

ORIGINAL

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: U.S. Nuclear Regulatory Commission
Incident Investigation Team

Title: Interview of Jack Roe
(Closed)

Docket No.

LOCATION: Bethesda, Maryland

DATE: Monday, September 9, 1991

PAGES: 1 - 35

ANN RILEY & ASSOCIATES, LTD.

1612 K St. N.W., Suite 300

Washington, D.C. 20006

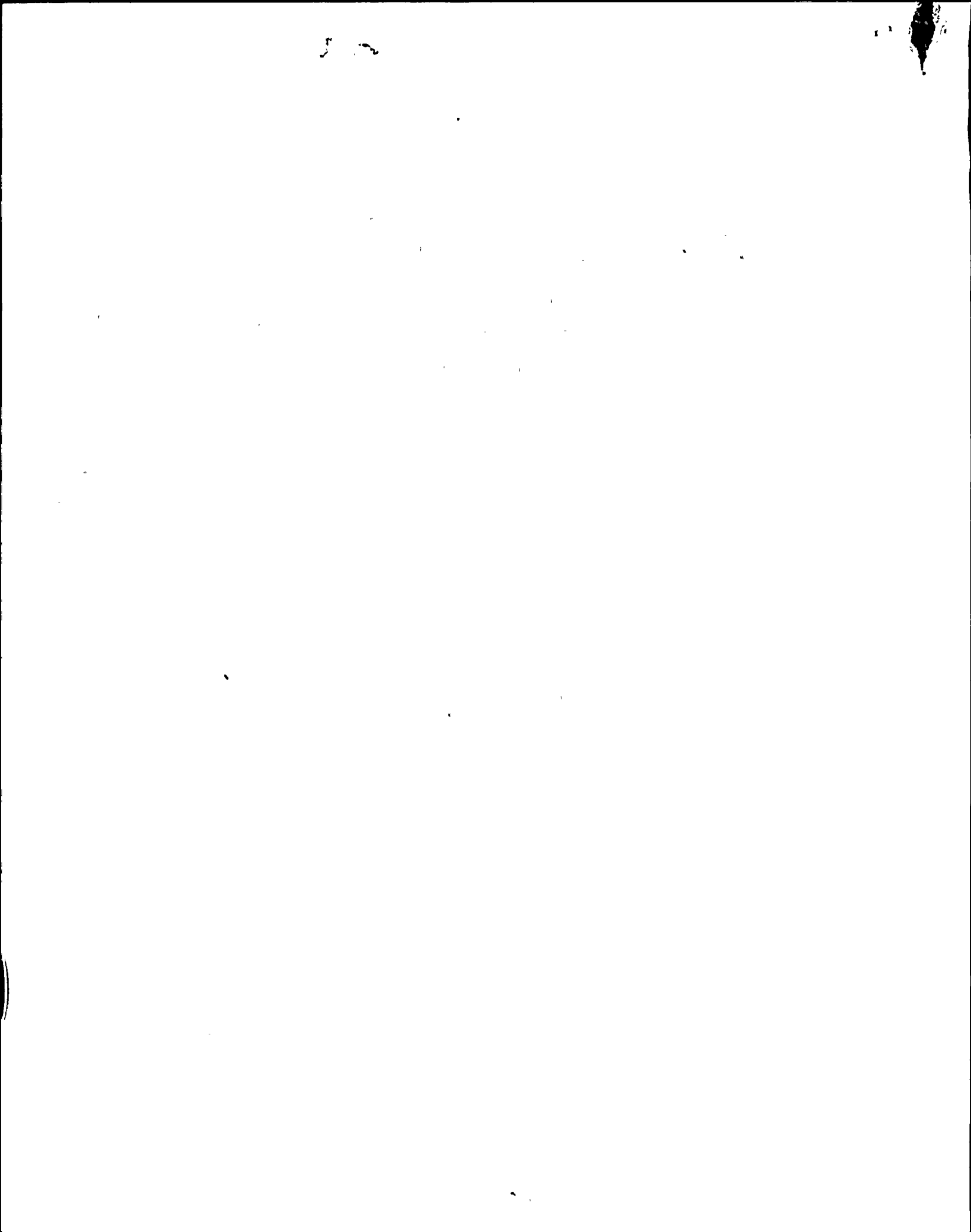
(202) 293-3950



ADDENDUM

<u>Page</u>	<u>Line</u>	<u>Correction and Reason for Correction</u>
10	8	change "licensed" to "operator license"
26	18	change "plan" to "plant"
31	25	change "approved" to "improved"
33	18	change "site" to "side"

Date 10-2-91 Signature J. W. Fee



UNITED STATES NUCLEAR REGULATORY COMMISSION

INCIDENT INVESTIGATION TEAM

-----X

INTERVIEW OF: :

JACK ROE :

(CLOSED) :

-----X

Nuclear Regulatory Commission
 Conference Room 100
 The Woodmont Building
 8120 Woodmont Avenue
 Bethesda, Maryland

Monday, September 9, 1991

The above-entitled interview convened in closed
 session at 4:04 o'clock, p.m.

