

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

COMMISSION MEETING

Briefing by Representatives
of INPO Accrediting Board

(Public Meeting)

Docket No.

Location: Washington, D.C.
Date: Monday, June 10, 1985

Pages: 1 - 72

ANN RILEY & ASSOCIATES
Court Reporters
1625 I St., N.W.
Suite 921
Washington, D.C. 20006
(202) 293-3950

8507080055 850610
PDR 10CFR
PT9.7 PDR

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

D I S C L A I M E R

This is an unofficial transcript of a meeting of the United States Nuclear Regulatory Commission held on Monday, June 10, 1985 in the Commission's office at 1717 H Street, N.W., Washington, D.C. The meeting was open to public attendance and observation. This transcript has not been reviewed, corrected, or edited, and it may contain inaccuracies.

The transcript is intended solely for general informational purposes. As provided by 10 CFR 9.103, it is not part of the formal or informal record of decision of the matters discussed. Expressions of opinion in this transcript do not necessarily reflect final determination or beliefs. No pleading or other paper may be filed with the Commission in any proceeding as the result of or addressed to any statement or argument contained herein, except as the Commission may authorize.

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

3 - - -

4 BRIEFING BY REPRESENTATIVES OF INPO ACCREDITING BOARD
5 PUBLIC MEETING

6
7 Room 1130
8 1717 H Street, N.W.
9 Washington, D.C.

10 Monday, June 10, 1985

11 The Commission met, pursuant to notice, at 10:10 a.m.,

12 COMMISSIONERS PRESENT:

13 NUNZIO PALLADINO, Chairman of the Commission
14 JAMES ASSELSTINE, Commissioner
15 THOMAS ROBERTS, Commissioner
16 FREDERICK BERNTHAL, Commissioner
17 LANDO ZECH, Commissioner

18 PRESENTERS AND STAFF SEATED AT COMMISSION TABLE:

19 CORDELL REED
20 ZACK PATE
21 ED CARROLL
22 RUSSELL O'NEILL
23 FORREST REMICK
24 JOHN HOYLE
25 RICHARD LEVI

P R O C E E D I N G S

CHAIRMAN PALLADINO: Good morning ladies and gentlemen. We are pleased to have with us this morning representatives from the Institute of Nuclear Power Operations, INPO, Accrediting Board, for briefing the Commission on the status of training accreditation.

Since its formation in 1979, INPO has been developing programs aimed at providing excellence in the construction and operation of nuclear power plants, in an effort to improve the safety and reliability of operations.

As a result of meetings with INPO, the NRC published on March 20th, 1985, the Final Policy Statement on Training and Qualification of Nuclear Power Plant Personnel. This policy statement endorsed the INPO training accreditation initiative. The policy also acknowledged NRC's continuing responsibility to evaluate applicants' and licensees' implementation of training improvement programs. Therefore, the policy statement also indicated the Commission's intention to monitor industry's progress over the allotted two-year time period.

Today's meeting is the first progress report meeting on training accreditation since issuance of the final policy statement. The objective of today's meeting is to discuss the effectiveness to date of the industry's commitment to improve training without additional regulations.

1 Before I turn today's meeting over to Mr. Zack Pate,
2 do any of my fellow Commissioners have any opening remarks
3 they wish to make?

4 COMMISSIONER ASSELSTINE: I would just say that
5 this is a real good opportunity. All of us are very interested
6 in the training programs, the efforts that the INPD
7 Accreditation Program has put in, and I think we all really
8 welcome the chance to hear directly from you all that have
9 been working on the accreditation boards on how well that
10 effort is going, what progress is being made, and where the
11 areas are that perhaps greater effort is still needed. So, it
12 should be a good session.

13 CHAIRMAN PALLADINO: Any other comments?

14 (No response)

15 MR. PATE: Good morning gentlemen, I am Zack Page,
16 President of INPD. After a brief introduction I will turn
17 this discussion over to the INPD Accrediting Board.

18 We are pleased to have an opportunity for the board
19 to brief you this morning. We appreciate your interest and
20 your willingness to meet with us.

21 With me are four members of the accrediting board,
22 one from each category of board membership:

23 Cordell Reed is Vice President of Commonwealth
24 Edison Company, and is Chairman of the Accrediting Board.

25 Ed Carroll is a Retired Vice President of Training

1 for United Airlines.

2 Dr. Russ O'Neill is Dean Emeritus, Engineering and
3 Applied Sciences at UCLA.

4 And next to me, Dr. Forrest Remick, Associate Vice
5 President of Research at Penn State.

6 On March 14th, 1985 as the Chairman indicated, the
7 commission approved a Policy Statement on Training and
8 Qualification of Nuclear Power Plant Personnel. This NRC
9 policy statement recognizes and encourages the INPO-managed
10 accreditation program, and we appreciate your support in that
11 policy statement.

12 The accrediting board is a vitally important part of
13 the accreditation program and of INPO's and the industry's
14 efforts to promote high-quality performance-based training.

15 The board is established by INPO and is provided
16 staff support by INPO, but it is totally independent in its
17 deliberations and decisionmaking process. It is, therefore,
18 fair and correct to say that the accreditation process
19 includes a final review by an independent accrediting board.

20 Before the board members begin, let me briefly
21 review the major steps in the accreditation process:

22 The first step, the process begins by the utility
23 performing a self evaluation of its training programs, then
24 taking action to correct identified weaknesses, and then
25 forwarding a self-evaluation report to INPO. As we all know,

1 in some cases, of course, the utility has to develop a
2 training program before it can do the self evaluation.

3 A self-evaluation report is a comprehensive report
4 with rigorous detail for each individual training program.
5 That is step one, but it is a major step.

6 When the utility has corrected the bulk of the
7 deficiencies identified through its own self evaluation, an
8 INPD accreditation team visits the site to independently
9 evaluate the training program. The INPD accreditation team
10 writes a detailed report describing the training programs and
11 recommending improvements as needed.

12 The next step then is to present this accreditation
13 report to the accrediting board. A copy of the INPD's report
14 and the utility's responses are provided to all of the board
15 members.

16 The accreditation board meets to decide on the
17 accreditation request. And I will let the board members
18 describe that process.

19 To date we have in house at INPD 148 self-evaluation
20 reports. By the end of 1986, we are scheduled to have 610 to
21 meet our mutual objectives. Out of that 148 self-evaluation
22 reports on individual training programs, the accrediting board
23 has accredited, or awarded accreditation to 68 individual
24 programs at 16 plants around the country.

25 The accrediting board is a key part of the process.

1 The board has a responsibility to INPD, to the NRC, to the
2 industry and indeed, to the public, to help ensure that
3 nuclear plant training programs meet high standards.

4 To meet the commitment of reviewing and accrediting
5 610 programs over the coming years, we have now 19 individuals
6 on the full accrediting board. Let me just quickly name them
7 for you.

8 From utilities we have:

9 Cordell Reed.

10 Dr. Sam Tuthill, Senior Vice President in Iowa
11 Electric.

12 Dennis Gilberts, Senior Vice President Northern
13 State.

14 Billy Clements, the Vice President of Operations,
15 Texas Utilities.

16 C. D. Woody, Vice President of Operations, Florida
17 Power and Light.

18 Dr. Wayne Jens, Vice President, Detroit Edison.

19 John Griffin, Senior Vice President at Arkansas
20 Power and Light.

21 From the non-nuclear training activities we have:
22 Ed Carroll, who is with us.

23 We have Chuck Sener, Retired Vice President at Bell
24 Communications Research and Training Center outside Chicago.

25 We have a new member, George Moore, who is a retired

1 Director of the Education Systems at Westinghouse.

2 We have Dr. Ed Jones, who is the Chief Human Factors
3 Engineer at McDonnell Douglas Aircraft.

4 Representing the educational community, we have:
5 Dr. Russ O'Neill, who is with us.

6 Dr. Bill Kimel, Dean, College of Engineering,
7 University of Missouri.

8 Dr. John Palms, Vice President for Academic Affairs
9 at Emory University in Atlanta.

10 Dr. Bob Seale, the head of the Department of Nuclear
11 and Energy Engineering, University of Arizona.

12 We have four members of the accrediting board
13 nominating by the NRC:

14 Dr. Forrest Remick, who is with us.

15 Dr. Gordon Robinson, Professor of Nuclear
16 Engineering at Penn State.

17 Mr. Lincoln Clark, Associate Director of Nuclear
18 Reactor Laboratory, and the Director of Reactor Operations at
19 MIT.

20 Frank Fogarty, Associate General Manager,
21 Experimental Programs at the Idaho National Engineering Lab.

22 This group has extensive experience in the training
23 and education field, and each member is a proven performer.
24 It is indeed, in our view, a prestigious and well-qualified
25 board.

1 Four members of the board representing the four
2 categories of membership, will now discuss accreditation from
3 their perspective. We want to make this an accrediting board
4 briefing, and not an INPD briefing, so let me now, with that
5 in mind, turn the discussion over to Cordell Reed, Chairman of
6 the Board, accrediting board.

7 MR. REED: Thank you Zack.

8 I am here as Chairman of the Accrediting Board, and
9 also as the utility executive with responsibility for having
10 the training programs of six plants accredited.

11 I would like to first give you a few thoughts from
12 the standpoint of Commonwealth Edison. I can tell you that
13 achieving accreditation is not easy. We have been working on
14 this for nearly three years now in our operating programs,
15 and we finally brought them to the point where we feel they
16 meet INPD's standards of excellence.

17 We have formalized our programs, we are satisfied
18 that they are performance based and we have an effective
19 feedback system for correcting deficiencies. We have nearly
20 doubled the training staffs at our stations since we started
21 in this effort, and for the first time we have maintenance
22 instructors on the training staffs at each of our stations.
23 Two years ago we had none at LaSalle, now we have five.

24 Some of you have seen our central training facility
25 which is a \$21 million endeavor with over 100 professionals.

1 I am happy to say that our Dresden operating
2 programs were accredited last month. I attended a very
3 encouraging exit of the accreditation team at Zion three weeks
4 ago. And the INPO team will visit our Quad Cities plant next
5 week.

6 The most profound impact on our operations will be
7 bringing our maintenance programs up to INPO standards.
8 Although we have been training our maintenance people in
9 welding and machining and other activities for years, now for
10 the first time we will administer exams for competency to our
11 maintenance people. We are having some interesting discussions
12 with our union, because if people don't pass, they cannot be
13 in the program.

14 We have full-time maintenance instructors at our
15 stations, and for the first time we will put our maintenance
16 people into requalification training. We will take them off
17 of the line operation and bring them back into the classroom,
18 give them instructions and again they will have to prove their
19 competency.

20 And, for the first time, our training activities
21 in maintenance will be performed in space.

22 We will submit these programs for accreditation
23 early next year.

24 Training has the full support of corporate and
25 station management. We are putting some of our top personnel

1 into the training staffs, and spending in this area has top
2 priority.

3 Now, we thought we had a pretty good program before
4 accreditation. I believe we did. However, what we are doing
5 now is lifting ourselves to another plateau.

6 Has it been worth it? I think so. I think this is
7 the place where we ought to make the investment.

8 Now, let me discuss our role on the accrediting
9 board. The bottom line is that it is very hard work and we
10 take our jobs very seriously.

11 First, we are informed of accreditation team
12 visits. And normally, one of our board members will attend
13 part of a site visit. All of us have been on site visits. I
14 visited TVA's Sequoyah plant last year, and in July I will be
15 going to Northern States Power's Prairie Island Plant.

16 Based upon the progress of utilities, INPD schedules
17 an accrediting board meeting. Now, we have two-day meetings
18 scheduled for each month. We started with ten members of the
19 board, and all ten attended the first several sessions, so
20 that they can kind of get trained, although only five actually
21 participated in the final deliberations. We now have 19
22 members, and if needed, we could have several board meetings
23 each month, several board sittings for each month.

24 CHAIRMAN PALLADINO: I didn't follow that ten and
25 only five have participated in the decision.

1 MR. REED: Well, when we bring a utility in, we
2 would have all ten of our members present, and they could ask
3 questions of the utility representative. However, up front we
4 designate the five members who will actually make the
5 decision.

6 CHAIRMAN PALLADINO: A different five members for
7 each utility?

8 MR. REED: Well, yes. We will give each guy kind of
9 a training. Out of the ten members, one may be sitting on the
10 sideline for one utility while the other five are the actual
11 ones to deliberate.

12 Everyone can ask questions, but when you get into
13 the final determination and vote, five of the ten would be
14 designated as the board.

15 COMMISSIONER ASSELSTINE: Are you still doing that,
16 still using the full ten?

17 MR. REED: We have slacked off of that. I think at
18 our last meeting we had seven or eight members present.

19 Now that we have brought a number of new members on
20 board on the board, we will want them to sit and listen as to
21 the kinds of questions we asked. As a matter of fact, on June
22 19th we are having a meeting of all board members where we can
23 sit down and talk a little bit about the philosophy and to
24 talk about the experiences that we have had.

25 COMMISSIONER ZECH: Do you have five board members

1 still voting each time?

2 MR. REED: Each time five members vote.

3 COMMISSIONER ZECH: Each of your communities
4 represented, each of the four communities --

5 MR. REED: Right.

6 COMMISSIONER ZECH: In other words, five board
7 members, but all of your disciplines here are represented?

8 MR. REED: Indeed. Each time there must be a
9 combination of two utilities, one nuclear training
10 organization, one post-secondary and one member that is
11 recommended by the NRC.

12 COMMISSIONER ZECH: Fine. Thank you.

13 COMMISSIONER ASSELSTINE: Once you get everybody
14 trained and up to speed, I assume you would operate like our
15 Licensing Boards do, where you would have a panel of five,
16 those people would be assigned to that particular case?

17 MR. REED: That is correct.

18 Although I am Chairman of the overall board, a
19 chairman is designated for each board that is convened. Now,
20 several weeks prior to the scheduled meeting, INPD sends each
21 designated board member the accreditation team's report with
22 the utility's response
23 to the team's recommendations. And, we also receive a copy of
24 the utility's self-evaluation report.

25 When we get this material, we study them carefully.

1 develop questions that we would like to have answered in order
2 to make a decision. We want to determine if the criteria and
3 objectives have been met, if there is a management commitment
4 to training, if there is a system for maintaining a good
5 program.

6 Now, at the meetings we spend about a half a day on
7 the utility's programs. We start off with a general briefing
8 by the accreditation team leader, who generally respond to
9 questions on how the INPD staff have reached certain
10 conclusions, and questions relating to the site visit.

11 However, we save the hard questions for the utility
12 representatives. And we require that a utility be well
13 represented. At Alabama Power, Pat McDonald came with his
14 plant manager and also his training manager and other plant
15 staff.

16 John Griffin came from Arkansas with, again, his
17 manager and his training people. And we want this kind of
18 representation, so that utilities can make commitments and we
19 know that we are getting the right answer.

20 Now I have been impressed, really, with the depth of
21 questioning from the board members, and also the knowledge of
22 the utility executives. They really do their homework before
23 they come in. Our questions tend to focus on how actual job
24 performance is factored into the training program. Our
25 questions go beyond just the programmatic aspects of the

1 training program to explore how the plant and the training and
2 the corporate personnel interface.

3 And after our questions are answered, we go into
4 closed deliberations. We have everyone leave the room except
5 the board members. We do not even let the President of INPO
6 sit in in our deliberations.

7 CHAIRMAN PALLADINO: When you say the board members,
8 all of the board members sit in on the deliberations?

9 MR. REED: Right. And, for the initial part of the
10 deliberations, they can contribute, give their thoughts. We
11 reach a point in the meeting where only the five that will
12 make the decision can then discuss and then make a decision.

13 COMMISSIONER ASSELSTINE: I take it the first part,
14 the presentations, the questions and answers, that is all
15 open?

16 MR. REED: That is all open, right.

17 CHAIRMAN PALLADINO: Open to whom?

18 MR. REED: To the INPO staff, the utility
19 representatives, and also for any NRC representatives that
20 might be there.

21 COMMISSIONER ASSELSTINE: So, if we wanted to come
22 listen to one of those, we could do that?

23 MR. REED: Indeed, you can. We would welcome you
24 there.

25 COMMISSIONER ASSELSTINE: Good.

1 MR. REED: I can assure you that in our
2 deliberations, it is a no-holds-barred discussion of the pros
3 and cons of the utility's training program.

4 I can also assure you that the board would have no
5 problem in deferring a utility's program if they felt it was
6 inadequate. I am sure of that.

7 In some of our deliberations, we have decided that
8 certain aspects of the utility's efforts to complete
9 implementation of training enhancements, merit special
10 attention. And in those cases we have specified that the INPO
11 staff follow up on those matters and report to us on the
12 utility's progress.

13 The continuing accreditation of those programs
14 depend upon the utility's living up to its commitments.

15 At most of our meetings thus far, we have had
16 observers from the NRC Staff; Harold Denton, Hugh Thompson,
17 Bill Russell, Dan Jones, Jay Persinsky, have attended one or
18 more meetings.

19 Now, you have heard enough from me and I would like
20 for other board members to give you some of their thoughts
21 about the accrediting process.

