on the
5 phone. Are you talking about whether you could use such a
6 word as if he is found unfit for duty, a very general term?
7 I'm not talking about fitness for duty but if he was for any
8 reason found him unfit for duty perhaps under Section D
9 where you're talking about any other condition, is that what
10 you were talking about?

11 MR. WARD: Yes.

12 DR. REMICK: The question I had -- oh, by the
13 way, going back to the question: I personally feel that the
14 Commission should fill that void about not requiring
15 programs and I'll try to convince the Subcommittee and the
16 Full Committee that we ought to at least point out to the
17 Commission that I think it's a void and they ought to
18 consider whether they want to or not. I just want to alert
19 you of that.

20 But the other point that I did have: where does
21 one know that if you're going to be either an instant SRO or
22 an upgrade SRO whether you're going to have to take written
23 and oral RO, written and oral SRO and so forth, where is
24 that defined? Should it be in the regulations or is that
25 covered in the NUREG document and so forth? Where does one

1 AGBagb

1 out there know that if he's going to either be an instant or
2 an upgrade what he has to take?

3 MR. BOGER: Okay. It says that they have to take
4 both exams, written and operating. The details as to the
5 examination form, format of an oral exam and issues of that
6 nature show up in our internal examiner standards.

7 DR. REMICK: And I've read those but I forget
8 now, if I'm going to be an applicant for an instant SRO do I
9 know that I take only one oral exam versus two oral exams?

10 MR. BOGER: I think the examiner standards, the
11 NUREG 1021, would identify one examination and tell what
12 components it had. It differentiates between a reactor
13 operator oral exam versus an upgrade senior exam and an
14 instant senior exam, depending on what you have to cover.

15 DR. REMICK: It does.

16 MR. BOGER: Yes, it does.

17 DR. REMICK: Okay.

18 And it also then apparently clarifies -- in years
19 past the upgrade SRO did not have to take an oral exam which
20 I understand now the Commission does require. Is that
21 clarified in 1020 or 1021, whichever it is, I forget.

22 MR. BOGER: Yes.

23 DR. REMICK: It is. Okay.

24 That was my concern that people know, because it
25 has changed apparently. It's been some years ago --

1 AGBagb

1 MR. BOGER: It's been several years but what
2 happened was we had some requirements that were in the
3 famous Dint letter of 1980 that changed the categories and
4 added heat transfer and required examinations and things
5 like that and we've tried to put them into the rule now so
6 we have one area that addressed eligibility, for instance,
7 and things like that. There's been an effort to incorporate
8 them.

9 DR. REMICK: I'm thinking of it somewhat in the
10 legal standpoint so that there would be no question that if
11 you had somebody who was an instant SRO and they found out
12 that he took the written RO, he has to take the written SRO,
13 is that correct, also? And one oral, he doesn't have to
14 take two orals?

15 MR. BOGER: Right, he has to take an operating
16 test and the operating test covers basically the same
17 subject matter in the regulation.

18 DR. REMICK: So nobody could claim the fact that
19 if he had one that he wasn't -- the Commission didn't do the
20 proper thing, didn't carry out his duties?

21 MR. BOGER: That's correct. The written exam
22 would say -- cover the SRO plus the RO material and the
23 operating test just has the same requirements whether you're
24 an RO or an instant senior or operating senior.

25 MR. MICHELSON: Does the length of the test

1 AGBagb

1 differ?

2 MR. BOGER: It has to just to include more
3 material.

4 MR. MICHELSON: It sounds like there's more
5 scope, which would make the test longer.

6 MR. BOGER: For the instant SRO we're giving
7 somebody a license essentially as an RO and an SRO at the
8 same time, so we have to add some length to the exam.

9 MR. EATON: But he only takes one written exam.

10 There was an inferece here that he took both the
11 RO written and the SRO written if he's an instant SRO and
12 that's no longer true, because we do not allow a fallback
13 position. He's either going for an SRO license or he's
14 going for an RO license. If it's an SRO license, it's an
15 SRO written and an SRO oral. And the distinction on the
16 oral is really the form as to whether it's an instant or an
17 upgrade.

18 DR. REMICK: He only takes one written exam?

19 MR. EATON: That's correct.

20 DR. REMICK: They used to take two.

21 MR. EATON: Yes, sir.

22 MR. BOGER: The senior written exam now says
23 cover areas that are covered as an RO, in fact, there's an
24 overlap of one or two categories that it covers for them.