1 2



1 PARTICIPANTS:

2

3 JOSE IBARRA, IIT Team Leader

4 BILL VATTER, IIT Team Leader

5 JACK ROE, Interviewee

6 LYNN ESTEP, Court Reporter

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25



P R O C E E D I N G S

[4:04 p.m.]

1
2
3 MR. ROE: My name is Jack Roe. I'm the Director
4 of the Division of Licensee Performance and Quality
5 Evaluation in NRR.

6 In my Division, there are three Branches: the
7 Operator Licensing Branch, the Human Factors Assessment
8 Branch, and the Performance Evaluation Branch.

9 MR. IBARRA: Good afternoon. This is Jose Ibarra,
10 and we are interviewing Jack Roe on the event that occurred
11 on August the 13th. We're at the Woodmont Building, and
12 it's about 4:00 o'clock.

13 With me, I have Bill Vatter. Bill?

14 MR. VATTER: Bill Vatter from INPO.

15 MR. IBARRA: Okay, Jack, you said you do have QA,
16 Human Factors, and Operating Licensing; is that what you
17 said?

18 MR. ROE: Operator Licensing, yes.

19 MR. IBARRA: Okay. What involvement did your
20 staff have on the event that occurred at Nine Mile Unit-2?

21 MR. ROE: My recollection is that they basically
22 conferred with our Regional Office. The event at that
23 particular time, as I recall, the Deputy Director of my
24 Division may have been the Emergency Officer, and I do not
25 believe that I was in the office on that particular day. I



1 haven't gone back to look at my calendar to see what it was.
2 But I did discuss the matter with him, and the Staff
3 discussed the general sequence of events.

4 MR. IBARRA: Okay. What can you tell me about
5 Generic Letter 83-28 -- this is the Salem ATWS action -- in
6 respect to what it means to say important to safety, safety-
7 related, non-safety-related? Can you give us some insight
8 as to the particular --

9 MR. ROE: I think for several years, there has
10 been a controversy between the NRC and the regulated
11 utilities about different classifications of equipment.
12 From the perspective of the utilities, many of the phrases
13 used in the regulations from our view have been
14 interchangeable.

15 There are some subsets of them that I think in the
16 Staff's views over time have gotten to be well-known.
17 Safety-related, obviously, is a particular set, and it comes
18 with, if I could use the term "pedigree", of certain
19 requirements.

20 Then a larger set of equipment, structures, and
21 components are ones that are important to safety. Over
22 time, that term has not been very, very well-defined. Many
23 of us think we understand it, and it's always been in
24 controversy with the utilities. They will say that we do
25 not have any regulatory authority over important-to-safety,



x



1 but we do have particular authority over safety-related.

2 In my mind, it has to do with the comparison
3 between the primary plant and with the balance of the plant.
4 I think in my mind also, that controversy has been settled
5 fairly clearly by the Commission in that the maintenance
6 rule that they published as a final rule and which will be
7 implemented in a five-year period makes it clear that the
8 NRC has regulatory authority in the balance-of-plant.

9 So I think that we've come to pretty much of a
10 conclusion on that particular issue. Now I think that if we
11 need to, we should sort out the specifics.

12 I do recall that Staff worked on a Commission
13 paper on the issue of safety-related and important-to-
14 safety, and as I recall, it was not approved by the
15 Commission.

16 MR. IBARRA: Okay. This is that SECY paper 86-
17 164?

18 MR. ROE: Right.

19 MR. IBARRA: Which tries to define safety --

20 MR. ROE: Tries to define, yes.

21 MR. IBARRA: Okay. But your involvement with the
22 Generic Letter 83-28, what was it?

23 MR. ROE: Not very much.

24 MR. IBARRA: Not much, okay.

25 MR. ROE: I was not a drafter, and as I recall, it



1 came out of the Office of Inspection and Enforcement that
2 was a part of our organization at that time.

3 MR. IBARRA: Okay. Can you describe to me what
4 your Branches would do in the development of the EOPs,
5 basically boiling water reactors?

6 MR. ROE: For boiling water reactors? Really the
7 responsibility for my particular group is that the EOPs
8 themselves, first of all, would be developed using technical
9 guidance that had been developed by the vendor, had been
10 reviewed and approved by the NRC, primarily by the Reactor
11 Safety Branch, and that those particular -- those particular
12 procedures would be utilized to develop site-specific
13 procedures.

14 We would have in, oh, in the early '80s have
15 looked at the process to do that. The EOPs, the Writer's
16 Guide, how the deviations were documented, how the
17 verification and validation was carried out -- process. Not
18 the results of the process, but the process itself.