22 You know, it always makes me feel good at an NRC
23 meeting to ask you to hold your questions until the end of the
24 direct presentations. It has never happened, but it always
25 makes me feel good to ask you that.

1 (Laughter)

2 So, I feel good, I am asking you that.

3 Therefore, I would like to throw the ball, or the
4 potato, over to Forrest Remick.

5 MR. REMICK: Thank you, Cordell.

6 There are a couple of introductory comments I would
7 like to make. But, before making them I would like to
8 indicate where I come from in making those comments.

9 I received a reactor operator license approximately
10 29 years ago, and I received the fourth senior reactor
11 operator license that was issued in the country.

12 I began training operators in 1958.

13 I served as a consultant license examiner for both
14 the AEC and the NRC for fourteen years, primarily on boiling
15 water reactors. And as a consultant I have conducted QA
16 audits of control room operations of power reactors.

17 Reactor operations and training has been a very
18 important part of my professional life.

19 About ten years ago I was invited to provide the
20 keynote address at a National Symposium on Training for
21 Nuclear Facility Personnel. And I entitled that talk, Training
22 of Nuclear Facility Personnel, Boon or Boondoggle. And in
23 that talk I was quite critical of a number of things, I was
24 critical of the industry, I was critical of the AEC, of
25 universities, trainers, et cetera.

1 One of the things that I was critical of was, the
2 training staff at that time at many utilities was one person,
3 called the training coordinator. And that person was not
4 necessarily selected because he knew much about training, and
5 not that he necessarily knew a lot about reactor operations.
6 Although in many cases he was licensed. But many times he was
7 selected because he was the person available, not needed for
8 other duties.

9 The sad part about it was that many utilities
10 expected that one lone individual to conduct the training, and
11 many times that person didn't realize that it was impossible
12 for him to do it by himself.

13 In that talk I was critical that reactor operations
14 was not treated as a profession, that reactor operators were
15 not treated as professionals. I was critical about lack of
16 proper tools for operators to use, particularly at a time of
17 crisis. And that there were various human engineering
18 considerations absent in the control room in the plant.

19 If I recall that meeting, there were about 125
20 people in attendance.

21 Well, Commissioner Asselstine and I participated in
22 the Sixth National Symposium about two months ago in
23 Nashville. And at that one there were in excess of 500 people
24 in attendance, mostly training personnel.

25 Back when accreditation was first recommended, I was

1 not a strong proponent of it. The reason being because I
2 could not see how accreditation itself could make the major
3 impact on training programs that I thought were necessary. I
4 wasn't against it, but I was not a proponent.

5 I think the reason I serve on the accrediting board
6 is your staff, knowing my background, thought that I would
7 make a good recommendee, ought to serve. And those people who
8 contacted me at that time were Hugh Thompson, Harold Denton
9 and Bill Dircks.

10 I want you to know that participating in this
11 process for a little over two years, that I have learned a
12 tremendous amount from the process, and I say that sincerely.
13 And I have become a strong advocate for the systematic
14 approach to training, to assure that training is performance
15 based. And, I wished -- I look at my former dean over there
16 -- I wished I had known more about it 25 or 30 years ago,
17 because I think it would have made me a much better university
18 professor if I had known some of the systematic approach to
19 training techniques.

20 If somebody would have suggested to me then, I am
21 sure that I would have said what many of my colleagues would
22 say today, that at a university we educate people, we don't
23 train them. And that is certainly true. But, I will say that
24 much of what is in a systematic approach could be used in the
25 university setting.

1 I have been particularly impressed with the changes
2 that have been made in the last several years at utilities.
3 In the area of personnel it is no longer one or two people
4 doing the training. We typically see 15 to 40 some people
5 constituting the training staff depending on the number of
6 units. There are people who are instructional specialists,
7 curriculum developers and so forth.

8 Facilities, it is just unbelievable the changes
9 that have occurred there. They are spacious, they have
10 classrooms, offices, libraries, librarians, simulators, all
11 kinds of instructional services available that I wish we had
12 more readily available at some of our universities and
13 laboratories for teaching health physics or teaching I&C
14 technicians, or mechanical maintenance, electrical
15 maintenance, things that did not exist, as Cordell mentioned,
16 people who are trainers in those areas and so forth. This is
17 really new.

18 In the last year or so, I have been invited on about
19 a half dozen different occasions to talk at national meetings
20 on the accreditation process. And in those I continued to
21 stress the importance of excellence in training and how
22 accreditation could be used and can be used in achieving
23 excellence in those training programs.

24 As part of that, I have talked to plant personnel,
25 I have talked to trainers, I have talked to plant managers, I

1 have talked to BP nuclear and chief executive officers, and I
2 have been really greatly impressed by the commitment that they
3 are making in the resources that are being made available to
4 accomplish improvements in training.

5 In the last, I would say three to four months, I
6 have had three invitations that I can recall by utilities who
7 remembered my "boon or boondoggie" talk, to come and see their
8 facilities and see their programs, because they are extremely
9 proud of what they are doing and what they are
10 accomplishing. And I am extremely proud to be professionally
11 involved in it.

12 And I trust that you gentlemen know that I am a
13 supporter of the process you are about. I have been involved
14 in it and continue to be involved in it. But I say sincerely,
15 I don't think that one could accomplish, with the mandate of
16 regulations, what is being accomplished now by individual
17 commitment, personal pride and the peer pressure and
18 assistance that is going on amongst the utilities.

19 MR. O'NEILL: Since the close of World War II, I
20 have devoted my full time to engineering education. And in
21 engineering education, accreditation is a way of life. So, I
22 thought I would take my few minutes to just make a comparison
23 as I see it, between the accreditation of engineering programs
24 by ABET -- that is the Accreditation Board for Engineering
25 and Technology -- and the accreditation by INPD.

1 First, both have the same purpose. And that is
2 really to protect the public in one way or another. In the
3 case of ABET, it is to identify to the public, to prospective
4 students, educational institutions, professional societies,
5 potential employers, government agencies and state boards of
6 examiners, that the institutions and specific programs meet
7 minimum requirements.

8 Also, ABET is set up to provide guidance for the
9 improvement of existing educational programs and for the
10 development of future programs, and to stimulate the
11 improvement of engineering education in the United States.

12 And I think you will see that there are some
13 similarities, some strong similarities with the INPD
14 accreditation which is to assist the member utilities in
15 developing training programs that will produce well qualified,
16 competent personnel to operate the nation's power plants
17 safely. So, both have the same purpose to protect the
18 public. Both have criteria, which establish the quality to
19 provide the quality assurance.

20 In the case of ABET, the criteria are established by
21 their participating bodies, which are the professional
22 societies, the chemical engineers, the civil, the electrical
23 engineers and so forth, and the engineering accrediting
24 council.

25 Now, in the case of the ABET criteria, they are

1 intended to assure that there is an adequate foundation in
2 science, the humanities and social sciences, engineering
3 sciences, engineering design methods, as well as preparation
4 in the higher engineering specialization appropriate to the
5 challenges of today and tomorrow.

6 Now, the criteria are purposely made very flexible,
7 because they want to encourage universities to develop new
8 programs. And the way in which the criteria are defined is
9 such things as one year of mathematics and science, one half
10 year of engineering design, one year of engineering science,
11 one half year of humanities and social science, appropriate
12 laboratory courses, appropriate computer-based experience. As
13 you recognize, really quite flexible as they are telling us
14 what courses we have to offer, but we do have to have the
15 same framework, so that if an engineer graduates from the
16 university he does have something in, say, humanities and
17 social sciences.

18 Now, in INPD the training standards are established
19 and maintained by INPD and they are intended -- the standards
20 are intended to prepare individuals to fill specific
21 positions. The training programs are performance based, the
22 information is provided by the utilities and using the best
23 industry practices. And in each case the focus is on the
24 learning objectives and the systematic method of evaluating
25 and documenting the individual's level of competence.

1 So, there is a little difference. Although both
2 sets of criteria are to establish quality and excellence, I
3 have found that they go about it a little differently between
4 the two.

5 Next is the faculty. In ABET it is recognized that
6 the heart of any educational program is the faculty. So, much
7 attention is devoted to the qualifications of the faculty, of
8 what their backgrounds are, what kind of research they engage
9 in, what sort of professional activities they have and so
10 forth. They look at the faculty, and a lot of information is
11 provided.

12 Now INPD also recognizes the importance of the
13 faculty, but it seems to me the emphasis is more on
14 consistency. They wanted to make absolutely sure that as the
15 students go through, even if the instructors change, that they
16 are getting the same material. So, there is an emphasis on
17 lesson plans and uniformity of evaluation, and that sort,
18 which is a little different than I found in a university.

19 Cordell has already mentioned something about the
20 process. Both processes begin with preparation. That is, the
21 university has to fill out a questionnaire and provide a lot
22 of information. INPD requires the self-evaluation report.

23 What this does is cause the generation of excellence
24 from within, rather than having it imposed on them. Both
25 groups have to look very hard at what they are doing and

1 seeing whether or not they measure up to the published
2 criteria.

3 Then there is the site visit, where the purposes are
4 to validate the information that has been presented, and then
5 to assess the intangibles. There are a lot of things you can't
6 get off a piece of paper or a form. And also, to help -- in
7 both cases, ABET and INPO tries to help the institution. In
8 both cases, the visiting teams are drawn from essentially a
9 peer group.

10 In the case of ABET, a list of possible visitors
11 is drawn up each year that represents the participating
12 bodies, and includes both university and industry type
13 people.

14 In the case of the INPO teams -- and I have visited
15 two myself -- I found that there are the INPO staff members
16 who are there, and some of them are on loan from utilities,
17 some are career, I guess, with INPO.

18 And then people from the utilities that are drawn
19 particularly for the visit. And often they are coming to the
20 visits because they are next on the list and they want to see
21 how this goes, see what kind of questions.

22 In the case of ABET, visit is two days long. I
23 think the average for INPO is three or more days.

24 I feel that the -- the observations I have made is
25 that the INPO team is a little more concerned with detail than

1 the ABET team. They spend a lot of time really digging into a
2 lot of detail. Of course the ABET team looks pretty hard at
3 things. Particularly if they think something is wrong, then
4 they will dig. Otherwise they are kind of counting on their
5 sort of gut feel as to just how everything sounds. You can
6 pick it up. If you talk to students, you can sometimes tell
7 something is wrong, or faculty.

8 So, I think that the INPD team, a little bit longer,
9 is kind of digging a little deeper and sort of mentally going
10 off on a check list that is in their mind, the things they
11 want to check off.

12 In both cases they kind of tell the institution what
13 they found, and there is an exit report from the ABET team
14 that goes to the chancellor, to the president, and it tells
15 them how we are doing. And it provides the institution with a
16 written report that you can correct if there is something
17 factual wrong. You can't change their opinion.

18 And I found that INPD does the same thing. They use
19 the word "concerns," and if they find concerns there is a
20 great deal of effort to kind of clarify what these concerns
21 are and what the response will be from the utilities.

22 And then finally, there is the action. In the one
23 case it is the Engineering Accreditation Council. And the
24 report is made by the visiting team. The universities do not
25 have a chance to go to the meeting.

1 In INPD the utilities is invited to attend, and the
2 top people responsible for the program do sit in and hear the
3 discussion and answer the questions.

4 In both cases it is a confidential matter and
5 treated very, very confidentially.

6 In the case of engineering accreditation, they
7 accredit for a fixed period. The maximum is six years. If
8 there is some concern, they will chop it down to three years.
9 Or, they can decide not to accredit. And if that sticks,
10 there is an opportunity to appeal. Then it is up to the
11 institution to notify the faculty and to the students. See,
12 the university doesn't have to have their engineering program
13 accredited. You can still grant the degrees. However, that
14 is not -- I am not advising it.

15 COMMISSIONER ASSELSTINE: Your profession is like
16 mine. It makes it pretty tough later on.

17 (Laughter)

18 MR. O'NEILL: So, if the Chancellor, for example,
19 thinks there is some possibility that we will get a limitation
20 on our accreditation, why he is pretty concerned about that.
21 And, in the case of INPD, why the decision is to accredit or
22 to defer. That is actually, the utility doesn't have the
23 option, but they do have to take a second run at it.

24 So, that is kind of an overview and the way it
25 appears to me.

1 MR. CARROLL: I'm Ed Carroll, and I retired in 1982
2 after 36 years with United Airlines. At the time of my
3 retirement I was a qualified 747 Captain, and held the
4 position of Vice President of Flight Standards and Training,
5 and had held that position for the last five years of my
6 activity with United.

7 In addition, my background included 20 years of
8 participation between the active and the military reserve in
9 the Air Force, and the majority of that particular time was
10 spent in training and checking activities as well.

11 The final assignment I had was as the director of
12 training and operations for the unit to which I was assigned.

13 In spite of that broad background and training, when
14 I was approached by INPD in late 1982, just subsequent to my
15 retirement from United, and asked if I would participate as a
16 member from outside of the industry representing training
17 organizations that were not nuclear based, I accepted with
18 some hesitancy, primarily because of my lack of awareness and
19 knowledge of the nuclear industry itself.

20 I did not like to feel I was going to be less than
21 prepared to address the assignment.

22 However, one of the things that enabled me to allay
23 that fear was my participation early in 1983 with the INPD
24 team at a plant visit. And I immediately became aware of the
25 similarities in the approach to training and the content of

1 training between the two industries. Both approach training
2 on a systems approach to training basis. We are both
3 concerned with the eventual licensing of our people, training
4 them to be prepared to pass those tests.

5 The frequency and the types of evaluations between
6 the two industries were very similar, especially in the way of
7 timing.

8 And, one of the primary things I recognized was that
9 the use of simulators was a basis for training in both
10 industries; both in the initial training and in the subsequent
11 requalification or recurrent training and checking.

12 An additional recognition I had early on because of
13 a personal interest was that team training, as it is called in
14 the nuclear industry, and cockpit resource management training
15 as we call it in the aviation industry, were very closely in
16 parallel as well. The need to work together and effectively
17 accomplish the task is inherent in both disciplines.

18 And I had that particular interest because I was
19 responsible for implementing that kind of a program on our
20 airline which was the first fully integrated approach to this
21 kind of training that had been approached in the industry.

22 And with that recognition and watching some of this
23 training, I recognized that probably in the future, as it is
24 now becoming apparent, that the interest will heighten in this
25 area.

1 So those recognitions allayed some of my concerns.
2 However, again on a personal basis, I also in a prideful way,
3 did not want to be looked upon as a rubberstamp for these
4 programs, just because I had a lack of background or awareness
5 in a particular industry. So, since I recognized I would be
6 dependent upon information that would be brought to me, I
7 wanted to be able to recognize that that information was
8 reliable and thorough.

9 Again, going back to the team visits, I was able
10 to recognize that this was the case, that it was thorough, it
11 was objective in its approach. And some of the areas that
12 pointed that out to me were that the organization and
13 management of the programs were based upon what needed to be
14 done to ensure graduating, if you will, professionals. That
15 the development, selection and qualifications of the staff
16 were addressed in the same way in which I would like to see it
17 done in the past in the aviation industry. That the support
18 given to the people of the training facilities and the
19 material and the equipment would be conducive to ensuring
20 proper training programs.

21 This was especially apparent to me again in the
22 simulation area. And that I was able to observe training
23 scenarios being conducted. And at that time again I had it
24 reinforced that ultimately team training would probably become
25 part of the curriculum in programs, because as the tempo of

1 activity picked up during the scenarios when the regular
2 procedures were introduced, it was recognized again that it
3 was necessary to work together if it were going to be
4 effective.

5 Other areas on those team visits which enabled me to
6 become a little bit more confident and secure in the belief
7 of the information that would be presented to me, was the way
8 they conducted evaluations in each stage of training, whether
9 it was in the classroom or the laboratory, which are fairly
10 basic and easy to assess, or in the simulator during initial
11 and recurrent training, or DJT.

12 I was pleased to recognize that that was delved into
13 very thoroughly, to assure that the product that was being put
14 into the control rooms was going to be effective. And that
15 last point was assured through the feedback process that I
16 became aware of both from the individual trainees and from
17 the supervisors that they went to work for.

18 The process that the supervisors indulged in was to
19 assess the product overall that was being delivered to them
20 and to indicate to the training group where changes should,
21 perhaps, be implemented to assure even better products in the
22 future. And the individual trainees were able to assess their
23 capability to do the job and to get feedback on the efficacy
24 of the training program itself.

25 The final thing that helped me become more confident

1 in the material that I was going to be given to assess and
2 determine whether I would vote for accreditation, came from
3 the recognition of the meetings that the team held on each
4 evening after their intense eight to ten-hour day of looking
5 into all of these areas, at which time they reviewed their
6 concerns and reprioritized their activities for the next day
7 to know the areas which to address and put more intense focus
8 on.

9 This is a rather unique process -- was unique to me
10 -- and I think it is one that is very, very beneficial and
11 would be beneficial even in the aviation industry if it could
12 be addressed to where an industry group was able to look at
13 each airlines industry as an example, and assess whether their
14 programs came up to a good overall standard.