25 DR. REMICK: And the important thing is that's

1 AGBagb

1 clear in the guide.

2 MR. BOGER: Yes, sir.

3 MR. WARD: I think I may have misunderstood but
4 did you say that the oral exam is the same for the SRO and
5 the RO? Or it's the same for an instant SRO and an upgrade
6 SRO?

7 MR. BOGER: No, the regulation covers the major
8 subject areas under operating tests. How we address each of
9 those items are expressed in the examiner standards in the
10 NUREG 1021 and that's where we get the differentiation
11 between what type of examination various candidates get, and
12 it is different depending on the license.

13 MR. WARD: Any other questions for the Staff?

14 (No response.)

15 MR. WARD: Okay.

16 Well then thank you very much, Bruce, and
17 everyone else. We're going to stay for a while and talk
18 about the letter on the requal. But we're off the record
19 now and thank you very much.

20 (Whereupon, at 4:37 p.m., the meeting of the
21 Subcommittee was adjourned.)

22

23

24

25

CERTIFICATE OF OFFICIAL REPORTER

This is to certify that the attached proceedings before the UNITED STATES NUCLEAR REGULATORY COMMISSION in the matter of:

NAME OF PROCEEDING: ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
SUBCOMMITTEE ON HUMAN FACTORS

DOCKET NO.:

PLACE: WASHINGTON, D. C.

DATE: MONDAY, NOVEMBER 25, 1985

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission.

(sig) Madelon P. Bloom
(TYPED)

MADELON P. BLOOM

Official Reporter

ACE-FEDERAL REPORTERS, INC.
Reporter's Affiliation

NRR STAFF PRESENTATION TO THE ACRS

SUBJECT: FINAL REVISIONS TO 10CFR55

DATE: November 25, 1985

PRESENTERS: Bruce Boger, Chief
Susan Shankman
Jerry Wachtel

PRESENTER'S TITLE/BRANCH/DIV:

Operator Licensing Branch
Human Factors Safety

PRESENTER'S NRC TEL. NO.:

492-4868

SUBCOMMITTEE: Human Factors

BACKGROUND

- ° SECY 84-76 (FEBRUARY 1984)

"PROPOSED RULEMAKING FOR OPERATOR LICENSING AND
FOR TRAINING AND QUALIFICATIONS OF CIVILIAN
NUCLEAR POWER PLANT PERSONNEL"
- ° COMMISSION ACTION (SEPTEMBER 1984)

DEFER TRAINING RULE; PROCEED WITH OPERATOR LICENSING
- ° REVISIONS TO 10 CFR 55, "OPERATOR LICENSES" PUBLISHED
IN FEDERAL REGISTER (NOVEMBER 1984)
- ° ASSOCIATED REGULATORY GUIDES PUBLISHED FOR COMMENT
(NOV - DEC - 1984)
- ° COMMENT PERIOD TO MARCH 1985
- ° FINAL RULE AND REGULATORY GUIDES BASED ON:

OVER 1600 COMMENTS
REGIONAL INPUT
COMMISSION POLICY STATEMENT
ON TRAINING AND QUALIFICATION (MARCH 1985)

11/25/85

OBJECTIVES:

1. IMPROVE SAFETY OF NUCLEAR POWER PLANT OPERATIONS
2. IMPROVE BASIS FOR LICENSING EXAMS AND CONDUCTING OPERATING TESTS
3. RESPOND TO P.L. 97-425 - NUCLEAR WASTE POLICY ACT OF 1982,
SECTION 306

11/25/85

SUBPART A - GENERAL PROVISIONS

- ° PURPOSE
- ° SCOPE
- ° DEFINITIONS

ACTIVELY PERFORMING ...

SIMULATION FACILITY ...

SYSTEMS APPROACH ...

11/25/85

SUBPART B - EXEMPTIONS

· STUDENTS IN NUCLEAR ENG. COURSES

TRAINEES IN NRC APPROVED OPERATOR TRAINING
PROGRAMS

11/25/85

SUBPART C - MEDICAL REQUIREMENTS

- ° BIENNIAL MEDICAL EXAM
- ° CERTIFICATION BY FACILITY ON NRC FORM 396
- ° INCAPACITATION BECAUSE OF DISABILITY OR ILLNESS
 - MUST NOTIFY NRC IF INCAPACITATION LONGER THAN 30 DAYS

11/25/85

SUBPART D - APPLICATIONS

- ° FORM 398
- ° IF APPLICANT HAS COMPLETED NRC APPROVED TRAINING PROGRAM THAT USES A SIMULATION FACILITY ACCEPTABLE TO NRC

THEN - WILL ADMINISTER APPROPRIATE LICENSING EXAM AND OPERATING TEST

11/25/85

SUBPART E - WRITTEN EXAMINATIONS AND OPERATING TESTS

- ° CONTENT - BASED ON FACILITY LEARNING OBJECTIVES DERIVED FROM SYSTEMATIC ANALYSIS OF JOB

INTERIM - NRC EFFORTS UNDERWAY TO IMPROVE CONTENT VALIDITY.