19 After a period of time, we realized that our
20 review of process was not sufficient; therefore, I think in
21 the past three years, we've carried out an inspection
22 program, and the objectives of the inspection program were
23 to, one, see if the EOPs could be carried out by a crew.
24 They actually checked them in the simulator.

25 The second thing was to see if the EOPs could



1 actually be conducted in the field. Was the equipment
2 available? Were the jumpers there? Were the valves
3 actually that were supposed to be manipulated, were they in
4 the plant?

5 And the third objective was to take a look and see
6 how the EOPs were with respect to human factors
7 considerations. Could they easily be used? Were there an
8 assistance to the operator, or were they a liability for the
9 operators?

10 MR. IBARRA: The technical aspect is taken care of
11 Ashok Thadani?

12 MR. ROE: Ashok Thadani's Division and the Reactor
13 Safety Branch.

14 MR. IBARRA: How does that interface when you do
15 do that review?

16 MR. ROE: We will take as a given their technical
17 review and say that those particular EPGs have been approved
18 by -- or approved with open items. And then our review
19 sometimes will take a look and see if the technical
20 deviations have been satisfactorily documented.

21 If we need some technical assistance, then we'll
22 go back to the Reactor Safety Branch.

23 MR. VATTER: With regard to human factors and
24 emergency procedure, how do you look at that as far as
25 usability and the procedure and whether they operate or that



1 they're able to do the things, or able to apply the
2 procedure to the situation?

3 MR. ROE: Normally it is done in two ways, a desk
4 type review, take a look at the procedures themselves and
5 see what the ease of actually stepping through the
6 procedures and then during our inspections we'll ask them to
7 carry it out to see, in a simulator or environment to see
8 what the ease or the difficulty of using actual procedures
9 that they have in the plant.

10 MR. VATTER: How do you go about selecting what
11 scenario you want to challenge them with in the simulator?

12 MR. ROE: I couldn't give you the answer to that.
13 The staff picks ones that they think are appropriate.

14 MR. VATTER: They are going to exercise areas of
15 the procedure that they might have had questions with?

16 MR. ROE: Yeah. They may be, but as I said, I am
17 not sure which ones -- which scenarios they select.

18 MR. VATTER: But it's your guys that figure it
19 out?

20 MR. ROE: Yes. My guys being a term that would
21 indicate that it is -- at one time it was a headquarters led
22 inspection of a multi-disciplinary team which has now
23 evolved to a regional based inspection where we'll provide
24 them support, either directly with an NRC employee or
25 indirectly with an employee of one of our principle



1 contractors that we have full confidence in.

2 MR. IBARRA: Is that program now in the core
3 inspection or how is that done?

4 MR. ROE: No.

5 MR. IBARRA: Is that still a special --

6 MR. ROE: It's still a special one and it's not
7 completed.

8 MR. IBARRA: Would you happen to know the number
9 to that inspection module?

10 MR. ROE: No.

11 MR. IBARRA: Okay. When it comes to
12 instrumentation and -- let's say, special instrumentation,
13 Reg Guide 1.97, post action monitoring, how is your group
14 assured that that was integrated into the EOP?

15 MR. ROE: I think -- that may not be done overtly,
16 to the best of my knowledge, is that we do have the specific
17 Reg Guide 1.97 inspection program. And that should look at
18 the integration of that, but to my knowledge, I don't know
19 if we do that overtly. I know that occasionally we do have
20 issues about it, so it may be something that we cover if we
21 find something that's obvious, but I don't recall our
22 inspection procedure, I don't think we specifically looked
23 at that.

24 MR. IBARRA: In the inspection team, is there an
25 I&C individual?



1 MR. ROE: Frequently there will be, I don't know
2 if there is always one.

3 MR. IBARRA: How about an electrical?

4 MR. ROE: Not necessarily. It depends upon the
5 mixture.

6 MR. IBARRA: And a reactor system?

7 MR. ROE: Reactor systems, and someone with a good
8 operations background, normally, like a licensed examiner.
9 So that examiner may have a very strong background in
10 instrumentation control or electrical, but principally
11 select from the team because of their operational experience
12 and expertise.

13 MR. IBARRA: Okay. In respect to what parameters
14 are being looked at in the EOP's, -- let's see how to phrase
15 that. Well, I'll get back to that.

16 MR. VATTER: When you look at the usability of the
17 EOP's in the simulator, do you also consider what the
18 operator would do in cases where he might not have the
19 instrumentation that's necessary to complete a step?

20 MR. ROE: I think they've looked at that at some
21 level, to what depths, I am not sure.

22 MR. VATTER: As you may be aware, one of the
23 problems in this event was that the operators didn't have
24 rod position indication?