15 I believe as a member of the accreditation board
16 that participation in these team visits has been very
17 beneficial. As as been pointed out before, many of us attend
18 one or more visits a year, and that gives us the opportunity
19 then during the deliberations on accreditation for a
20 particular utility, to have the first-hand recognition and
21 some awareness of what should be delved into, perhaps, in
22 even greater depth.

23 Even with my background in the military and aviation
24 communities in training, I have been very impressed with the
25 thoroughness and professionalism of the approach to training

1 in this industry, and I am confident overall without question
2 that professional standards are being applied and attribute
3 it, I think, in part to INPO, but also to the utility's
4 commitment to these high standards of excellence.

5 MR. REED: I will conclude with just a very brief
6 summary.

7 It takes a tremendous amount of effort and resources
8 for a utility to meet the INPO objectives and criteria.
9 Tremendous. However, the product is a formalized program
10 that is performance based with feedback mechanisms. INPO has
11 established a professional staff that does an in-depth
12 review of these utility programs, and they document that
13 review with objective evidence that the utility has met the
14 criteria.

15 Then, the accrediting board is a diverse group of
16 professionals who make an independent determination of the
17 adequacy of the programs.

18 Board members bring a broad experience to this
19 judgment and I am confident they are doing a good job. I am
20 very proud, very proud to be part of this board.

21 Now, we are very proud of you, we are open for
22 questions.

23 COMMISSIONER ASSELSTINE: We did pretty good.

24 CHAIRMAN PALLADINO: Thank you, gentlemen. That was
25 a very good report, both in form and in substance, to hear the

1 progress that is being made and has been made. And I do
2 believe the members of the accrediting board need to be
3 commended, or deserve to be commended for the commitment they
4 made to this undertaking. Having participated in
5 accreditation of engineering programs, I can attest to the
6 amount of time it takes just to handle one visit.

7 If I may, I would like to ask a couple of
8 questions. One has to do with whether or not the
9 accreditation group gives approval on the basis of programs in
10 place, or programs that are planned?

11 I had occasion last week to meet with some of my
12 staff, and that was a question that arose. And we weren't
13 quite sure whether in every case it was based on a program
14 that was in place, or whether it was based on a program that
15 still was under development or being planned.

16 MR. REED: Maybe I can respond to that. It is based
17 upon programs that are in place. However, on occasions we
18 will -- for instance, I can think of an example where we
19 require lesson plans so we can have a consistency.

20 A utility had lesson plans that were developed
21 several years ago. And the team that visited the site found
22 some site deficiencies in that plan. It did not stipulate the
23 visual aids that would be used in that class. They were so
24 slight, that the board was willing to accept a commitment from
25 the utility to upgrade that lesson plan over a period of time,

1 because we had the insurance that what was in place was
2 satisfactory.

3 This board has gotten even tighter. Oft times we
4 will accept a promise, a commitment from a utility, that
5 they will finish a procedure or a certain item before the next
6 class goes through. And then we will take that as a
7 commitment.

8 Sometimes we don't agree with the staff, the INPO
9 staff. And at the time the utility is there, we put upon them
10 a requirement that no, this must be done before the next
11 class.

12 So, to answer the question, if a utility doesn't
13 have something that we feel is adequate for our operations, we
14 won't accredit that program, but we will only in the cases of
15 enhancement, accept something for the future.

16 CHAIRMAN PALLADINO: Okay. So it is basically a
17 programs in place with the possibility of some -- at some
18 point it has to be completed.

19 MR. REMICK: In the case that Cordell mentioned, we
20 would require those to be completed by the next time they are
21 used.

22 CHAIRMAN PALLADINO: Is there follow up?

23 MR. REMICK: Then we will ask the INPO staff to
24 check that and report back to see if that commitment was met.

25 CHAIRMAN PALLADINO: Let me ask another question. I

1 think you said there were 610 programs to be developed and
2 accredited. Is that the totality, the number of programs you
3 expected?

4 MR. REED: Yes. There are 61 plant sites and there
5 are ten programs to be accredited at each plant site. Unless
6 there is a new utility that comes along to build a new plant,
7 that is what we envision.

8 CHAIRMAN PALLADINO: I did a little arithmetic while
9 you were speaking. That comes out to roughly 25
10 accreditations a month. Is the board really set up -- is that
11 too ambitious a program, I guess, is what I am asking? Can
12 you do a good job in the next 18 months with that kind of a
13 workload?

14 MR. REED: Zack, I don't know if your chart would
15 give an overview. Let me just say to date -- to date we
16 haven't had enough business. There have been months in which
17 we have skipped. I must say two weeks ago we looked at four
18 utilities, 20 programs in a two-day period.

19 The reason for expanding this board, so that there
20 could be as many as three independent groups of five looking
21 at a couple of utilities a month, is anticipation that the
22 workload will get too great for just us five or ten members.
23 So, I think we are bringing these additional people on board
24 early enough so they can see the process, so that we can keep
25 up with them.

1 Zack, you had a chart that I think might be
2 instructive.

3 MR. PATE: Okay. Let me also address part of the
4 Chairman's question and the arithmetic. The 610 programs is
5 61 nuclear stations that were operating by the end of 1984.
6 Those plants coming into operation now have stations that are
7 due two years from now. So the initial group is 610
8 programs. And then there were others that will follow that.
9 Then we will get into the real accreditations, so we will need
10 the 19 members of the other four boards or five, that can
11 meet to look at an individual group of programs.

12 And the arithmetic, Mr. Chairman, we are obligated
13 to have a self-evaluation report of all 610 programs by the
14 end of 1986. That certifies to INPD that the program is up
15 and running, and in place. But, we won't have them all
16 accredited by the end of 1986. There will be some that move
17 over into the next year.

18 When I briefed the Commission in January, I talked
19 about the schedule of self-evaluation reports. As I mentioned
20 a moment ago, that is step one. That is the key step, because
21 that is when a utility says to INPD and says to this board
22 that our program for I&C technicians, or whatever it is, is
23 ready.

24 In January, this was the status of the schedule of
25 self-evaluation reports. As I said earlier in this meeting, we

1 have 148 in hand. That is those that came in in 1984 and
2 earlier, plus those that have come in so far in 1985.

3 (Indicating on chart)

4 But, to finish the commitment to you, to the
5 accrediting board and to ourselves, we need to get the
6 remaining 610 by the end of 1986.

7 And, you are concerned about that and so are we,
8 that with a lot of programs due in the last quarter of 1986.
9 As a result of that worry to us and to you, we have written
10 to each utility, each CED in specific, and I have personally
11 talked to all of them except one or two that Ken Strom did for
12 me in my absence. And, as a result of that letter since
13 January, and those phonecalls, it has been not a small task to
14 reach every CED in this industry on the phone, as you can
15 imagine, we have managed to move the schedule back in time so
16 that the bottom graph is now the distribution of due dates
17 for self-evaluation reports.

18 That is not ideal because it still moves a little
19 bit towards the end, but it is still a whole lot better than
20 we were back a few months ago.

21 COMMISSIONER ASSELSTINE: It has been improved.
22 Take that next-to-the-last block and move that one step over
23 to the left, it will be better yet.

24 MR. PATE: That's right. Our commitment is not just
25 to have the self-evaluation reports in hand, but to be able to

1 say to you and say to ourselves that each of those
2 self-evaluation reports represents a sound program. So that
3 is how the arithmetic kind of plays out.

4 CHAIRMAN PALLADINO: I forgot that you said by the
5 end of 1986 you expected to have self evaluation in. But
6 still, there is a challenge in getting them all accredited.

7 MR. PATE: And your arithmetic is still
8 approximately correct, because we think from now through the
9 end of 1987 we need to accredit about 20 a month.

10 CHAIRMAN PALLADINO: What is the accreditation
11 period? If a utility gets accredited, how soon will they be
12 revisited?

13 MR. REED: It is a four-year period. However, after
14 two years a utility must submit to the board a status report
15 of how their program is doing.

16 We will get our first one when, Ed?

17 MR. CARROLL: This summer.

18 CHAIRMAN PALLADINO: Two more questions. One for
19 Russ O'Neill. Help me refresh my memory with regard to the
20 question of public participation in the accrediting program
21 process for engineering education.

22 As I recall, there generally was an observer from
23 the State Registration Board for Professional Engineering, and
24 there may have been in the deliberations some other
25 observers. But I don't recall public participation being a

1 very important component of that. By that I mean letting the
2 people know that it was done, how it was done and what the
3 results were.

4 Could you refresh my memory?

5 MR. O'NEILL: That's correct. There is no public
6 participation. As a matter of fact --

7 CHAIRMAN PALLADINO: Or even public information?

8 MR. O'NEILL: As a matter of fact, it is
9 confidential. And the only report then is the action taken at
10 the very end to be accredited. Doesn't even say how long the
11 accreditation.

12 Incidentally, the state boards and all, have not
13 been sending observers the last few years.

14 CHAIRMAN PALLADINO: They need some armtwisting.

15 (Laughter)

16 I wanted to bring that up because we have a parallel
17 problem, I'm sure, in this situation. But, universities did
18 make announcements when they got accredited. They very seldom
19 made announcements when they didn't get accredited. But, I
20 gather ABET doesn't put out any announcement that university X
21 has been given a show cause order.

22 MR. O'NEILL: The closest thing would be the
23 students, and the students are involved. And they are an
24 important part of the public, because they are getting a
25 degree, and they are deeply involved.

1 CHAIRMAN PALLADINO: That's why I am a little
2 uncertain, because I thought that announcements were made when
3 the university didn't make the grade, or when there was a show
4 cause to revoke their accreditation.

5 MR. O'NEILL: Yes, if the university does not make
6 the grade, it is up to the university to advise the students
7 and the faculty.

8 CHAIRMAN PALLADINO: ABET doesn't do it?

9 MR. O'NEILL: No, it is the institution that does
10 that.

11 CHAIRMAN PALLADINO: One other question.

12 After all the other Commissioners have had a chance
13 to ask their questions, would you care to comment on the
14 Moynihan bill for a training academy. I would like those
15 comments after I give my colleagues a chance to question.

16 COMMISSIONER ROBERTS: I have no questions. Just
17 an observation. It is obvious you take this with great
18 seriousness. I assure you we do. It sounds to me like you
19 are making an outstanding effort, and I encourage you.

20 COMMISSIONER ASSELSTINE: I would start with a
21 comment now, and just a few questions.

22 First of all, I would agree very much with some of
23 the comments that Forrey made and Mr. Carroll too, about what
24 is going on in the industry. Having seen a number of
25 programs, and going around to the plants, I am very impressed

1 with the Applicants' training area.

2 I think what Cordell said, I don't think there is
3 anybody prouder of what is going on than training people and
4 the record of the trainees at these sites. Nothing moves them
5 closer to tears than the possibility that visitors are not
6 going to get to see their new facilities and their departments
7 and the people that they have brought on board during the
8 past couple of years.

9 I am encouraged by what is going on. I think it is
10 a fairly exciting time in the industry in bringing about
11 improvement. And, Cordell I was very pleased to hear what you
12 had to say on maintenance and the efforts that were going into
13 maintenance training. I think that is a real tough one,
14 because the sense I get is now there is a great deal more
15 attention being paid to maintenance from within the industry.

16 A natural consequence of that seems to be they are
17 turning up more work for maintenance crews to do, backloads
18 are getting longer and longer. It is going to be a real
19 challenge to make sure those people not only keep up with the
20 workload that seems to be growing, but also get the kind of
21 training you described to improve their capabilities to do
22 that job.

23 I think that is a very challenging area that you are
24 all going to be facing, we will be facing too, in the next few
25 years.

1 Let me start with a couple of questions on your
2 chart on the status of training accreditation programs, Zack.
3 You mentioned there were 148 self-evaluation reports submitted
4 so far. Are there any utilities that have not submitted at
5 least one self-evaluation report?

6 MR. PATE: I'm sure there are several,
7 Commissioner. But, I might ask Ken Strom or Walt Coakley to
8 elaborate on that.

9 COMMISSIONER ASSELSTINE: I would exclude the NTOLs,
10 another two-year period. But, at least for the plants that
11 have the commitment to submit all of their self-accreditation
12 programs by the end of 1986, I would be interested to know if
13 there are any that haven't gotten at least one in.

14 MR. COAKLEY: I am Walt Coakley, manager of the
15 Accreditation Department, Secretary of the Accrediting Board.

16 As I look down my sheet, it looks like there are
17 around 20 of the 61 plants that we are keeping track of, that
18 have not yet submitted an official self-evaluation report. We
19 do have drafts from some of them.

20 COMMISSIONER ASSELSTINE: Would it be possible to
21 get a list of those. I am curious to see which ones haven't
22 at least gotten one in.

23 MR. PATE: We, in our previous discussions, agreed
24 to brief the NRC Staff on the details of this program. We
25 would be pleased to show representatives of the NRC the

1 details of this status. But we would prefer not to, so to
2 speak, give away our data. And perhaps a member of the Staff
3 could be briefed in detail, and then brief you, Commissioner.

4 COMMISSIONER ASSELSTINE: Fair enough.

5 The other problem I think you alluded to when you
6 talked about your chart, Zack, was things slipping to the end
7 of the program. I might add, having looked at the chart, I
8 think Susquehanna deserves a gold star, a blue ribbon or
9 something.

10 All of their programs have been accredited so far.
11 It looks like they are at least twice as good as the next
12 one. Some of them have five, but they are one with everything
13 accredited.

14 My concern is on the other end of the spectrum, and
15 that is people coming in towards the tail end of the process
16 with very large numbers of self-evaluation reports all in a
17 chunk. I gather from the chart that you showed us, the bar
18 graph, you have made an effort to try and move things forward
19 a bit. But, have you looked at that particular problem,
20 people that may be in this category of the 20, haven't gotten
21 one self evaluation in yet, and they are going to have a bunch
22 of them come in or be due towards the tail end of this process
23 which would raise questions at least in my mind of the quality
24 of the job they are going to be able to do if they are
25 bunching their work all at once.

1 MR. PATE: That is a good question and a valid
2 concern. That is one of the things that we addressed when we
3 wrote the letter and made the calls to the CEOs. I personally
4 discussed -- and I know Ken and Walt have too -- with many
5 executives in the industry, that a better approach than trying
6 to give us all self-evaluation reports in, say, September of
7 1986, is to get three or four or five of those programs ready
8 early and test the water and learn this process and learn how
9 to deal with this board, and then come back with the other
10 five or six programs later.

11 We have been able to get just about all utilities to
12 split that up so they are not giving us all at once. But
13 there are a few that still need some work on that, and we will
14 continue to push that.

15 I appreciate your interest. That will give us
16 motivation to give it additional emphasis at INPD.

17 COMMISSIONER ASSELSTINE: I would really hope that
18 maybe by the beginning of next year we would focus in a bit
19 more on any problem cases that might exist at that time.
20 Again, people that haven't gotten at least a few of those
21 through the process, so that they really have a sense of what
22 the board is looking for, and across that first hurdle.

23 What is the secret for PP&L? How have they done so
24 good?

25 MR. REED: Let me tell you the secret why Edison --

1 (Laughter)

2 -- I think we have done real well. We made a philosophical
3 decision not to bring our poor programs to the board until we
4 had cured the deficiencies. But, we have at Commonwealth, at
5 Dresden Station, 25 years of history with our maintenance
6 people and with our union. And it is quite a task to develop
7 new systems and to get the people to understand them and to
8 recognize it, now, after 25 years, that we are operating in a
9 different manner.

10 So, I think they have part of the benefits of being
11 a brand new station with no precedences to deal with.

12 COMMISSIONER ASSELSTINE: Okay.

13 Cordell, you said earlier that you look at actual
14 job performance and you factor that into the training program.

15 I would like to turn that around and look at sort of
16 the back end of the process and ask, after you have accredited
17 the program, after you are comfortable with the program, you
18 think it is going to achieve the results that you have in mind
19 for it, that your criteria called for, how do you go back then
20 and double check to make sure that it is achieving those
21 results, that in fact the product, the people that are coming
22 out of the training programs, have the kinds of knowledge and
23 skills that the performance demonstrates that in fact your
24 judgments were right, that the training programs were adequate
25 and effective that you have accredited?

1 Do you have a way to close the loop to look at the
2 outcome -- look at the product, make sure that the product
3 you are getting is what you expected to get?

4 MR. REED: Yes.

5 MR. CARROLL: I think from the standpoint of
6 recognition of a feedback process, that again is analogous to
7 what I have been used to in the aviation industry, the one
8 thing that is beneficial in the nuclear industry is that after
9 two years they must come back and have everything reviewed in
10 order to maintain that accreditation for the balance in four
11 years.

12 And at that time, I think any evidence that we were
13 to have brought to us of what we might look upon as areas of
14 concern would be addressed at that time to make sure that the
15 feedback process, which is an inherent part of the original
16 program, was being effectively used. And that information
17 from that feedback process was being cranked back in to
18 obviate those things happening in the future.

19 That closed loop of the feedback process, as we have
20 required it to be, should obviate that from taking place. But
21 if it does not, we would reassess that at the end of the two
22 years.