- ° REVISED CATEGORIES OF OPERATING TEST

(12) DEMONSTRATE THE KNOWLEDGE AND ABILITY TO ASSUME THE RESPONSIBILITIES OF THE ASSIGNED POSITION ASSOCIATED WITH SAFE OPERATION OF THE FACILITY

(13) DEMONSTRATE THE APPLICANT'S ABILITY TO FUNCTION WITHIN THE CONTROL ROOM TEAM SO THAT PROCEDURAL AND LICENSE LIMITATIONS ARE MAINTAINED,

- ° INTEGRITY OF EXAMS AND TESTS

11/25/85

PART 55.45 (B): OPERATING TESTS - ADMINISTRATION

- ° PLANT WALK-THROUGH AND SIMULATION FACILITY
- ° WITHIN ONE YEAR, EITHER:
 - ° CERTIFY A SIMULATION FACILITY CONSISTING SOLELY OF A PLANT-REFERENCED SIMULATOR, OR
 - ° SUBMIT A PLAN FOR DEVELOPMENT OF A SIMULATION FACILITY, FOR NRC APPROVAL
- ° AFTER 4 YEARS, A SIMULATION FACILITY (ACCEPTED OR APPROVED) MUST BE USED
- ° FOR CERTIFIED SIMULATION FACILITIES (NRC APPROVAL NOT REQUIRED)
 - ° INITIAL CERTIFICATION
 - ° ANNUAL RECURRENT CERTIFICATION
- ° FOR OTHER SIMULATION FACILITIES
 - ° INITIAL APPLICATION
 - ° COMMISSION APPROVAL
 - ° ANNUAL REPORT

11/25/85

- ° FOR ALL SIMULATION FACILITIES

- ° COLLECTED DATA TO BE MAINTAINED FOR 4 YEARS
- ° NRC MAY AUDIT AND WITHDRAW ACCEPTANCE/APPROVAL AT ANY TIME
- ° IF ACCEPTANCE/APPROVAL IS WITHDRAWN, NRC WILL CEASE TO CONDUCT OPERATING TESTS
- ° FACILITY LICENSEE MAY AGAIN SUBMIT APPLICATION OR CERTIFICATION

11/25/85

SUBPART F - LICENSES

CONDITIONS

- ° "ACTIVELY PERFORMING THE FUNCTIONS ..." FOR A MINIMUM OF THREE SHIFTS PER CALENDAR QUARTER

IF NOT -

1. REFRESHER TRAINING
 2. STATUS (E.G. MEDICAL AND REQUAL.) CURRENT AND VALID
 3. PARALLEL SHIFT - 40 HOURS
- ° NOTIFICATION OF CHANGE IN STATUS
 - ° REQUALIFICATION PROGRAM
 - ° BIENNIAL MEDICAL

EXPIRATION

SIX YEARS

11/25/85

RENEWAL

- ° ON FORM 398

- ° DOCUMENTATION OF:

EXPERIENCE

CURRENT REQUAL, SUCCESSFULLY COMPLETED

- ° MEDICAL CERTIFICATION ON FORM 396

- ° PERFORMANCE SATISFACTORY TO COMMISSION

11/25/85

REQUALIFICATION

- ° NRC APPROVED PROGRAM
- ° 12 - 24 MONTH CYCLE
- ° COMPREHENSIVE BIENNIAL WRITTEN EXAMINATION
- ° ANNUAL OPERATING TEST
- ° PROGRAM CONTENT:

APPENDIX A - NOW 55.59(C)

OR

SYSTEMATIC ANALYSIS OF REQUIREMENTS OF JOB

11/25/85

SUBPART G - MODIFICATION AND REVOCATION OF LICENSES

"WILLFUL VIOLATION"

SUBPART H - ENFORCEMENT

"WILLFULLY VIOLATES"

11/25/85