25 MR. ROE: Right.



1 MR. VATTER: And there isn't really specific
2 guidance in the emergency procedure on what they should do
3 in that case. So they took action that in hindsight we
4 think was the best they could have done -- is to assume that
5 the rods were in an undesirable configuration until they
6 were able to prove otherwise?

7 MR. ROE: Um hm.

8 MR. VATTER: But there might have been other
9 things that they could have done to determine that the rod
10 configuration was acceptable, but there wasn't any guidance
11 there.

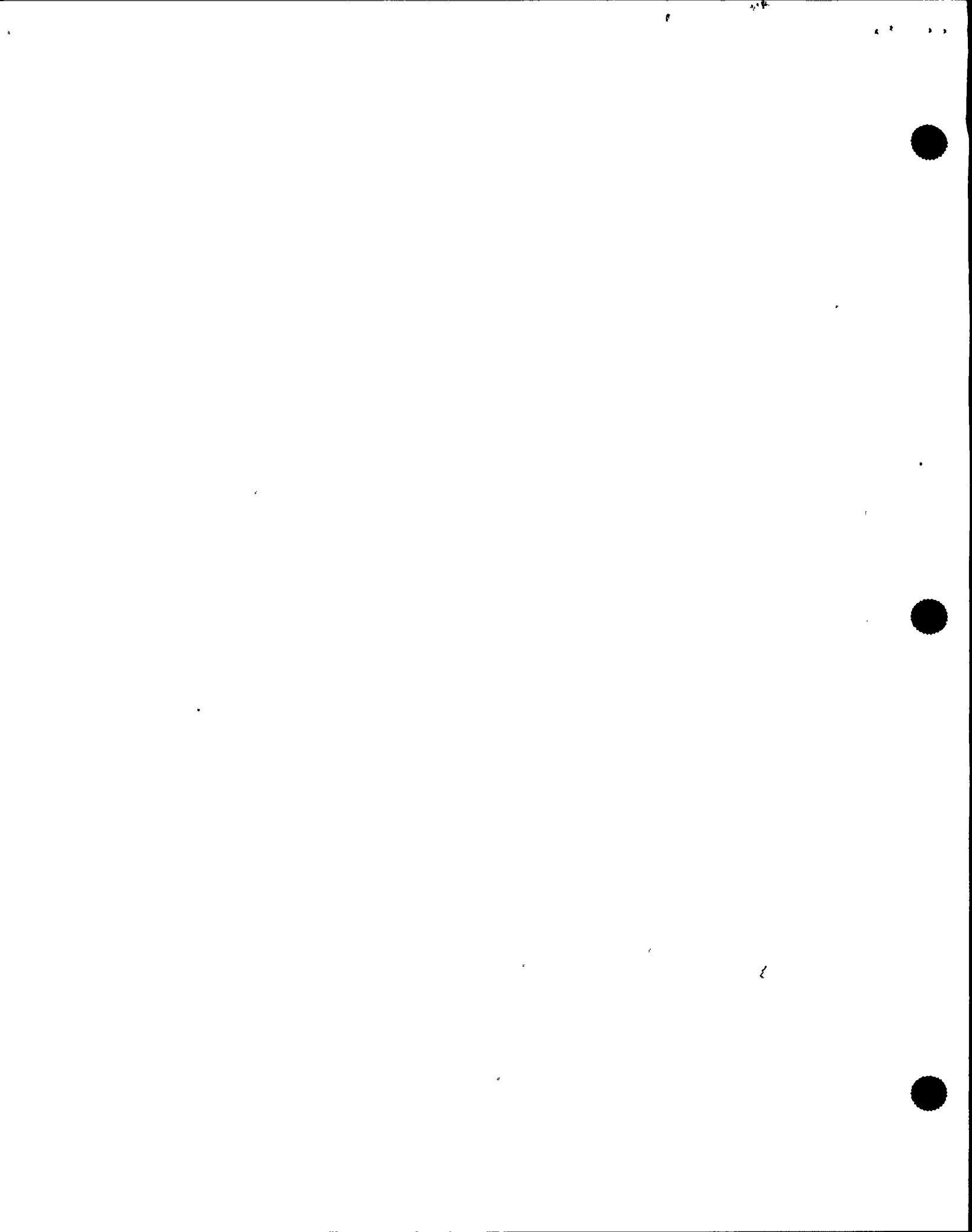
12 MR. ROE: Um hm.

13 MR. VATTER: And I'm curious whether that is an
14 area that human factors look at the procedure would have
15 addressed or not? Is that within the scope?

16 MR. ROE: It could be within the scope, but I
17 think we're well aware that there are situations that occur
18 that aren't going to be covered with procedures everytime.
19 So they may not have had a very significant look at that
20 particular thing to see if there were things that should be
21 covered at maybe very low probabilities.

22 I know that they do look for completeness with a
23 certain set of the EOP's to be sure that certain things are
24 covered.

25 MR. IBARRA: Like what? A certain set of



1 instruments?