23 COMMISSIONER ASSELSTINE: And I take it as part of
24 that, what you will do is look at the performance of the
25 people, look at the maintenance people, look at the operators,

1 see how well they performed on the job.

2 MR. CARROLL: That's correct.

3 CHAIRMAN PALLADINO: That two-year review, is that a
4 formal part of the accrediting process?

5 MR. REED: Indeed it is. Yes.

6 And I might say too, Jim, when INPO make their plant
7 evaluations, they look in great detail in these areas. Now we
8 have the two SRD peer evaluators who look at simulator
9 training and the peers are really quite tough. I think we
10 have all remarked in the site visits, that no one is tougher
11 than that guy from the other utility.

12 So, I think there are several checks on it. But we
13 are very cognizant on trying to make sure the systems are in
14 place. There could be a terrific training manager at a
15 plant. But we don't know if he is going to be transferred the
16 next month or the next year. So, we are trying to assess that
17 there is enough systems and formality and commitment by the
18 management that it would be perpetuated.

19 MR. PATE: I would second what Cordell said.
20 Through the evaluation, the ongoing operating plant evaluation
21 program, we do take a look at training every 15 or 16 months
22 at each operating station. And that is a performance-based
23 look: What are the people doing in the simulator, what are
24 they doing in I&C surveillance tests and running the diesel
25 and control room and so on. And we try and tie that back and

1 make it complimentary to the training program assessment
2 through accreditation and make those programs serve each
3 other.

4 COMMISSIONER ASSELSTINE: I had two other, maybe
5 broader, philosophical questions that go beyond just
6 accreditation.

7 One had to do with the -- a couple of questions had
8 to do with the role of the operator, and the second one had
9 to do with the knowledge of theory, knowledge of science that
10 these people need, particularly the reactor operators.

11 Let me start with the role of the operator first. I
12 have been to a number of sites now and I am finding, as
13 Cordell knows, an increasing interesting part of the site
14 visits is chatting with some of the shift supervisors on
15 shift. I had a chat with one who had been a shift supervisor
16 for about 15 years at a plant fairly recently. It was kind of
17 an interesting discussion.

18 Basically it went along the lines of, you know,
19 someone ought to think about what it is that you are asking us
20 to do, because in essence you are asking us to be managers,
21 managers operating a shift. And supervising other employees.
22 You are asking us to be experts at paperwork and knowledge of
23 regulation and compliance. You are asking us to be
24 instrumentation and control people. You are asking us to be
25 maintenance people because we are, in essence, in charge of

1 everything that is going on. You are asking us to be the
2 operators, know about plant operations and be knowledgeable
3 about our plant. And finally, you are asking us to know
4 theory, being able to deal with accidents.

5 And I guess one question I had particularly to you,
6 Ed, is based upon your experience with the accrediting board,
7 what do you think the burden is on somebody like a shift
8 supervisor, and how would you compare it, say, to a pilot for
9 a commercial airline?

10 Are we loading these guys up with really too much,
11 asking them to do too much?

12 MR. CARROLL: Let me draw what I can in a better
13 light from my own aviation experience, and then I think you
14 will see the direct comparison that I think exists.

15 Traditionally, in either industry -- but in the
16 aviation industry, we have always concentrated on the
17 cognitive and psychomotor skills. Our selection process, we
18 felt, gave us a product to start with, that if we were to
19 address those two areas with them, then we could be confident
20 they could handle anything we gave them in their area of
21 responsibility.

22 In this area of team training, it has become
23 apparent in our industry, the aviation industry, that that is
24 not enough any longer, just to concentrate in those areas
25 because they are becoming more managers and monitors of their

1 environment rather than just operators in their environment.

2 COMMISSIONER ASSELSTINE: right.

3 MR. CARROLL: The same thing I think is analogous to
4 what you just raised as a question about the shift
5 supervisors, or SROs. Traditionally, that is where the
6 training has been emphasized. The theory area, the cognitive
7 skills area, and their ability to operate in the control room
8 to perform the tasks as they must. Now, as you put them into
9 this environment, and as things become even more
10 technologically advanced, you have to give them training in
11 another area which is to enable them to bring all that
12 together and to recognize that they are not the only one who
13 has the information. And, while they may have a certain level
14 of expertise, if they can encourage an environment of the rest
15 of the team that they are working with, to make the
16 contribution of what they have as an awareness in the areas of
17 inquiry or advocacy or some conflict of interpretation of
18 information, that that atmosphere is such that the others are
19 willing to share it and bring it to their attention, and then
20 the supervisor can operate at a higher level than he could
21 have on his own with his own basic talents and awareness.

22 So, that is why I am very sensitive to the
23 recognition that this kind of training is going to become an
24 integral part of the curriculums in time to come.

25 Your development in this particular part of the

1 industry is perhaps not very far behind where we are in the
2 aviation industry because it has only been since the early
3 1980s that we started it in that discipline.

4 So I think yes, you are going to have to give them
5 more opportunity to train in certain areas, but they don't
6 have to be any better qualified in the two basic areas of
7 cognitive or psychomotor skills areas than they have been
8 before. Just enhance their training in a team training
9 environment.

10 COMMISSIONER ASSELSTINE: Does anybody else have
11 anything they want to add on that?

12 MR. REMICK: The only thing I might add, I do think
13 what you have heard from operators, certainly I have heard
14 from operators, and it is true. I think utilities have to
15 become aware of the fact that these people do need help,
16 sometimes just administrative help so that they don't have all
17 that paperwork they personally have to do.

18 The other is training in such things as supervision,
19 management, so that they have some skills that they might not
20 have otherwise had. I think these things can help.

21 COMMISSIONER ASSELSTINE: The sense I get is the
22 accreditation program has basically taken the role and the job
23 of operators as it was given at the time these programs really
24 got going. That one looked at the job that these people were
25 doing, and then one thought, "what did they need to do that

1 job and how can we make sure that they have a training
2 program to give it to them?" I think that made a lot of
3 sense

4 I guess what I am wondering is, given the kind of
5 workload that these people have, and given what we are
6 expecting of them, is it worthwhile at some point, now perhaps
7 after we have gotten over this first hurdle or well on our way
8 to solving it, to think, is this what we want these people to
9 do? Is their present role the role that is the right one?
10 Are we asking them to do too much? Are we asking them to do
11 the wrong things?

12 What is it that we really want these guys to do, the
13 shift supervisors and particularly of the licensed control
14 room operators?

15 Cordell, you may have a better sense for that than
16 --

17 MR. REED: I think I can say pretty clearly that
18 this board is not addressing that overall question. It is
19 probably a question that is better addressed by someone like
20 Newmark. As we have talked about engineering expertise on
21 shifts, we have done a lot of talking on just that very same
22 subject, Jim.

23 But, it is not something that we are addressing.
24 And I think we ought to flat out just answer it in that
25 manner.

1 MR. CARROLL: I think one thing that is interesting
2 though, is as a result of the attention that is being paid to
3 training programs today, the initiative is being taken by the
4 utilities themselves to where they are starting to use
5 enhancements in this regard, such as cameras within the
6 control room simulator environment, and wireless microphones
7 to enhance their ability to communicate and so on. So they
8 are addressing this kind of recognition even on their own
9 without some stimulus beyond their own desire to have a good
10 program.

11 MR. REED: And we are seeing SRD training where
12 people are being given decision analysis stress management and
13 things like that.

14 MR. PATE: We have been through one iteration that
15 recognizes the concern you raised, and that is initially we
16 set out to develop training programs for all our licensed
17 operators, and accredit the licensed operator training as a
18 group. And we shifted that approach -- Ken, how about
19 elaborating on that.

20 When did we shift splitting the shift supervisor
21 from the control room operator?

22 Ken Strom?

23 MR. STROM: Ken Strom from INPO.

24 On the new criteria book that is out which really
25 becomes effective on 1 July this year, we shifted to where we

1 are handling the reactor operator program as a program, and
2 then the SRD shift supervisor as a different program in
3 recognition of these added things, cognitive things that they
4 have to be able to handle.

5 MR. PATE: And there is probably room for another
6 iteration as we go along in that, for the reasons you said.

7 COMMISSIONER ASSELSTINE: Let me ask one other
8 question, and then I will let some of my colleagues who
9 haven't had a chance get in.

10 As Forrey mentioned, he and I participated in this
11 symposium on nuclear power plant training a couple of months
12 ago, and during the question and answer session of the session
13 that I was involved in with Fred Sears, the head of the
14 training program, a utility, got up and he made an interesting
15 comment, and I would be real interested in your reaction to
16 it, particularly you, Dr. O'Neill, I think.

17 He said that he was responsible for training both
18 nuclear people and nonnuclear people. And he said one of
19 the things that troubles him a great deal is that his nuclear
20 people are forgetting how to think. That in the wake of TMI
21 with the symptom-oriented procedures, that there is much more
22 of a tendency on the part of the nuclear people simply to
23 grab ahold of those procedures and just follow them on a rote
24 basis and not to think about what is going on.

25 In fact, Fred Sears made a similar comment about the

1 need to make sure that the operators think about what is going
2 on. Think not just about is this valve in this position or
3 that position, but what is happening in the system? Is
4 water getting in the way it should, is everything working?

5 I would be real interested to get your perception on
6 whether that problem -- is it a problem, and how do you look
7 at these training programs to make sure that they are still
8 teaching these guys to think about what is going on, to
9 understand what is happening in the system and not just to
10 check boxes on a nice set of symptom-oriented procedures.

11 I have to say that I have had more than one operator
12 say to me that they think these emergency procedures are very
13 good, they are a significant improvement over what we have
14 had in the past, but they also say to me, that they have been
15 trying to understand what is going on in those systems for
16 ten or fifteen years, and they are not entirely convinced that
17 a group of engineers in a year are going to be able to come up
18 with an absolutely foolproof system that anticipates
19 everything.

20 So, I would be real interested in your thoughts on
21 that problem. Or, is it a problem? Or, how do you look at
22 these training programs to make sure they are adequately
23 dealing with that concern?

24 MR. O'NEILL: Well, I was not aware of that as a
25 problem. It sounds kind of alarming to me from that

1 observation. Because I think certainly, we would want them to
2 be able to think.

3 I would say that is a concern.

4 COMMISSIONER ASSELSTINE: I don't want to
5 overdramatize it, but it struck me as something that, well,
6 gee, maybe we ought to think about this and make sure that at
7 least this is something that is being considered.

8 MR. REED: I don't know if I totally agree with
9 that. You know, when something happens, reactor SCRAMS, there
10 are certain immediate things you need to do. It is rather
11 instinctive. And the operators were always better than the
12 engineers because they knew just what to do and how to tweak
13 it. But that concern, we do, we slap the operators on the
14 hand more and more when they don't follow procedures.

15 COMMISSIONER ASSELSTINE: Right.

16 MR. REED: But, I think the answer to that is the
17 engineering -- well, it is not that the guy is an engineer.
18 An engineer has a greater capacity to understand the transient
19 analysis and to do the diagnostics. And I think whether it is
20 an STA, whether it is a combined STA/SRD, the important thing
21 to me is that on an emergency there is someone who can stand
22 back without having line responsibility, to do the kind of
23 analysis, to do the kind of thinking that you are talking
24 about. And to me, that -- I have confidence with those people
25 now on our shift.

1 COMMISSIONER ASSELSTINE: Forrey, you were there, I
2 think, on our discussion --

3 MR. REMICK: The comment I would make to you, I ran
4 into a debate that has gone on for at least 30 years on the
5 question of, should operators think or should they just
6 respond.

7 I have always been one of those that felt that
8 operators should think, they should be trained to think and
9 question and ask why we do this. That is why I am in favor of
10 some movement of people through operations, not be there for a
11 lifetime and so forth.

12 But, there are people who argue very strongly that
13 no, you want an operator that just responds to procedures. A
14 good example, Savannah River. You can't knock them, they have
15 had great success in having people who claim they can write a
16 procedure for any case and the operators respond to that. And
17 they have been highly successful, so I respect them. But you
18 are into an area in which people disagree.

19 COMMISSIONER ASSELSTINE: Ed, I don't know how the
20 airline industry deals with that kind of a problem.

21 MR. CARROLL: I smiled when you said that, because
22 it is not something that is new to us. And I don't know
23 whether it is directly comparable or not. But, we put into
24 the area of nice to know and need to know information. And,
25 for a period of time we had career engineers on our

1 airplanes. Now we have a progression from the engineer's seat
2 through the others.

3 The career engineers always wanted to know more
4 about the equipment. But there is no sharp demarcation that
5 you have whether an operator or a thinker. There is some
6 overlap, I would like to believe. I don't think they stop
7 thinking just because they operate.

8 (Laughter)

9 So, as a result, you want them to take a proper
10 action at the time. If there is an indication that such and
11 such a step should be taken, take it. Don't reason why, what
12 is causing that particular indication. Take it, get into the
13 safe position, and then do your diagnostic work.

14 So, again we have gone almost strictly to the point
15 of working from the cockpit out, not the system in. To know
16 what is taking place in an engine or a system and so on, you
17 take the action that is necessary. And in our case when you
18 get on the ground, some engineer will take care of it. In the
19 nuclear industry, if you have got somebody back there who can
20 diagnose at the same time, at least you are in a safe position
21 to make that diagnosis at that time without wondering whether
22 he took the proper steps to put you in the safe position.

23 So, I would question that sharp demarcation that
24 they are only operators and not thinkers. And it is a nice to
25 know and a need to know demarcation.

1 CHAIRMAN PALLADINO: Okay. Fred?

2 COMMISSIONER BERNTHAL: Well, let's see. I don't
3 think we want to go on too much longer here. I have to leave
4 at a quarter of twelve. I am sorry.

5 I just want to join my colleagues in thanking you
6 for the kind of effort that you have launched here.

7 I needn't remind you because we are constantly
8 reminded, Congress directed this Commission in lieu of
9 regulations and promulgations of regulations, to give
10 regulatory guidance.

11 This is one of those areas where we have given very,
12 very broad regulatory guidance in lieu of writing cookbook
13 regulations, as we are sometimes wont to do. But that means
14 that we all have to exercise a great deal of good judgment and
15 common sense and it puts our staff, frankly, in a difficult
16 position where they don't have a cookbook either. So, it is
17 good to see and hear the kind of progress that is being made
18 that clearly is needed here.

19 I especially want to thank you, Mr. Carroll, for
20 overcoming some of your initial personal concerns and joining
21 this effort. I can't think of any higher calling, frankly, to
22 make use of your talents and experience and skills in this
23 country right now than that associated with nuclear power
24 enterprise.

25 I would also hope that in two areas, one of which

1 was raised earlier either by you or someone else at the table
2 here, the area of maintenance, you and perhaps others like
3 you, if we are able to find some from other areas of industry,
4 might have special insights. And the other occurs to me in the
5 light of discussion that we just had here, as to whether you
6 have thinkers or operators.

7 It strikes me that part of that argument must
8 revolve around the subject of how much you automate in plants?
9 And the aircraft industry is going through exactly the same
10 argument right now. I have been a long time believer that
11 when a fixed set of circumstances as these plants get more and
12 complex, always or nearly always need a fixed response, that
13 then it is time to get one or more onboard computers, so to
14 speak, to do the roadwork and allow the operator to be free to
15 do a bit more thinking, perhaps.

16 I don't have any specific questions except one, if
17 you wouldn't mind answering briefly. I am curious to know --
18 and I hope you will speak freely -- what the relationship,
19 working relationship has been, the interaction has been with
20 the NRC Staff at this point.

21 Has that been adequate? Has there been good
22 "regulatory guidance," or where are we? Do things seem to be
23 working well in that respect?

24 I probably need to ask our staff at some point,
25 too. But would you care to comment on that?

1 MR. PATE: From INPO's perspective, I think for the
2 past several months we have had a number of NRC Staff members
3 accompany accreditation teams; we have had a visit at the
4 accrediting board to listen to the proceedings by a number of
5 members of your staff. As Cordell indicated, I think later
6 this week we have an information exchange briefing at NRC
7 Headquarters.

8 It seems to me that the process is working quite
9 well on all counts at the present time.

10 Ken, do you have any additional comments or worries
11 you want to express?

12 MR. STRDM: The only worry I have is -- you said
13 speak freely -- is that the regions, not all the same have
14 taken it on themselves to go out and look. And one particular
15 region went and spent a week at each of the sites in their
16 utility. And so the utilities of course are saying, hey, we
17 have committed to accreditation, we want to spend our time
18 doing that, but we spend all our time with the NRC teams,
19 region teams coming in. And that is really the only worry I
20 have, and that is what we are going to take up on Wednesday.

21 In fact, Bill knows that is a problem also, and we
22 are going to take that up, what to do about it. Other than
23 that, with the Staff here in Washington and ourselves, we
24 haven't had any problem. We have had a good relationship.

25 COMMISSIONER BERNTHAL: Okay, thank you. That is

1 all I had.

2 CHAIRMAN PALLADINO: Lando?

3 COMMISSIONER ZECH: Yes, sir. I had a number of
4 questions, but with the hour I am going to try to turn my
5 questions into comments if I can, and maybe have one question
6 at the end for Mr. Pate.