2 MR. ROE: Certain set of -- I guess you would call
3 them scenarios or symptoms since most of them are symptoms,
4 to be sure that the symptoms are properly covered.

5 MR. IBARRA: Does the NRC have a set amount of
6 instrumentation that is required?

7 MR. ROE: A set amount?

8 MR. IBARRA: A set amount.

9 MR. ROE: I guess the answer would be yes; you
10 would have to look at the standard review plan to determine
11 plants that would be licensed in this particular stage. But
12 the amount of instrumentation in the plant has evolved over
13 time. So the set that might be required now, it may be a
14 different set that's in a plant that was licensed earlier in
15 the process.

16 MR. IBARRA: In the inspections that you do do, do
17 you take into account loss of annunciators -- loss of
18 annunciators?

19 MR. ROE: Not that I'm aware of.

20 MR. IBARRA: Loss of UPS's?

21 MR. ROE: It may be covered -- what you're doing
22 is providing scenarios and the inspections that we look at -
23 - since the procedures are symptom based, if that particular
24 procedure has been written to cover that sort of a
25 situation, yes, we would look at it, but we don't go in to



1 see specific scenarios. We would look and see if the
2 procedures were developed. For example, it may be that the
3 procedures envisions a loss of an uninterruptable power
4 supply or loss of annunciators; it could be covered, but we
5 don't take a check list approach to see if those particular
6 scenarios were covered. It's a start from emergency
7 procedures guidelines as then the site-specific program to
8 put those into the site-specific EOP's.

9 MR. IBARRA: Who actually leads the inspections?
10 I understand you said this has been turned over, but
11 initially who was leading that? Was Brian's group -- how
12 was that interfaced with you?

13 MR. ROE: Yeah. Initially, it was our human
14 factors branch, primarily it was developed by Dr. Jay
15 Persensky and then we exported it to the regions. We held
16 some training and there was a policy decision -- not made
17 for this particular inspection, but generally inspections
18 that if they were to be carried out from headquarters, they
19 would be carried out from the special inspection branch and
20 Brian Grimes, division of reactor inspection and safeguards.

21 They did carry out a group of them, I think there
22 might have been a couple and they assisted in others. But
23 primarily we wanted them to be conducted as a regional team
24 inspection.

25 MR. IBARRA: Would one of your inspectors go along



1 with Brian Grimes.

2 MR. ROE: Yes, generally.

3 MR. IBARRA: Okay. When the EOPs were revised,
4 let's say Rev 3 or Rev 4 of the boiling water reactors,
5 could you explain to me the process that goes about in every
6 revision? What is the extent of the review?

7 MR. ROE: That particular review is more of a
8 technical review, and that's carried out in another
9 division. So, we wouldn't be involved in that review. We
10 would be interested in the implementation of those
11 revisions, to be sure that they made a positive contribution
12 to safety, versus a negative contribution to safety. I know
13 that we did have an issue with a TVA.

14 I believe it was with Browns Ferry, that they
15 wanted to accelerate the implementation of the EOPs, and we
16 felt it was best that they not accelerate it; they get
17 trained well during their start up on this particular
18 version, and then when they had an opportunity to fully
19 train, fully integrate it into the plant operations, then to
20 go to the next revision. But, generally, ours is focused on
21 that aspect, not on what the technical changes are. That is
22 done by technical experts in reactor safety.

23 MR. IBARRA: When there are bulletins that come
24 out like 79-27, that looked at the losing of busses and the
25 instrumentation upon it and their impact upon shutdown



1 cooling --

2 MR. ROE: Uh-huh?

3 MR. IBARRA: -- what kind of involvement would you
4 all have, as far as looking back at the EOP and seeing if it
5 has an impact? Can you explain to me a little bit about
6 what process would go by there, making sure that the EOPs
7 are still good?

8 MR. ROE: From my division's perspective, no,
9 because we would be looking at more of the process to be
10 sure that the utilities captured the current information and
11 reflect it in their EOPs. We would be interested that they
12 had a process in effect that would bring revisions to bear
13 and would validate and verify them. And, as a matter of
14 fact, in our inspection process, we've had a specific
15 concern that many utilities looked at this, they developed
16 their EOPs, they seemed to leave them stagnant. There
17 wasn't a process that was robust to assure that changes that
18 occurred were reflected in EOPs and that those changes were
19 verified, validated and implemented in the plant. I know
20 many of the inspection reports I wrote -- pardon me -- that
21 I read, that my staff wrote, had that kind of a finding in
22 it; that they needed to have a more dedicated program for
23 that.

24 MR. IBARRA: Were all the plants inspected for
25 EOPs?



1 MR. ROE: I believe that almost all of them have.
2 Not all the reports would have been issued. There may be
3 one or two that we still have remaining. But, essentially,
4 all of them have. As I recall, it might have been that we
5 did our last one at the Perry Plant this last month.