7 First of all, let me just say I, too, have a great
8 empathy with Dr. Forrest Remick, because I have been involved
9 with training as well as operations a good deal of my life,
10 and I didn't qualify, I guess -- in 1956 I think you qualified
11 -- well, I qualified in 1958 as a nuclear operator in the Navy
12 program. So, you have got seniority on me there.

13 But, I do have -- and I have been involved in
14 training in many different activities in my professional life,
15 too. I was privileged to be the Chief of Naval Technical
16 Training at one point as well as later on become the --

17 COMMISSIONER ROBERTS: Would you identify where that
18 was, too?

19 MR. PATE: That was in Memphis, Tennessee.

20 (Laughter)

21 And also then later on I was privileged to be the
22 Deputy Chief of Naval Operations for Manpower, Personnel and
23 Training. So, training has been a very important part of my
24 life.

25 Also, I think I sensed a little bit of frustration

1 in your efforts in training, Forrest, and I, too, have sensed
2 it is very difficult, sometimes to bring training to the
3 forefront when we are dealing with resources, people as well
4 as dollars. Sometimes the training money is very hard to come
5 by.

6 On the other hand, I think the Navy has made great
7 progress in training in recent years, and I think -- I was
8 very pleased to hear your comments, particularly your long
9 involvement in training, which I am well aware of, too.
10 Because I do think in the nuclear industry we have -- at least
11 in very recent times, made rather significant strides to
12 improve training. And this particular accreditation effort is
13 certainly one of those.

14 I do feel that there is a long way to go. In my
15 view, in visiting all the plants I have visited recently and
16 talked to the operators and spending some time in the plant
17 and talking to people in the training facilities, too, I have
18 been impressed with what has been happening recently. But I
19 must say I think it is long overdue, because I still see
20 places where the training is not perhaps as emphasized as much
21 as I would emphasize it if I were a utility CEO or president
22 or vice president.

23 So, although I do think we are making progress, and
24 I am encouraged by the commitment almost all the utilities are
25 making to a simulator, so there is a lot of encouraging

1 signs. But, I do think there is a large task ahead of us. It
2 is not completed. In fact, it just started in my view. It
3 should have been started a long time ago. But, at least it has
4 started now. And I don't think we should be too complacent
5 about the fact that we have solved all the problems in
6 training in this industry because I don't think we have. In
7 fact, I think we have just scratched the surface.

8 There is an awful long way to go in my judgment.
9 But again, we are on the right track and I think that is
10 important to recognize that. But, it is still going to need
11 resources from the utilities, and effort if you are really
12 going to carry through on this commitment that you have given
13 to the Nuclear Regulatory Commission for accreditation.

14 It is a challenge you still have, and you haven't
15 met it yet as far as I am concerned. You are meeting it very
16 well, and I am encouraged by what you are telling us, but you
17 have got a real challenge if you are really going to make
18 training a real priority in this industry which I think it
19 should be. It is coming in the right direction, and I am
20 pleased to hear that. But, I do think we have got a long ways
21 to go.

22 Cordell mentioned the maintenance training -- it has
23 been my impression -- I think I visited 24 nuclear plants
24 since last July now. Maintenance training and I&C training is
25 still not the priority that I think it should be. In most of

1 your programs I think you will find maintenance training is
2 kind of last on the list of accreditation. That has been my
3 perception.

4 I view that as not very -- it doesn't surprise me at
5 all, but it disappoints me just a little bit. But at least now
6 we are talking about maintenance, and we are talking about I&C
7 training, and that is important.

8 So, I would ask that you consider maintenance and
9 I&C training and you look at it yourself, and see if you would
10 agree in general that it is put off towards the end. It still
11 isn't the most exciting thing to do. And in my view, that
12 still needs attention.

13 It is getting it. At least we are talking about it
14 now, and that is important.

15 I, too, would like to commend Mr. Carroll for his
16 valuable contribution and your background and training. It is
17 different in this industry, of course, but I think you can
18 bring a valuable perspective to our efforts. And I think you
19 can bring an objective evaluation from your perspective and
20 your experience that is also very valuable.

21 You, too, have been dealing with public health and
22 safety all your life, as we have. And that really is our
23 ultimate responsibility and has been yours. So, from your
24 standpoint, I think it is important to step back and look at
25 what we are really doing, as well as getting into the nuts and

1 bolts.

2 You have lots of people who are going to tell you --
3 explain those things to you. But if you look at it as far as
4 I am concerned from a public health and safety standpoint,
5 that will be as valuable a contribution as you can make. And I
6 know you are doing that.

7 Dr. O'Neill mentioned the importance of a faculty.
8 I won't elaborate, go into any length at this meeting any
9 more. I hope you didn't mean our instructors and our trainers
10 that were not giving the effort there.

11 If I understood you, I think you said we used
12 lesson plans and structural material, and focus on that
13 perhaps more than the faculty. And I think that is perhaps a
14 valid comment. At least it has been my experience in the past.

15 We have had -- as Forrest mentioned, our trainers
16 have not always been -- and I think your speech probably a few
17 years ago was right on -- our trainers have not always been
18 our number one people, and I think they should be. In my
19 view, you should take your best chief operator, your best
20 senior reactor operator, your best shift supervisor, and make
21 him your trainer. Everybody knows who he is, everybody knows
22 he is the best of your operators, he is the one who ought to
23 run your training activity or be involved in it. Your best
24 people should be your trainers in my view. That is the only
25 way you upgrade the whole system. You don't make somebody who

1 is just not very important, or somebody that happens to have a
2 broken arm or something, and make him the trainer. That is
3 not the way you run a training activity.

4 The only people who deserve and should go into
5 training are your very best. That has been my theme for many
6 years, and I tried to do the same thing in the Navy, to make
7 only our best instructors in the Navy, aircraft, submarines
8 and on the surface, only your best should go to training.

9 That is my view and always has been. And I am
10 convinced more and more every day that it is the right thing
11 to do. And in this industry it applies, too.

12 So, all I am saying is, it is a challenge for the
13 utilities, in my view, to continue to put their best people in
14 training. I think we are starting to do that. I commend that
15 effort. I am hopeful that it will continue. We need more
16 formality in our training programs, and I think that is what
17 you are bringing to it, too. You are bringing more discipline,
18 that is very important. And you are upgrading it.

19 Our goal of operational excellence, that should not
20 be just words. That is deeds, actions. How are we getting
21 operational excellence. You know, we need to measure
22 knowledge. That is what you are doing. You are measuring
23 ability, you are measuring capability. Those are very
24 important measures we are trying to make.

25 So, you are about a very important business. You

1 are trying to upgrade our excellence, upgrade safety, upgrade
2 reliability of all plants, and all contributing to a safer
3 industry.

4 So, these are measures that you are looking at in my
5 view of competence and excellence, that are very real. Very
6 hard to come by, perhaps, but it is an effort that deserves
7 all of our attention and support.

8 I would just like to ask Mr. Pate, I believe, or
9 maybe Cordell, have there been any problems or criticisms in
10 this accrediting program that you see. We mentioned here
11 just a moment ago, what the Staff is working on -- have there
12 been any other criticisms or problems that we should be aware
13 of?

14 And then I am finished.

15 MR. REED: Can I, Zack?

16 MR. PATE: Yes.

17 MR. REED: There has been one that has disturbed me
18 particularly. I have been reading in the trade press,
19 comments by the TMI ASLB -- it was very disturbing to me --

20 MR. LEVI: Excuse me, let me interject here. We
21 really should not discuss that decision at this meeting.

22 COMMISSIONER BERNTHAL: You have been sitting there
23 waiting --

24 (Laughter)

25 COMMISSIONER ZECH: I guess there are no other

1 criticisms or problems worthy of our attention.

2 COMMISSIONER BERNTHAL: At some point we ought to
3 discuss that, but after the Commission has finished its review
4 of the merits of that decision. It is a good one to put
5 before us.

6 CHAIRMAN PALLADINO: We might consider the generic
7 nature of whatever was discussed, and maybe it can be brought
8 up outside the context of any particular proceeding.

9 COMMISSIONER ZECH: That's all I have.

10 CHAIRMAN PALLADINO: I think you would want to think
11 about it.

12 MR. REED: Sorry, I didn't mean to jump in there so
13 quickly.

14 MR. PATE: I don't think there are any others. A
15 moment ago, in response to Commissioner Bernthal's question
16 about our interface and coordination with the Staff, I
17 indicated that that is going quite well.

18 Ken raised a concern a about some of the region -- I
19 guess one region action that will be discussed with your Staff
20 later this week.

21 I want to make a point of backing Ken up on that. I
22 was focusing my answer on the interactions with the Commission
23 and the Headquarters Staff. But that is a valid concern. I
24 think we have the mechanism for addressing it. I think it is
25 worthwhile that Ken brought it to your attention.

1 In an overall sense, I think the support of this
2 effort and the cooperation from the NRC has been superb, and I
3 think we are all seeing the benefit of that.

4 Commissioner, I don't know of any other problems
5 with the process, or particularly with the accrediting board
6 worthy of mentioning.

7 COMMISSIONER ZECH: Thank you very much.

8 COMMISSIONER BERNTHAL: I would just comment that I
9 hope you all are appreciative of the fact that because we are
10 in a rather different regulatory regime here -- one without
11 cookbooks, I would say again -- you will also have to be --
12 and the utilities will have to be somewhat more tolerant
13 perhaps, of the kind of subjective judgments and the
14 differences you are going to see in subjective judgments as
15 our Staffs seek to carry out their regulatory responsibility.

16
17 The thing we should do, however, is at least
18 in the activities maintain uniformity from region to region,
19 and I trust we will be able to do that.

20 COMMISSIONER ASSELSTINE: I would think so too.
21 Again, recognizing that the Commission did say in its policy
22 statement that we want to do two things on an ongoing basis,
23 first, continue to track the progress that you are making in
24 this part of the accrediting effort, and second, look at how
25 the utilities were doing on an individual plant-by-plant basis

1 to make sure that adequate progress was being made in pursuit
2 of accreditation.

3 CHAIRMAN PALLADINO: Let me make one other comment.

4 I had indicated earlier I would be interested in any
5 comments you had on the Moynihan bill. But maybe that is
6 better left to a different forum. Unless you feel compelled
7 to say anything, Zack.

8 MR. PATE: No, sir. I will take that up in another
9 forum.

10 I would like to add that I certainly agree with
11 Commissioner Zech's conclusion that we have a long ways to
12 go. I think we are moving in the right direction and seeing
13 solid progress.

14 When I think of all the parties involved, the
15 utility industry and the INPD, the only group that can claim a
16 solid performance at the present time is this accrediting
17 board. And I hope the Commission appreciates the quality of
18 people and the quality of that effort. We at INPD certainly
19 do, and I would like to publicly thank this board for their
20 support of the whole process.

21 COMMISSIONER ZECH: I appreciate it very much. I
22 appreciate not only the members that are here, but all the
23 others on the list that you went over earlier. I think it is
24 a very important endeavor, and I commend all of you for your
25 efforts in this regard.

1 COMMISSIONER BERNTHAL: That's right. It is an
2 impressive lineup, and it looks like you are making a very
3 serious effort when you can line up people like that to carry
4 forward.

5 CHAIRMAN PALLADINO: You are engaged in a very
6 important activity. I am pleased to see the seriousness with
7 which you have approached it, and the dedication of the
8 individuals that are involved.

9 On behalf of all my fellow Commissioners, I would
10 like to thank you for appearing with us today. We encourage
11 you to keep up the good work.

12 We look forward to periodic reports of this nature
13 from time to time.

14 Anything more?

15 (No response).

16 Thank you very much. We will stand adjourned.

17 (Whereupon, at 11:50 a.m., the hearing was
18 adjourned.)

19

20

21

22

23

24

25

1 CERTIFICATE OF OFFICIAL REPORTER

2
3
4
5 This is to certify that the attached proceedings
6 before the United States Nuclear Regulatory Commission in the
7 matter of: Commission Meeting (Public Meeting)

8
9 Name of Proceeding: Briefing by Representatives of INPO
10 Accrediting Board

11 Docket No.:

12 Place: Washington, D. C.

13 Date: Monday, June 10, 1985

14
15 were held as herein appears and that this is the original
16 transcript thereof for the file of the United States Nuclear
17 Regulatory Commission.

18
19 (Signature) Mimie Meltzer

(Typed Name of Reporter) Mimie Meltzer

20
21
22
23 Ann Riley & Associates, Ltd.
24
25

SCHEDULING NOTES

TITLE: BRIEFING BY REPRESENTATIVES OF INPO ACCREDITING BOARD

SCHEDULED: 10:00 A.M., MONDAY, JUNE 10, 1985 (OPEN)

DURATION: APPROX 1-1/2 HRS

SPEAKERS: MR. CORDELL REED, VICE PRESIDENT
COMMONWEALTH EDISON, AND
ACCREDITING BOARD CHAIRMAN

MR. ED CARROLL, VICE PRESIDENT
UNITED AIRLINES (RETIRED)

DR. RUSSELL O'NEILL
DEAN OF ENGINEERING AND APPLIED SCIENCE, EMERITUS
UNIVERSITY OF CALIFORNIA AT LOS ANGELES

DR. FORREST REMICK
ASSISTANT VICE PRESIDENT, RESEARCH & GRADUATE STUDIES
PENNSYLVANIA STATE UNIVERSITY

MR. ZACK PATE, PRESIDENT
INPO

Institute of Nuclear Power Operations
ACCREDITING BOARD
May 1985

INFO MEMBERSHIP

Billy R. Clements
Vice President, Nuclear Operations
Texas Utilities Generating Company

Dennis E. Gilberts
Senior Vice President, Power Supply
Northern States Power Company

John M. Griffin
Senior Vice President, Energy Supply
Arkansas Power & Light Company

Wayne H. Jens, Ph.D
Vice President, Nuclear Operations
The Detroit Edison Company

Cordell Reed
Vice President
Commonwealth Edison Company

Samuel J. Tuthill, Ph.D
Senior Vice President, Energy Production
Iowa Electric Light and Power Company

C. O. Woody
Vice President, Nuclear Operations
Florida Power & Light Company

POST-SECONDARY EDUCATION

William R. Kimel, Ph.D
Dean, College of Engineering
University of Missouri - Columbia

Russell R. O'Neill, Ph.D
Dean Emeritus, Engineering & Applied Science
University of California, Los Angeles

John M. Palms, Ph.D
Vice President for Academic Affairs
Emory University

Robert L. Seale, Ph.D
Head, Department of Nuclear and Energy Engineering
University of Arizona

NON-NUCLEAR INDUSTRIAL TRAINING

John E. Carroll
Vice President, Training (Retired)
United Airlines

Edward R. Jones, Ph.D
Chief Human Factors Engineer
McDonnell Douglas

George E. Moore
Director, Education Department (Retired)
Westinghouse Electric Corporation

Charles J. Sener
Assistant Vice President (Retired)
Bell Communications Research, Inc.

NOMINATED BY THE NUCLEAR REGULATORY COMMISSION

Lincoln Clark, Jr.
Associate Director of Nuclear Reactor Laboratory
and Director of Reactor Operations
Massachusetts Institute of Technology

Frank C. Fogarty
Associate General Manager, Experimental Programs
EG&G Idaho, Incorporated
Idaho National Engineering Laboratory

Forrest J. Remick, Ph.D
Associate Vice President for Research
Pennsylvania State University

Gordon E. Robinson, Ph.D
Professor, Nuclear Engineering
Pennsylvania State University

THE ACCREDITATION OF TRAINING
IN THE NUCLEAR POWER INDUSTRY

EXECUTIVE SUMMARY

THE INSTITUTE OF NUCLEAR POWER OPERATIONS

JANUARY, 1985

INPO ACCREDITATION OF NUCLEAR UTILITY TRAINING

OVERVIEW

The purpose of the accreditation program is to assist INPO member utilities in developing training programs that will produce well-qualified, competent personnel to operate the nation's power plants. Commencing the accreditation process constitutes a commitment to developing high-quality, performance-based training, with a well-functioning management system.

INPO has been charged by, and is responsible to its members for establishing training standards and assisting its members in achieving these standards. INPO's accrediting authority is derived from its members.

The accreditation of individual training programs provides the following advantages to the nuclear power industry as a whole:

- o the establishment of a set of industrywide standards with which utilities can evaluate their training system and develop a plan of action
- o the systematic evaluation of industry training programs by qualified peers resulting in a subsequent improvement of industry training as required to meet the standards
- o the assurance and recognition that individual utility training programs, when accredited, meet prescribed standards established by INPO with significant industry input and review

Accreditation is granted to a utility for on-site, off-site, and contracted training for personnel at a specific plant site. The accreditation process encompasses all aspects of training (in or out of the plant) by all organizational units with some responsibility for training and qualification. The INPO Accreditation Objectives and Criteria address all of the aspects of a typical performance based training system. Accreditation formally recognizes nuclear utility training as meeting the INPO Accreditation Objectives and Criteria for the following training programs:

- o operations area
 - non-licensed operator training
 - reactor operator training
 - senior reactor operator/shift supervisor training

- o maintenance and technical support area
 - shift technical advisor training
 - instrument and control technician training
 - electrical maintenance personnel training
 - mechanical maintenance personnel training
 - chemistry technician training
 - radiological protection technician training
 - technical training for technical staff and managers

ACCREDITATION PROCESS

Members apply for accreditation of a program by submitting a self-evaluation report to INPO. The current utility commitment for operating plants or plants that loaded fuel prior to the end of 1984 is to have all programs ready for accreditation by the end of 1986. The goal for plants that load fuel in 1985 or later is to have all programs ready for accreditation within two years of fuel load.

Throughout the accreditation process, INPO offers information and assistance to each utility through an INPO staff coordinator. Key utility and plant personnel should attend one of the INPO accreditation work sessions which focus on the practical aspects of conducting self-evaluations. During the self-evaluation process, site assistance visits are made by INPO staff, if requested.

At least three programs should be submitted for accreditation at any one time. Normally, accreditation will be awarded only after the utility has conducted the training program; however, new training programs not yet fully conducted may be considered. Both the initial and continuing training programs are evaluated for accreditation. As the first round of accreditation nears completion, INPO will review additional plant positions for possible future inclusion in accreditation. In addition, the procedures and objectives or criteria will be refined to reflect accreditation experience and industry practice.

The accreditation process consists of the following major activities:

- o Utility accreditation self-evaluation
The utility conducts the self-evaluation process by measuring its training system and programs against the INPO Accreditation Objectives and Criteria, making necessary improvements, and preparing a report that will be used by the accreditation team.

o INPO accreditation team evaluation

When the self-evaluation phase is completed, an accreditation team is appointed by INPO. The accreditation team consists of both INPO and utility personnel with collective expertise in nuclear power plant operations, nuclear utility training, instructional processes, and training evaluation. The team visits training sites and evaluates how well the training programs meet each criterion. The team makes recommendations which are forwarded to the utility in an INPO report.

o INPO Accrediting Board decision

The final decision to award or defer accreditation is made by the Accrediting Board. This decision is based on the accreditation team's report, the utility's response and the INPO staff recommendation. The utility's representatives are present to answer questions and describe the current status of the programs to the Accrediting Board. When accreditation is awarded, it will normally remain in effect for four years at which time the accreditation process is repeated.

o Maintaining Accreditation

Accreditation is maintained during the accreditation period by the utility submitting a status report to INPO for review by the Accrediting Board at the end of two years. This biennial report describes changes in the accredited training programs since the last accreditation review and discusses the utility's status with respect to possible ongoing actions committed to in response to the INPO Accrediting Board.

JOINT ROLE OF ACCREDITATION AND EVALUATION

INPO's evaluation of the quality and effectiveness of industry training programs involves plant evaluations as well as accreditation. In the accreditation process, INPO examines the training systems in detail to determine their ability to produce personnel qualified to perform assigned job functions. As part of the plant evaluation program, INPO examines the implementation and effectiveness of utility training programs and the performance of plant personnel. In combination, these processes are intended to ensure that nuclear power plant personnel are well trained and properly qualified for their jobs.

STATUS OF TRAINING ACCREDITATION, MAY 1985

Accreditation Self-Evaluation Reports covering 141 programs have been submitted.

One or more Accreditation Team Visits have been completed at 23 sites covering 88 programs.

68 training programs at 18 sites have been accredited, they are:

Ocone	(8/17/83)	(4)	NLO, LO, Requal, STA
ANO	(1/11/84)	(3)	NLO, LO, Requal
Sequoyah	(1/11/84)	(5)	NLO, LO, Requal, STA, Mgrs and Tech
Sequoyah	(1/11/84)	(3)	Radiological Protection, Chemistry, I&C
Calvert Cliffs	(5/16/84)	(3)	NLO, LO, Requal
Calvert Cliffs	(12/19/84)	(2)	Chemistry, Radiological Protection
Robinson	(5/16/84)	(3)	NLO, RO, Requal
Summer	(9/26/84)	(4)	NLO, LO, Requal, STA
Farley	(12/20/84)	(4)	NLO, LO, Requal, STA
TMI-1	(2/28/85)	(5)	NLO, LO, Requal, STA, Radiological Protection
Salem	(3/26/85)	(5)	NLO, LO, Requal, STA, I&C
Peach Bottom	(5/23/85)	(5)	NLO, LO, Requal, Chemistry, Radiological Protection
Dresden	(5/23/85)	(3)	NLO, LO, Requal
Brunswick	(5/29/85)	(3)	NLO, LO, Requal
Susquehanna	(5/29/85)	(10)	NLO, LO, Requal, STA Electrical, Mechanical, I&C, Radiological Protection, Mgrs and Tech
McGuire	(5/30/85)	(4)	NLO, LO, Requal, STA
Browns Ferry	(5/30/85)	(1)	I&C
Watts Bar	(5/30/85)	(1)	I&C

5/31/85
:ckh

LO - Licensed Operator
NLO - Non-licensed Operator
I&C - Instrument & Control Technician
STA - Shift Technical Advisor

INPO ACCREDITATION OBJECTIVES

1. The utility is organized, staffed and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that fulfills job-related training needs.
2. Training staff (utility and contracted, if used) possess the technical knowledge, the experience, and the developmental and instructional skills required to fulfill their assigned duties.
3. The training facilities, equipment, and materials adequately support training activities.
4. The tasks required for competent job performance are identified, documented and included in the training programs, as appropriate.
5. Training program content provides the trainee with the knowledge and skills needed to satisfactorily perform functions associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which he is being trained. The content of continuing training maintains and improves incumbent job performance.
6. Learning objectives that identify training content and define satisfactory trainee performance are derived from job performance requirements.
7. Lesson plans or other training guides provide guidance and structure to ensure the consistent conduct of training activities.
8. Classroom and individualized instruction is effectively presented, and trainee performance is routinely and consistently evaluated.
9. In-plant training or on-the-job training (OJT) is effectively presented, and trainee performance is evaluated consistently.
10. Simulator training is effectively presented, and trainee performance is evaluated consistently.
11. Laboratory training is effectively presented, and trainee performance is evaluated consistently.
12. A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledges.

U.S. Nuclear
Utility
Training

Institute of
Nuclear Power
Operations

*Training:
A National
Accomplishment*

U.S. Nuclear Utility Training

Nuclear utilities have long been aware of the special role of training in their plants. This awareness has grown into a unified, industrywide effort to improve the performance of all utilities.

In 1979, the Three Mile Island accident spurred the industry to move collectively on training. The accident underscored the fact that the knowledge, skill and ability of people are crucial to the safe and reliable operation of nuclear power plants. As part of this initiative, the industry formed the Institute of Nuclear Power Operations, INPO, in late 1979 to work for improvements in nuclear plant safety and reliability.

INPO is a vehicle for industrywide improvement

One of INPO's missions is to assist the industry in upgrading training. Today, INPO has a number of training assistance activities in place. INPO also manages an industrywide program for the accreditation of training programs for key operations, maintenance and technical support personnel in nuclear plants. Every nuclear utility in the United States has accepted this accreditation program by making a commitment to have its plant training programs accredited by the independent National Nuclear Accrediting Board. And the U.S. Nuclear Regulatory Commission (NRC) has formally endorsed this accreditation process.

Accreditation is the formal recognition of industrywide training improvement. Nuclear utilities are building, buying, hiring, organizing and working to ensure their training and qualification programs produce talented, competent and motivated people to run the nation's nuclear power plants.

Training facilities are on the rise around the industry

A decade ago, training facilities at nuclear plants did not always receive the attention they needed. Today, separate facilities and special instructional areas have been established or expanded to enhance training. Utilities have almost 1.6 million square feet of space dedicated exclusively to training nuclear plant personnel—more than three times the amount in use five years ago.

Specially designed, state-of-the-art training centers, located conveniently to the plant, are becoming the norm across the industry. Classrooms and laboratory training facilities include sophisticated training aids, such as scale models and duplicates of plant-specific components and equipment.

Multi-million-dollar control room training simulators meet a need

More and more nuclear utilities are buying computer-driven control room training simulators, an investment of around \$10 million apiece. They duplicate individual nuclear plant control rooms and allow operators to hone their skills in dealing with normal plant operations, abnormal events and simulated accidents. Utilities are finding that these simulators provide an invaluable return in better training and safer operations.

Six years ago, there were 10 training simulators in the industry. Currently, 44 training simulators are in operation, and when those that are planned or under construction are completed, 70 will be in operation.

Training staffs grow as utilities accelerate improvements

Ten years ago, a typical nuclear plant training staff consisted of one coordinator and a handful of instructors. Today, there is an average of 24 instructors and five other training professionals for each nuclear plant in the country—four times as many as there were just five years ago.

Programs are meeting plant manpower needs

In 1983, more than 4,500 people completed formal, initial training programs for 10 nuclear plant job categories. This represents more than a 43 percent increase over the number completing similar training programs in 1982.

Additional shifts mean ongoing training for operating personnel

Four years ago, most nuclear plants in the country were operating with four shifts. This left little time for ongoing training or requalification. Today, virtually all plants have five or six operating shifts, which allows one shift to be in training at all times at the plant's training facility.

Industry uses the latest in instructional technology

Each nuclear utility has adopted a performance-based, systems approach to training. Modern program and curriculum development is incorporated into a Training System Development model. This model is adapted to the unique needs of the nuclear utility industry and consists of five steps that produce performance-based training: analysis, design, development, implementation and evaluation.

Institute of Nuclear Power Operations in cooperation with the U.S. Nuclear Industry
and the National Nuclear Accrediting Board, Suite 1500, 1100 Circle 75 Parkway,
Atlanta, Georgia 30339-3064, Telephone (404) 953-3600

National Nuclear Accrediting Board

As part of the accreditation process, which evaluates and verifies the effectiveness of utility training, the independent National Nuclear Accrediting Board determines whether a utility's training programs meet accreditation standards.

This accreditation process is a self-initiated program undertaken by the nuclear utility industry. Every nuclear utility is committed to achieving accreditation of its initial and continuing training programs for the 10 key positions necessary for nuclear plant operations.*

INPO, which manages the accreditation program, developed stringent accreditation objectives and criteria. These must be met before a utility's programs can be accredited. There are two steps in the process before the training programs are presented to the Accrediting Board:

- Using the accreditation objectives and criteria, the utility performs a self-evaluation to identify and correct weaknesses in its training programs.
- An accreditation team, made up of training experts from INPO and utilities, visits the plant and assesses the training programs. The team's recommendations, along with the utility's responses, are written in a formal report that is presented to the Accrediting Board.

Board makes final accreditation decision

The National Nuclear Accrediting Board is composed of senior utility representatives, nonnuclear industrial training experts, representatives from the post-secondary educational community and individuals nominated by the NRC.

Because of the large number of training programs involved in the accreditation effort, the board includes enough members to ensure representation from each of the classifications at any given meeting.

When training programs come before the board, members examine the report of the accreditation team and the utility's responses, as well as the utility self-evaluation report. They question representatives of utility senior management, plant management and training management, and they determine whether the training meets accreditation objectives and criteria.

To achieve accreditation, a utility's training system must include an effective, ongoing process to identify and implement changes as they are needed. By requiring reaccreditation every four years, the program ensures this process is working to maintain training quality.

Accrediting Board Legend

- (1) utility representative
- (2) nonnuclear industrial training representative
- (3) post-secondary education representative
- (4) NRC nominee

National Nuclear Accrediting Board

John E. Carroll (2)
Vice President, Training (Retired)
United Airlines

Lincoln Clark, Jr. (4)
Associate Director of Nuclear Reactor Laboratory and Director of Reactor Operations
Massachusetts Institute of Technology

Billy R. Clements (1)
Vice President, Nuclear Operations
Texas Utilities Generating Company

Frank C. Fogarty (4)
Associate General Manager, Experimental Programs
EG&G Idaho, Incorporated
Idaho National Engineering Laboratory

Dennis E. Gilberts (1)
Senior Vice President, Power Supply
Northern States Power Company

John M. Griffin (1)
Senior Vice President, Energy Supply
Arkansas Power & Light Company

Wayne H. Jens, Ph.D. (1)
Vice President, Nuclear Operations
The Detroit Edison Company

Edward R. Jones, Ph.D. (2)
Chief Human Factors Engineer
McDonnell Douglas Corporation

William R. Kimel, Ph.D. (3)
Dean, College of Engineering
University of Missouri-Columbia

George E. Moore (2)
Director, Education Department (Retired)
Westinghouse Electric Corporation

Russell R. O'Neill, Ph.D. (3)
Dean Emeritus, Engineering & Applied Science
University of California, Los Angeles

John M. Palms, Ph.D. (3)
Vice President for Academic Affairs
Emory University

Cordell Reed (1)
Vice President
Commonwealth Edison Company

Forrest J. Remick, Ph.D. (4)
Assistant Vice President, Research and Graduate Studies
Pennsylvania State University

Gordon E. Robinson, Ph.D. (4)
Professor, Nuclear Engineering
Pennsylvania State University

Robert L. Seale, Ph.D. (3)
Head, Department of Nuclear and Energy Engineering
University of Arizona

Charles J. Sener (2)
Assistant Vice President (Retired)
Bell Communications Research, Inc.

Samuel J. Tuthill, Ph.D. (1)
Senior Vice President, Energy Production
Iowa Electric Light and Power Company

C. O. Woody (1)
Vice President, Nuclear Operations
Florida Power & Light Company

*The key nuclear plant positions involved in the accreditation program are as follows:

nonlicensed operator
reactor operator
senior reactor operator/shift supervisor
shift technical advisor
instrument and control technician
electrical maintenance personnel
mechanical maintenance personnel
chemistry technician
radiological protection technician
technical staff and managers

Institute of Nuclear Power Operations

The nuclear utility industry, through INPO, has dedicated resources and expertise to assist individual utilities with improving their training. INPO assists its member utilities in developing, implementing and maintaining their training activities.

Training assistance: INPO provides assistance to any nuclear utility requesting guidance, help or advice on a wide range of plant training areas.

Training and qualification guidelines: Using input from the industry, as well as analysis of jobs and tasks in key nuclear plant positions, INPO has developed 17 guidelines. These guidelines describe the specific components needed for the training and qualification of personnel in nuclear power plant positions.

Job and task analysis: Using industry expertise and experience, INPO has conducted analyses of key nuclear plant positions. These analyses identify tasks performed in each job and set forth the knowledge and skills needed for these jobs. A computer data base contains this information, and utilities use it to help ensure that their curricula cover the necessary topics.

Workshops and seminars: INPO sponsors special workshops and seminars for utility training personnel to assist them in developing their own training systems.

Nuclear plant evaluations: INPO evaluates each nuclear plant in the United States on a regular basis. On every INPO plant evaluation, both the conduct of training and the results of training—how personnel perform their jobs—are examined thoroughly.

Other organizations are involved in nuclear training

NUMARC: An industry group dedicated to the support of industry training and accreditation

Another utility industry group working for better nuclear plant training is the Nuclear Utility Management and Human Resources Committee (NUMARC). NUMARC is composed of a senior executive from every utility that is building or operating a nuclear power plant in the United States.

The industry formed NUMARC in early 1984 to work with the NRC on developing a non-regulatory approach to improving management and people-related areas of nuclear plant operations, such as training.

NUMARC speaks for the industry. NUMARC executives can commit their utilities' resources and take the action needed to improve utility management and human resource programs.

Industry and the NRC have a common goal

The nuclear utility industry and the NRC have a common goal—effective training for plant safety.

The NRC, in its role as regulator, has been active in the industry's training improvement program. The NRC has upgraded requirements for training content and examination scores for reactor operators, has endorsed the industry's accreditation effort and has supported utility use of systematic, performance-based training.

Training is part of the industry's overall effort to improve plant operations

Individual nuclear utilities are dedicating substantial amounts of manpower and other resources to upgrade training. And the industry, as a whole, has embarked on a self-initiated, self-improvement program. Training is essential to achieving high standards of nuclear plant safety and reliability.

These efforts in training are part of the nuclear utility industry's overall goal of excellence in the operation of its nuclear plants.

Training:

It can mean the difference between satisfactory and superior performance. The 55 electric utilities that make up the nuclear utility industry in the United States have embarked on a collective program to upgrade the training and qualification of the people who run its nuclear power plants. Why? Because training plays a pivotal role in nuclear plant safety and reliability.

January 1985
Criteria
INPO 85-002

The Accreditation of Training in the Nuclear Power Industry

INPO

THE ACCREDITATION OF TRAINING
IN THE NUCLEAR POWER INDUSTRY

PROCEDURES AND CRITERIA

INPO 85-002

January 1985

THE INSTITUTE OF NUCLEAR POWER OPERATIONS

Plant Area: Training

Key Words: Accreditation, Criteria

FOREWORD

The Institute of Nuclear Power Operations (INPO) was established by the nuclear power industry to assist in achieving excellence in the safety of nuclear power operations. The industry receives assistance from INPO in developing an adequate number of highly qualified, well-trained professionals to operate the nation's nuclear power plants. In the area of training, INPO develops training guidelines, evaluates the quality and effectiveness of utility training, and assists member utilities in developing performance-based training programs.