6 MR. IBARRA: Okay. But there are situations
7 though where it's not a matter of an upkeep of the EOPs as
8 much as the change in the design like --

9 MR. ROE: Oh, yes.

10 MR. IBARRA: -- you know like what was done for
11 the CE plants. Can you explain to me what involvement your
12 group would have in design changes?

13 MR. ROE: Design changes, again, would be looked
14 at by Reactor Safety, because they're the ones that look at
15 the technical aspect. Ours is more of the human factors
16 aspect, and to make sure that the process was in place.

17 MR. IBARRA: Okay.

18 MR. ROE: Another one like the Rev 3 and Rev 4 of
19 the BWR, EPGs would be reviewed technically by Reactor
20 Safety, and then when they approved it, in our inspection
21 process, we would review it and see what the status of the
22 implementation of that revision is.

23 MR. IBARRA: Okay.

24 MR. VATTER: If I could get back for a minute to
25 the human factors of implementing the EOPs. When you review



1 the human factors of the procedure, do you relate it to the
2 hardware in the plant?

3 MR. ROE: Yes.

4 MR. VATTER: Do you consider the availability of
5 Reg Guide 1.97 instrumentation for supporting that?

6 MR. ROE: I think that's taken into consideration.

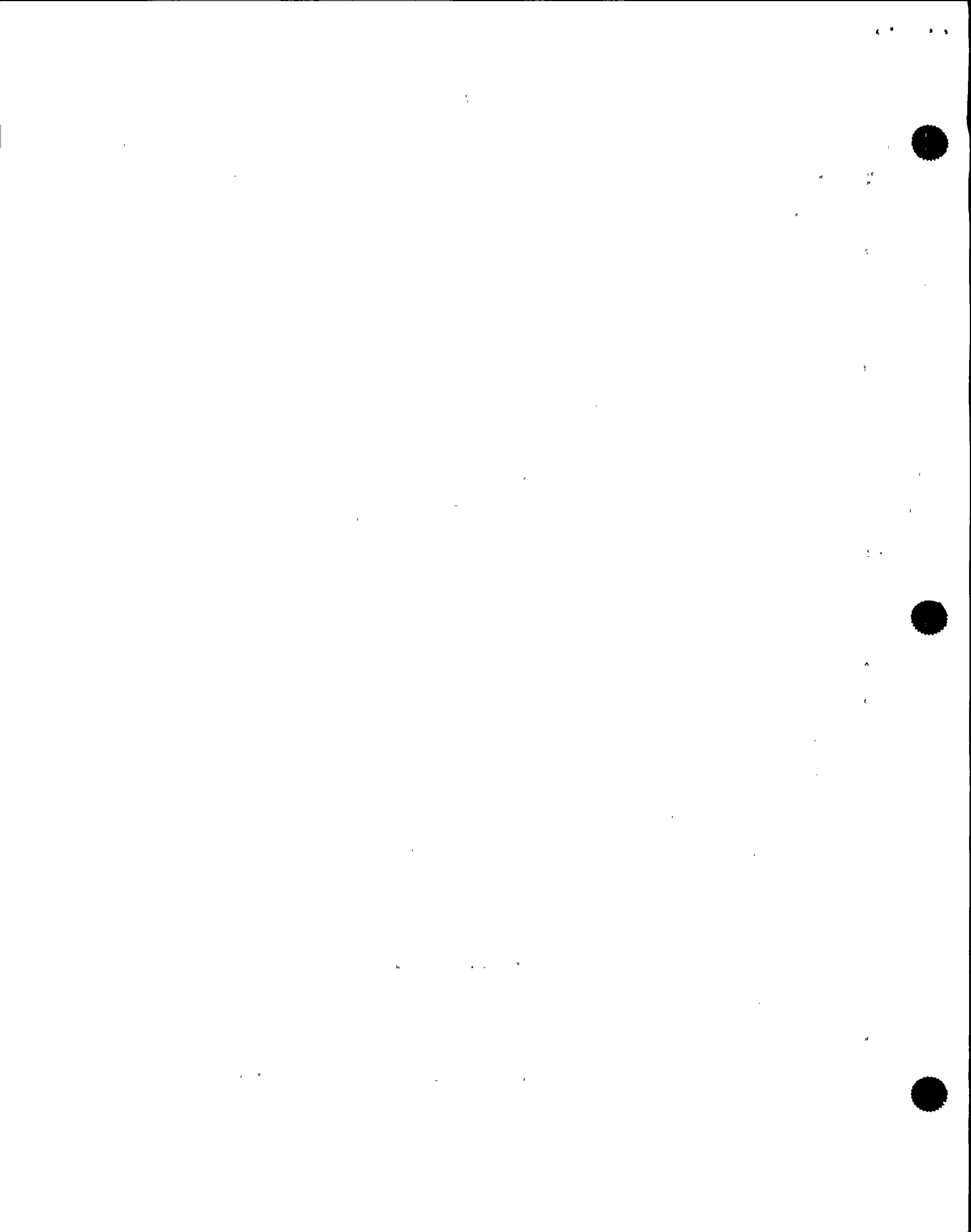
7 MR. VATTER: Do you know how that's done?