The evaluation of utility training involves accreditation and plant evaluations. The Accreditation Program is intended to systematically evaluate and subsequently improve the training process used in individual utility training programs. The Accreditation Program is complemented by INPO plant evaluations, which focus more directly on the performance of personnel in the plant, to ensure that training is producing the desired results and that plants are being safely operated. As programs are accredited, the thrust of the plant evaluations will shift even more toward evaluating the "product" of the accredited training programs.

INPO welcomes suggestions for changes to improve the accreditation process. It is anticipated that this document will be revised as INPO and member utilities gain experience in using these accreditation procedures and criteria.

This revision of the document, The Accreditation of Training in the Nuclear Power Industry includes minor changes in procedures and a restructuring and elaboration of the objectives and criteria reflecting lessons learned in the first two years of the program. It is effective immediately for planning, and on July 1, 1985, it formally supersedes the 1982 version of The Accreditation of Training in the Nuclear Power Industry (INPO 82-011).

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Foreword.....	i
THE ACCREDITATION PROGRAM	
General.....	1
Utility Accreditation Self-Evaluation.....	3
INPO Accreditation Team Evaluation.....	3
INPO Accrediting Board Decision.....	4
Maintaining Accreditation.....	5
APPENDIX A: OBJECTIVES AND CRITERIA FOR ACCREDITATION	
APPENDIX B: ACCREDITATION SELF-EVALUATION PROCESS AND REPORT GUIDELINE	
APPENDIX C: DEFINITIONS	

THE ACCREDITATION PROGRAM

General

The procedures, objectives, and criteria for the nuclear industry's Accreditation Program are described in this document. The purpose of the Accreditation Program is to assist INPO member utilities in developing training programs that will produce well-qualified, competent personnel to operate the nation's nuclear power plants.

INPO has been charged by and is responsible to its members for establishing training standards and assisting its members in achieving these standards. INPO's accrediting authority is derived from its members.

The accreditation of individual training programs provides the following advantages to the nuclear power industry as a whole:

- o the establishment of a set of industrywide standards with which utilities can evaluate their training system and develop a plan of action
- o the systematic evaluation of industry training programs by qualified peers resulting in subsequent improvement of industry training, as required, to meet the standards.
- o the assurance and recognition that individual utility training programs, when accredited, meet prescribed standards established by INPO after significant industry input and review

Accreditation is granted to a utility for on-site, off-site, and contracted training for personnel at a specific plant site. The accreditation process encompasses all aspects of training (in or out of the plant) by all organizational units with some responsibility for training and qualification.

Accreditation formally recognizes nuclear utility training as meeting the INPO accreditation objectives and criteria (See Appendix A) for the following training programs:

- o operations area
 - non-licensed operator training
 - reactor operator training
 - senior reactor operator/shift supervisor training

- o maintenance and technical support area
 - shift technical advisor training
 - instrument and control technician training
 - electrical maintenance personnel training
 - mechanical maintenance personnel training
 - chemistry technician training
 - radiological protection technician training
 - technical training for technical staff and managers

In the above listing, reactor operator training and senior reactor operator/shift supervisor training are treated as separate programs. In the earlier version of the document, they were combined as licensed operator training. Requalification training is no longer listed as a separate program but is considered to be the continuing training for the reactor operator and senior reactor operator programs.

Normally, accreditation will be awarded only after the utility has conducted the training program; however, new training programs not yet conducted may be considered. Both initial and continuing training programs are evaluated for accreditation. As the first round of accreditation nears completion, INPO will review additional plant positions for possible future inclusion in accreditation.

The current utility commitment for operating plants or plants that loaded fuel prior to the end of 1984 is to have all programs ready for accreditation by the end of 1986. The goal for plants that load fuel in 1985 or later is to have all programs ready for accreditation within two years of fuel load. If additional training programs are added to the scope of accreditation, utilities will be expected to have these new programs ready for accreditation within two years after they are added. Operations area programs normally will be submitted first, but additional programs from the maintenance and technical

support area may be included in the initial self-evaluation at the discretion of the utility. Normally, at least three programs must be submitted for accreditation at any one time.

The process for accreditation of training consists of the following major activities:

- o self-evaluation conducted by the utility
- o team evaluation
- o decision by the INPO Accrediting Board
- o maintenance of accreditation

Utility Accreditation Self-Evaluation

The utility conducts the self-evaluation process by measuring its training system and programs against the INPO accreditation objectives and criteria, making necessary improvements, and preparing a report that will be used by the accreditation team. Throughout the accreditation process, an INPO accreditation staff member is assigned to assist the utility. The accreditation self-evaluation report is reviewed by INPO personnel, and if additional data are required, they are requested from the utility. If conditions are noted that would affect the accreditation schedule, they are identified to the utility. The self-evaluation phase ends when the formal self-evaluation report is sent to INPO (reporting that the program(s) are ready for accreditation). Normally, receipt of the accreditation self-evaluation report triggers the scheduling of a team visit. Further information concerning the self-evaluation process is found in Appendix B.

INPO Accreditation Team Evaluation

When the self-evaluation phase is completed, an accreditation team is appointed by INPO to visit the training site(s), including the plant site and contractor simulator training site when appropriate. The accreditation team consists of both INPO and utility personnel with collective expertise in nuclear power plant operating, nuclear utility training, instructional processes, and training evaluation. The team will include individuals who are technically competent in the positions corresponding to the training programs being evaluated and others who are expert in training processes. This team spends approximately five days on site. During the visit, members of the team

interview training and other plant personnel who are involved in training; observe training activities; examine facilities, equipment, and training materials; review instructor qualifications and procedures; and examine training program content and training records. The team evaluates how well the training programs meet each accreditation criterion. Its observations and concerns are discussed with plant and training management daily.

The team writes a report for the utility that describes training activities and contains conclusions and recommendations for improvement. If appropriate, a conference is scheduled to present and discuss the report prior to formal transmission of the report by INPO. The utility submits a written response to the report providing clarification or describing corrective actions taken. The response should be forwarded no later than three months after receipt of the team report. The accreditation team report and the utility's response are merged and submitted to the INPO Accrediting Board.

INPO Accrediting Board Decision

The final decision to award or defer accreditation is made by the INPO Accrediting Board. This decision is based on the accreditation team's report, the utility's response, and the INPO staff recommendation. The utility's representatives are present to answer questions and describe the current status of programs to the Accrediting Board prior to the Board's deliberations. When accreditation is awarded, it will normally remain in effect for four years, at which time the accreditation process is repeated. If accreditation is deferred, the affected training program(s) will be considered deferred until the Board can meet to review the program(s) and the additional actions taken by the utility.

The INPO Accrediting Board consists of five members: two persons from INPO member utilities, one person from a non-nuclear industrial training organization, one person from the post-secondary education community, and one person recommended by the Nuclear Regulatory Commission. Alternate members are selected to facilitate the scheduling of meetings.

Maintaining Accreditation

Accreditation is maintained during the accreditation period by the utility submitting a status report to INPO for review by the Accrediting Board at the end of two years. This biennial report describes changes in the accredited training programs since the last accreditation review and discusses the utility's status with respect to possible ongoing actions committed to and in response to the INPO Accrediting Board.

The report should provide specific information with appropriate documentation regarding actions taken during the two-year period. The reports should be brief but should include the following:

- o the status of any open actions related to an earlier accreditation report
- o a description of any major changes in training since the last accreditation review
- o a description of any other activities that have had a bearing on the effectiveness of the accredited training programs
- o a report on organizational changes that may affect the training programs (include an updated training staff roster)
- o a status report on those programs not yet accredited indicating any change to anticipated schedule
- o a description of the principal strengths and weaknesses of training determined through program evaluations
- o an assessment of the benefits and/or disadvantages derived from training modifications made in connection with accreditation, including any discernable impact on licensing examination results
- o recommendations for changes in the accreditation process

APPENDIX A

OBJECTIVES AND CRITERIA FOR ACCREDITATION

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
INTRODUCTION.....	A-3
ORGANIZATION AND MANAGEMENT OF THE TRAINING SYSTEM.....	A-5
DEVELOPMENT AND QUALIFICATION OF STAFF FOR TRAINING DUTIES.....	A-7
SUPPORT OF TRAINING WITH FACILITIES, EQUIPMENT, AND MATERIALS.....	A-9
CONDUCT OF JOB ANALYSIS AND IDENTIFICATION OF TASKS FOR TRAINING.....	A-11
ESTABLISHMENT OF TRAINING PROGRAM CONTENT.....	A-13
DEVELOPMENT OF LEARNING OBJECTIVES AS THE BASIS FOR TRAINING.....	A-15
ORGANIZATION OF INSTRUCTION USING LESSON PLANS AND OTHER TRAINING GUIDES.....	A-17
CONDUCT OF CLASSROOM AND INDIVIDUALIZED INSTRUCTION AND TRAINEE EVALUATION.....	A-19
CONDUCT OF IN-PLANT TRAINING AND TRAINEE EVALUATION.....	A-21
CONDUCT OF SIMULATOR TRAINING AND TRAINEE EVALUATION.....	A-23
CONDUCT OF LABORATORY TRAINING AND TRAINEE EVALUATION.....	A-25
SYSTEMATIC EVALUATION OF TRAINING EFFECTIVENESS	A-27

INTRODUCTION

INPO establishes the accreditation objectives and criteria against which nuclear utility training is evaluated to determine its readiness for accreditation. Training programs are evaluated against the accreditation objectives and criteria by utility personnel during the self-evaluation process, by accreditation team members while performing their on-site evaluations, and by the Accrediting Board during its review. To obtain accreditation, a utility must demonstrate that its training meets the accreditation objectives and criteria.

The accreditation objectives describe the expected end results of an effective, well-managed training program. The criteria are principles or methods that support the accreditation objectives and are to be applied with judgment. The expectation is that all criteria will be met; however, if the objective is met, it is not essential that all criteria be fully met. Also, some objectives and criteria will not be applicable to some programs. This situation would prevail when, for example, a particular instructional method such as laboratory training is not used.

This version of the objectives and criteria is primarily an elaboration and restructuring of those previously published. They reflect, however, the same criteria that were applied in awarding accreditation to all accredited programs to date. Extensive industry input into the development of this revision has been obtained.

ORGANIZATION AND MANAGEMENT OF THE TRAINING SYSTEM

Objective

1. The utility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that fulfills job-related training needs.

Criteria

- 1.1 The actions needed to achieve high quality, job-related, performance-based training programs eligible for accreditation have been identified through a systematic evaluation of existing programs.
- 1.2 Written corporate and plant goals establish the required character and quality of key aspects of the training system. Supporting objectives are implemented at each organizational level.
- 1.3 The responsibilities and authority of personnel involved in managing, supervising, and implementing training are clearly defined in writing and permit effective control of the training process.
- 1.4 A training system is implemented as the primary management tool for developing, conducting, and evaluating training.
- 1.5 Procedures are implemented to ensure that instructional activities can be conducted reliably and consistently.
- 1.6 Training to be completed prior to qualification is clearly defined. Exemptions from training may be granted when justified and supported by a documented assessment of prior training and experience.
- 1.7 Training records are maintained to support management information needs and provide required historical data.

- 1.8 Programs offered under contract remain under the control of the sponsoring utility and are evaluated by it to ensure that the INPO accreditation objectives and criteria are met.
- 1.9 The work load of the training staff indicates that there are sufficient qualified personnel to accomplish assigned duties and responsibilities.

DEVELOPMENT AND QUALIFICATION OF STAFF FOR TRAINING DUTIES

Objective

2. Training staff (utility and contracted, if used) possess the technical knowledge, the experience, and the developmental and instructional skills required to fulfill their assigned duties.

Criteria

- 2.1 Training staff responsible for program management, supervision, and development have and maintain the education, experience, and technical qualifications required for their jobs.
- 2.2 Instructor technical qualifications are appropriate for the subject matter that they are assigned to teach.
- 2.3 Developmental and instructional qualifications of instructors include theory, practical knowledge, and work experience in developing, conducting, and evaluating training, as appropriate to their job assignments.
- 2.4 Methods are implemented to ensure that individual instructors meet and maintain position qualification requirements.
- 2.5 When instructors have not yet attained the required instructional qualifications or only instruct occasionally, training quality is maintained through appropriate additional assistance and supervision.
- 2.6 The instructional skills training program develops the necessary instructor capabilities to fulfill training program requirements.
- 2.7 Instructor performance is evaluated regularly, and the results are used to improve performance.

2.8 Continuing instructor development efforts maintain, improve, and advance required knowledge and skills and are based, in part, on evaluations of instructor performance.

SUPPORT OF TRAINING WITH FACILITIES, EQUIPMENT, AND MATERIALS

Objective

3. The training facilities, equipment, and materials adequately support training activities.

Criteria

- 3.1 Instructional facilities meet training needs.
- 3.2 The training staff has necessary instructional aids and equipment.
- 3.3 Technical reference materials, including current plant procedures and drawings, are readily available to the trainees and instructors.

CONDUCT OF JOB ANALYSIS AND IDENTIFICATION OF TASKS FOR TRAINING

Objective

4. The tasks required for competent job performance are identified, documented, and included in the training programs, as appropriate.

Criteria

- 4.1 Plant personnel, training staff, and other subject matter experts, as appropriate and as needed, have conducted a job analysis to develop a valid plant-specific task list.
- 4.2 Subject matter experts (appropriate plant technical personnel, training staff personnel, or knowledgeable outside personnel) assist in the selection of tasks for training.
- 4.3 Each task selected for training from the plant-specific task list is compared with existing training materials in sufficient depth to determine if existing training adequately supports task performance.
- 4.4 The plant-specific list of tasks selected for training and the comparison to training materials is reviewed periodically and updated, as necessary.

ESTABLISHMENT OF TRAINING PROGRAM CONTENT

Objective

5. Training program content provides the trainee with the knowledge and skills needed to perform functions associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which he is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

- 5.1 INPO training guidelines are used as a guide for selecting, sequencing, and verifying training program structure and content.
- 5.2 Tasks are analyzed, as necessary, to determine the task's supporting skills and knowledge to be included in training programs.
- 5.3 Personnel qualified in the position for which training is being conducted help determine training content and confirm its completeness.
- 5.4 Current plant procedures and other technical and professional references are used to identify training content and plant-specific information for use in developing training materials.
- 5.5 Initial training program content is modified to reflect the results of program review and evaluation by plant and training staff personnel.
- 5.6 The results of trainee and program evaluations are used to help determine the content of continuing training.

DEVELOPMENT OF LEARNING OBJECTIVES
AS THE BASIS FOR TRAINING

Objective

6. Learning objectives that identify training content and define satisfactory trainee performance are derived from job performance requirements.

Criteria

- 6.1 Expected entry-level skill, knowledge and experience are considered when developing learning objectives.
- 6.2 Learning objectives are derived from an analysis of job performance requirements and are the basis for trainee evaluation.
- 6.3 Learning objectives state the action(s) the trainee must demonstrate, the conditions under which the action will take place, and the standards of performance the trainee should achieve upon completion of the training activity.
- 6.4 Learning objectives are grouped by similar training setting (for example, classroom and simulator).
- 6.5 Learning objectives are sequenced based on their relationship to one another and help trainees move from one level of skill and knowledge to another.

ORGANIZATION OF INSTRUCTION USING LESSON PLANS
AND OTHER TRAINING GUIDES

Objective

7. Lesson plans or other training guides provide guidance and structure to ensure the consistent conduct of training activities.

Criteria

- 7.1 Lesson plans for classroom instruction provide for effective, consistent class presentations.
- 7.2 Lesson plans or equivalent training guides are used for laboratory training, on-the-job training (OJT), and simulator training and include criteria for evaluating proper trainee performance.
- 7.3 Lesson plans and other training materials are developed or modified using learning objectives derived from job performance requirements.

CONDUCT OF CLASSROOM AND INDIVIDUALIZED INSTRUCTION
AND TRAINEE EVALUATION

Objective

8. Classroom and individualized instruction is effectively presented, and trainee performance is routinely and consistently evaluated.

Criteria

- 8.1 Training is implemented as outlined by approved training materials and is well-organized and current.
- 8.2 Training activities encourage direct trainee participation in the learning process.
- 8.3 Instructors prepare adequately to ensure effective and consistent delivery.
- 8.4 The instructor uses instructional techniques appropriate to the lesson content and learning objectives.
- 8.5 When individualized instruction is used, either the training materials contain the information to be learned or referenced texts are readily available.
- 8.6 Trainee mastery of learning objectives is evaluated regularly using written and/or oral examinations and quizzes.
- 8.7 Written and oral examinations and quizzes are administered and graded in a consistent manner.
- 8.8 Acceptance criteria to be used during the administration of oral examinations are defined in advance of the examination.

- 8.9 Contracted training is evaluated to ensure that trainees are achieving the specified learning objectives as measured by appropriate written and oral examinations and quizzes.