8 MR. ROE: No, I do not.

9 MR. IBARRA: When Reg Guide 1.97 was being
10 developed in Rev 2, right after TMI, what human factors
11 input, for operational consideration or QA from your group
12 was put into it?

13 MR. ROE: We reviewed that. Really, it's the
14 predecessors that looked at that, but I know of so many
15 activities that my predecessors conducted. We looked at the
16 Reg Guide 1.97 parameters with respect to how we would
17 integrate that for the SPDS. A decision was made because we
18 wanted the SPDS to be a relatively simple machine, is that
19 we wouldn't encumber it with a long laundry list. We
20 basically looked at functions that had to be covered and
21 allowed the utilities the option of how they would cover
22 them. Some would use Reg Guide 1.97 type of
23 instrumentation, some may have just gone to a computer link.

24 Also, from a quality assurance aspect, I believe
25 we would have looked at that particular Reg Guide to see



1 that it was properly mentioned or that the regulations would
2 cover it. I think that's going to be straight-forward. I
3 think that would have been the level of involvement at that
4 time.

5 MR. IBARRA: The issue of certain instrumentation,
6 nonsafety instrumentation dropping out and yet the operators
7 using that to carry out their EOPs, is a major concern for
8 us, because they did lose a lot -- in fact of all of it.
9 All they have to rely now is on the safety-related issues.

10 As far as your understanding, was there ever a
11 consideration for that kind of scenario?

12 MR. ROE: If I understand your question right,
13 yes. As a matter of fact, if you look at the new rule that
14 the Commission has published on maintenance, it says that
15 you have to have an effective maintenance program for those
16 equipments that are used in EOPs. And we believe that that
17 will address -- the concern we've had for a while is that
18 the people will utilize the equipment in their EOPs that is
19 not classically safety-related, and they will maybe have a
20 different standard for maintaining it and different
21 resulting reliability. I believe if it's used in the EOPs,
22 that it should be highly-reliable instrumentation, highly-
23 reliable structures and components. So, that's why it got
24 encompassed in the rule.

25 MR. IBARRA: Okay. Just to rephrase what I think



1 you initially said was that this maintenance rule would
2 essentially define important safety -- or it would get to
3 that point of finding instrumentation that's a little bit
4 higher than non-safety?

5 MR. ROE: It would cover.

6 MR. IBARRA: It would cover

7 MR. ROE: It would cover instrumentation that was
8 used in the EOPs, clearly -- clearly covers it. It requires
9 that there be an effective maintenance program for it.

10 MR. IBARRA: The issue of integration is of
11 concern to us right now in the sense that all of the safety
12 related instrumentation did work, okay, in this event, but
13 we're still a little bit amazed that the operators
14 themselves sometimes don't understand what the red markings
15 on the Reg Guide 1.97 instruments are.

16 Have you found that to be a problem, that after
17 all these years they still don't understand what some
18 indications in the control room are, the post-accident
19 monitoring?

20 MR. ROE: We have found in certain areas that the
21 understanding of the meaning of the instrumentation has not
22 been at the standards that we thought it was, even some
23 routine instrumentation. We do think that there should be
24 some focus and training. We do cover those sorts of things
25 in our operator examinations, where we have requalification



1 exams. Part of the requalification exam is usually a set of
2 two dynamic scenarios run in the simulator that go well into
3 the EOPs. So we're able to determine what the operators
4 know about that particular scenario and the usage of EOPs
5 for that scenario.