CONDUCT OF IN-PLANT TRAINING AND TRAINEE EVALUATION

Objective

9. In-plant training or on-the-job training (OJT) is effectively presented, and trainee performance is evaluated consistently.

Criteria

- 9.1 In-plant training is delivered using well-organized and current training materials.
- 9.2 Designated personnel who are instructed in program standards and methods conduct in-plant training.
- 9.3 When the actual task cannot be performed but is simulated or walked-through, the conditions of task performance, references, tools, and equipment reflect the actual task to the extent possible.
- 9.4 Performance evaluations use established criteria.
- 9.5 Acceptance criteria to be used during the administration of oral examinations are defined in advance of the examination.

CONDUCT OF SIMULATOR TRAINING AND TRAINEE EVALUATION

Objective

10. Simulator training is effectively presented, and trainee performance is evaluated consistently.

Criteria

- 10.1 An appropriate simulator is used for hands-on training, to demonstrate operational characteristics, and for recognition and control of normal, abnormal, and emergency plant conditions. Differences between the simulator and the plant are accommodated in the training sessions.
- 10.2 The training program content is implemented as outlined by approved training materials and is well-organized and current. Requests for contracted training should specify the required objectives and content.
- 10.3 Instructors prepare adequately for simulator sessions to ensure effective and consistent training. Requests for contracted training should require vendor instructors to be familiar with differences between the referenced plant and trainees' home plant.
- 10.4 The instructor uses instructional techniques appropriate to the situation.
- 10.5 Individual trainee and team performance are evaluated regularly against established learning objectives using appropriate evaluation methods and performance criteria.
- 10.6 Contracted training is evaluated to ensure that trainees are achieving the specified learning objectives, as measured by appropriate evaluation methods and performance criteria.

CONDUCT OF LABORATORY TRAINING AND TRAINEE EVALUATION

Objective

11. Laboratory training is effectively presented, and trainee performance is evaluated consistently.

Criteria

- 11.1 The training program content is implemented as outlined by approved training materials and is well-organized, current, and structured to provide practical experience.
- 11.2 Conditions of task performance, references, tools, and equipment reflect the actual job to the extent possible.
- 11.3 Training activities encourage direct trainee participation in the learning process.
- 11.4 Instructors prepare adequately to ensure effective and consistent delivery of the material.
- 11.5 The instructor uses instructional techniques appropriate to the situation.
- 11.6 Trainee performance is evaluated regularly against established learning objectives using appropriate evaluation methods and performance criteria.
- 11.7 Contracted training is evaluated to ensure that trainees are achieving the specified learning objectives, as measured by appropriate evaluation methods and performance criteria.

SYSTEMATIC EVALUATION OF TRAINING EFFECTIVENESS

Objective

12. A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledges.

Criteria

- 12.1 Program evaluations are conducted on a regular basis by qualified individuals.
- 12.2 Training delivery is monitored and evaluated with regard to instruction, materials, and instructor performance.
- 12.3 Feedback from trainee performance during training is used to evaluate and refine the training program.
- 12.4 Feedback from trainee performance, after the trainee has assumed the duties for which he was trained, is used to evaluate and refine the training program.
- 12.5 Change actions (e.g., procedure changes, industry events, equipment changes) are monitored and evaluated for their applicability to the development or modification of training programs and are incorporated in a timely manner.
- 12.6 Improvements and changes to training are initiated and tracked to correct training deficiencies and performance problems.
- 12.7 Contracted training is evaluated for its contribution to meeting job performance requirements and to ensure that its quality is consistent with utility training standards.

APPENDIX B

ACCREDITATION SELF-EVALUATION PROCESS

AND REPORT GUIDELINE

ACCREDITATION SELF-EVALUATION PROCESS AND REPORT GUIDELINE

The accreditation self-evaluation process is used by a utility to measure its training against INPO accreditation objectives and criteria.

The purposes of the self-evaluation are as follows:

- o to permit the utility to evaluate its training against accreditation standards and identify and carry out needed action to correct any weaknesses
- o to provide a framework for action plans and resource requirement estimates
- o to serve as a basis for an accreditation self-evaluation report that is used in conjunction with accreditation team visits

Conducting The Accreditation Self-Evaluation

Conducting the self-evaluation is a team effort requiring proper planning and preparation. Before beginning the self-evaluation, all participants in the training process should be informed of the INPO accreditation process and briefed on their roles in the self-evaluation. INPO conducts workshops on self-evaluation and provides assistance in initiating the process.

It is important at this stage that a utility and its plant(s) commit to a thorough and very critical self-evaluation. When conducting the self-evaluation, current training programs and activities should be compared to the INPO accreditation objectives and criteria using Appendix A. Training conducted by the utility (on-site and off-site), as well as that conducted by contractors, should be reviewed. The in-plant training conducted by functional units is usually a major part of a training program and should be reviewed as thoroughly as the training unit's activities. While conducting the self-evaluation, the strengths and weaknesses of the utility's training should be identified and documented for internal planning purposes. Solutions and action plans should be developed for the problems that are identified.

Some problems may be significant enough to preclude the effective accomplishment of job performance-based training. These should be corrected prior to forwarding a formal accreditation self-evaluation report to INPO. In some cases, an identified problem may mean that an objective or essential criterion is not fully met and improvement is needed. This improvement action should be identified under the appropriate criterion in the accreditation self-evaluation report. Questions about the category in which a problem falls should be addressed to the INPO accreditation staff. Once INPO receives the formal accreditation self-evaluation report, a team visit may be scheduled within a few weeks.

Preparing The Accreditation Self-Evaluation Report

The recommended format for the accreditation self-evaluation report has been revised from the previous document to match the accreditation objectives and criteria. The accreditation self-evaluation report, using the new format, should address each program separately and completely. Each program report should be bound separately. In preparing the accreditation self-evaluation report for each program, the utility should address each pertinent objective and each supporting criterion with statements and with documentation, where appropriate.

Two copies of each accreditation self-evaluation report are to be sent by the utility to INPO addressed to the Vice President and Director, Training and Education Division.

Self-Evaluation Report Format

The following guidance is offered for preparation of the accreditation self-evaluation report:

- o Complete a cover page for each program report using the suggested cover page format on Page B-5 as a guide.
- o The cover page should be followed by a table of contents.

- o The body of the report should begin with an "Introduction" that addresses the following points, as appropriate:
 - Briefly describe the training program covered by this report. Use a time-line, bar chart, or curriculum sequence to describe the program phases and time spent in each phase.
 - Describe the organizational elements responsible for various training phases and for qualification.
 - If applicable, describe any special or unique arrangements or circumstances that are not covered elsewhere in this report.
- o Following the "Introduction," the organization of the report should follow the numbering system of the objectives and criteria. A narrative response should be written for each criterion in sufficient detail to permit the reader to understand how each criterion is met. The narrative should be supplemented with references to appended materials, as appropriate. A general report format and key points to consider when responding to the first objective, "Organization and Management of the Training System" and each supporting criterion, are presented on pages B-7 through B-9 as examples. These examples should be used as guides for report formatting and for estimating the depth to which responses should go for this and for other objectives.
- o When one section of the accreditation self-evaluation report is equally applicable to more than one program, it should be written once, titled to show all programs to which it applies, and pages should be numbered and reproduced for all of the reports. Page numbers should consist of the single letter designation for the program (listed below), the objective number, and the page number within that objective (e.g., N-1-1). When a page or a section of a report is applicable to more than one program, the page number should begin with the letter designation for each program (e.g., NRS-1-1). Single letter designations for the various programs are as follows:
 - A - shift technical advisor training
 - C - chemistry technician training

- E - electrical maintenance personnel training
- H - radiological protection technician training
- I - instrument and control technician training
- M - mechanical maintenance personnel training
- N - non-licensed operator training
- R - reactor operator training
- S - senior reactor operator/shift supervisor training
- T - technical training for technical staff and managers

- o Using the directions and "Roster of Training Staff" found on pages B-10 through B-11, complete a roster for all training staff that directly support the training program covered by this report.

(SUGGESTED COVER PAGE)

ACCREDITATION SELF-EVALUATION REPORT

(Program)

Utility: _____

Plant: _____

Location: _____

Person at utility to be contacted if questions arise concerning this
questionnaire:

Name and title: _____

Address: _____

Telephone: () _____

Date of report: _____

(EXAMPLE)

ORGANIZATION AND MANAGEMENT OF THE TRAINING SYSTEM

Objective

1. The utility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that fulfills job-related training needs.

Criteria

- 1.1 The actions needed to achieve high quality, job-related, performance-based training programs eligible for accreditation have been identified through a systematic evaluation of existing programs.

Suggested Response

Provide a brief description of the evaluation process used to determine systematically the status of existing training programs when compared to the INPO accreditation objectives and criteria.

Criteria

- 1.2 Written corporate and plant goals establish the required character and quality of key aspects of the training system. Supporting objectives are implemented at each organizational level.

Suggested Response

Attach a copy of current corporate and plant goals and supporting objectives that pertain to training. Describe how the goals and objectives are implemented and how accomplishment is measured.

Criteria

- 1.3 The responsibilities and authority of personnel involved in managing, supervising, and implementing training are clearly defined in writing and permit effective control of the training process.

Suggested Response

Attach a copy of organization charts that show how the training organization(s) fit(s) into the utility's organizational structure and a copy of position descriptions/guides and/or other documents that describe the responsibilities and authority of all site personnel involved in managing, supervising, and implementing training. If necessary, provide a narrative to amplify the attachments.

Criteria

- 1.4 A training system is implemented as the primary management tool for developing, conducting, and evaluating training.

Suggested Response

Provide a description of the training system model that is implemented as the primary management tool for developing, conducting, and evaluating all training functions.

Criteria

- 1.5 Procedures are implemented to ensure that instructional activities can be conducted reliably and consistently.

Suggested Response

Attach a copy of current training procedures pertinent to this report. If necessary, provide a narrative to amplify the attachments.

Criteria

- 1.6 Training to be completed prior to qualification is clearly defined. Exemptions from training may be granted when justified and supported by a documented assessment of prior training and experience.

Suggested Response

Provide a brief description of the training that is to be completed prior to qualification for the position for which the trainee is being prepared, as well as a description of the criteria and procedures used to grant exemptions from training.

Criteria

- 1.7 Training records are maintained to support management information needs and provide required historical data.

Suggested Response

Attach a sample training program and trainee record. If necessary, provide a narrative to amplify the attachments.

Criteria

- 1.8 Programs offered under contract remain under the control of the sponsoring utility and are evaluated by it to ensure that the INPO accreditation objectives and criteria are met.

Suggested Response

Provide a brief description of the methods/procedures for approving, monitoring, and controlling contracted training. Attach forms, reports, and responses that illustrate control and monitoring of contracted training.

Criteria

- 1.9 The work load of the training staff indicates that there are sufficient qualified personnel to accomplish assigned duties and responsibilities.

Suggested Response

Provide a brief description of the method or procedure used to determine training staff size and to establish work load standards. Identify any authorized positions that are vacant.

ROSTER OF TRAINING STAFF

Directions: Complete the attached roster for all training personnel. Each utility training site should have a separate roster. In completing the roster, refer to the following:

- o Name and position title - Use titles descriptive of the individual's primary function (example, "instrument technician instructor" rather than "training specialist").
- o Program subjects - List the training programs or portions of programs that the individual is qualified to teach.
- o Hours per week conducting training - Report the approximate average number of hours per week over the past 12 months during which the individual presented instruction or worked directly with trainees.
- o Years of education and fields of study - Report the number of years of formal education (i.e., high school, technical school, and college). For any part-time college study, report equivalent academic years. Report the areas of specialization for any post-secondary education.
- o Related technical training - Report formal training programs completed.
- o Instructional skills training - Report formal training programs completed.
- o Years of instructional experience - Report work experience as an instructor.
- o Years of work experience related to training areas - Report work experience in a technical field closely related to the area(s) in which the individual provides training, not including time as a trainer, and date of most recent industry experience.
- o Other qualifications - Report other technical qualifications related to the area(s) in which the individual provides training. Include NRC licenses and utility certifications.

ROSTER OF TRAINING STAFF

Name and position title (indicate if part-time)	Programs/subjects in which qualified to provide training	Average hours/week conducting training	Years of education/ fields of study
Related technical training	Instructional skills training	Years of work experience related to training areas	Other qualifi- cations

APPENDIX C

DEFINITIONS

DEFINITIONS

The definitions given below are for the purpose of this document.

Accreditation - A process to recognize formally and approve nuclear utility training as meeting established criteria.

Accreditation Team - A group of individuals representing INPO with collective expertise in nuclear power plant operations, nuclear utility training, instructional processes, and training evaluation. This team reviews the utility's self-evaluation report, visits training sites, evaluates training, and prepares a report of its conclusions and recommendations.

Accreditation Self-Evaluation - An evaluation of utility training programs measured against the accreditation criteria, conducted by the utility, and described in a written report.

Accrediting Board - A group of individuals collectively having expertise in nuclear power plant operations, nuclear and non-nuclear industrial training, instructional processes, and educational accreditation. This board is responsible for making the decision to award or defer accreditation.

Individualized Instruction - A method of instruction in which the pace of training is controlled by the trainee and guided by the program materials.

Job Analysis - A method used in obtaining a detailed listing of the duties and tasks of a specific job.

Learning Objective - A statement that specifies measurable behavior that a trainee should exhibit after instruction, including the conditions and standards for performance.

Lesson Plan - An instructor's primary training document that outlines instructor and trainee activities, the learning objectives, and the resources necessary for the conduct of training.

On-the-Job Training (OJT) or In-Plant Training - A training setting in which trainees achieve learning objectives through structured training conducted in the job environment.

Performance-Based Instruction - A systematic program of instruction designed around tasks and the related knowledge and skills required for competent job performance.

Qualifications - The combination of an individual's physical attributes and technical, academic, and supervisory knowledge and skills developed through training, education, and demonstrated on-the-job performance.

Task - A well-defined unit of work having an identifiable beginning and end and two or more elements.

Task Analysis - The systematic process of examining a task to identify required skills or knowledge.

Training - Instruction designed to develop or improve on-the-job performance of a trainee or worker.

Training Organization - A utility organizational unit that provides technical training and/or is responsible for ensuring the quality of the training.

Training Program - A planned, organized sequence of activities designed to prepare individuals to perform their jobs and meet a specific position or classification need.

Training Setting - The environment in which training is conducted and learning occurs. Training settings include classroom, laboratory and workshop, formal on-the-job training, simulator, and individualized instruction.

Training Site - The location at which training programs are conducted for nuclear utility personnel.

Training System - A set of interrelated activities used to methodically establish and maintain performance-based training (for example, Training System Development, Instructional System Development, and Systematic Approach to Training).

INPO is partially supported by assistance from the Tennessee Valley Authority (TVA), a Federal agency. Under Title VI of the Civil Rights Act of 1964 and applicable TVA regulations, no person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under this program. If you feel you have been excluded from participation in, denied the benefits of, or otherwise subjected to discrimination under this program on the grounds of race, color, or national origin, you or your representative, have the right to file a written complaint with TVA not later than 90 days from the day of the alleged discrimination. The complaint should be sent to Tennessee Valley Authority, Office of Equal Employment Opportunity, 400 Commerce Avenue, EPB 14, Knoxville, Tennessee 37902. The applicable TVA regulations appear in Part 1302 of Title 18 of the Code of Federal Regulations. A copy of the regulations may be obtained on request by writing TVA at the address given above.

Printed in U.S.A.



Institute of
Nuclear Power
Operations

1100 Circle 75 Parkway
Suite 1500
Atlanta, Georgia 30339
Telephone 404 953-3600

The Accreditation of Training in the
Nuclear Power Industry

INPO 85-002

12/82

TRANSMITTAL TO: ☒

Document Control Desk, 016 Phillips

ADVANCED COPY TO: ☐

The Public Document Room

DATE: 6/17/85

cc: OPS File

FROM:

SECY OPS BRANCH

C&R (Natalie)

Attached are copies of a Commission meeting transcript(s) and related meeting document(s). They are being forwarded for entry on the Daily Accession List and placement in the Public Document Room. No other distribution is requested or required. Existing DCS identification numbers are listed on the individual documents wherever known.

Meeting Title: Briefing by Representatives of Inps
Accrediting Board

Meeting Date: 6/10/85 Open ☒ Closed ☐

DCS Copies
 (1 of each checked)

Item Description:

Copies
Advanced
To PDROriginal
DocumentMay
be Dup*Duplicate
Copy*

1. TRANSCRIPT
 When checked, DCS should send a
 copy of this transcript to the
 LPDR for: W/ scheduling notes

2. see attached list

3. _____

4. _____

(PDR is advanced one copy of each document,
 two of each SECY paper.)

*Verify if in DCS, and
 Change to "PDR Available."

6/10/85 - Briefing by Representatives of INPO Accrediting Board

Attachments:

1. Accrediting Board Membership
2. Executive Summary, January, 1985
3. Status of Training Accreditation, May 1985
4. INPO Accreditation Objectives
5. Training: A National Accomplishment
6. The Accreditation of Training in the Nuclear Power Industry