6 MR. IBARRA: The human factor aspect of it, would
7 that be a concern here also?

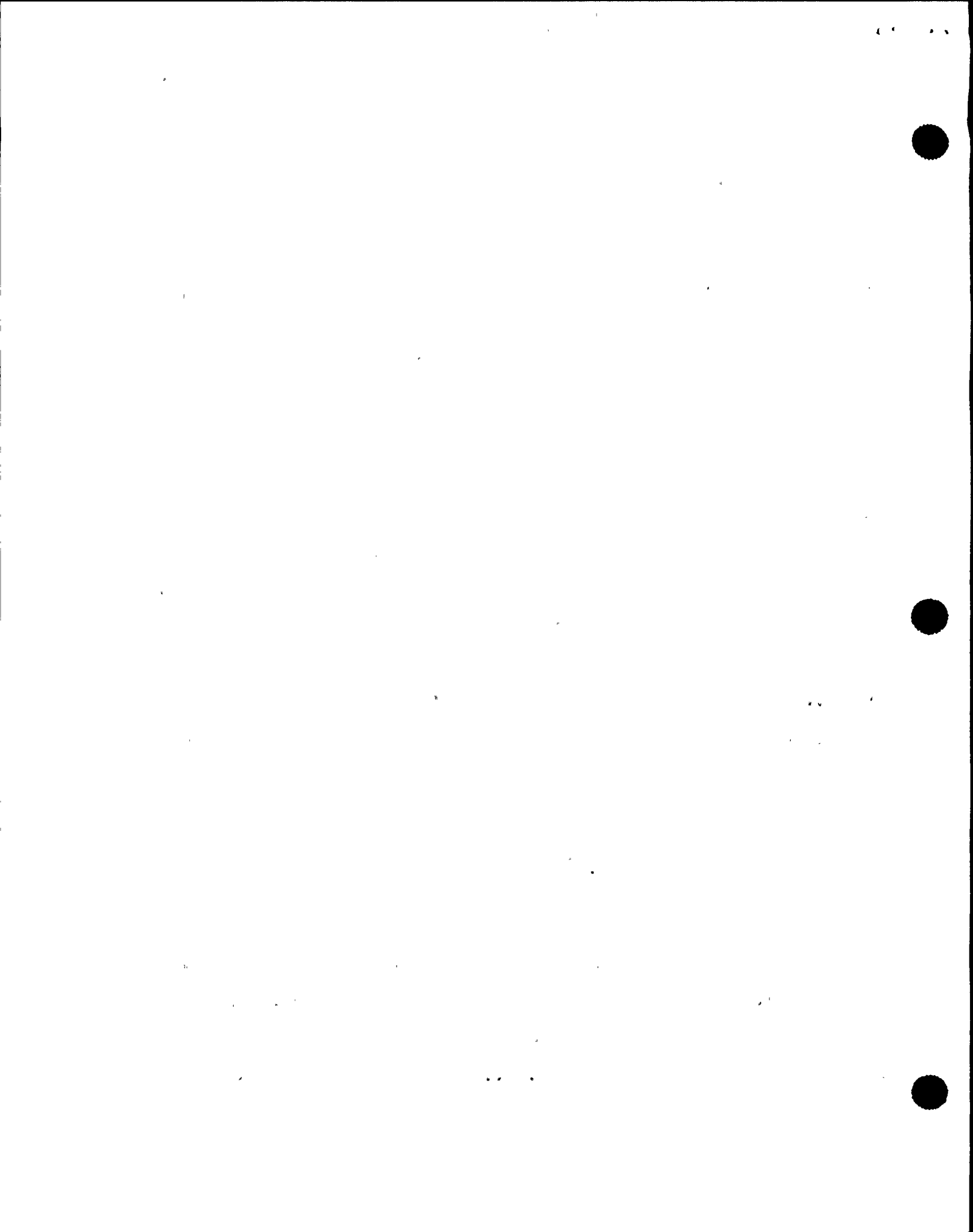
8 MR. ROE: Yes.

9 MR. IBARRA: Okay.

10 MR. ROE: And we normally have taken care of that
11 concern by the EOP inspection. In the EOP inspections, we
12 conduct similar types of simulator scenarios, but it's not
13 for the purpose of relicensing somebody as an RO or an SRO;
14 a little bit different level of concern by the operator.
15 They come in to run a scenario for an examination that will
16 lead to them being relicensed. They have a different set of
17 stressors than if they come in just to do one that shows the
18 capability to carry out EOPs.

19 MR. IBARRA: Okay.

20 MR. ROE: I think what -- we made that decision
21 not to do it is a co-mingled program because we wanted to be
22 sure that we did not have any additional factors that would
23 be present in a requalification examination when we were
24 looking at the EOPs. Just focus on the EOPs, and when we do
25 the requal, then we focus on operator performance, and don't



1 try to put the two together.

2 MR. IBARRA: Does your branch take care of SPDS
3 reviews?

4 MR. ROE: Yes.

5 MR. IBARRA: Okay. What has been the history of
6 losing SPDS?

7 MR. ROE: In the majority of cases, we believe
8 it's a reliable piece of equipment. In some other cases, we
9 know that it has not been reliable. That has caused us
10 concern. We think it should be reliable, and the regulatory
11 requirements call for reliable, but didn't define the
12 particular term.

13 One thing that does balance the fact that
14 sometimes it's not available is that the training
15 requirements are that you are trained to operate with it and
16 you are trained to operate without it. So we believe that
17 training has covered it. But because it's a very useful
18 piece of equipment, we think it should be reliable, and we
19 have provided some additional guidance in generic letters to
20 the industry. It looks like most of them have solved that
21 problem.

22 MR. IBARRA: The technical information available
23 in the EOF and the TSC mostly comes from SPDS, and --

24 MR. ROE: Or the plant computer.

25 MR. IBARRA: Or the plant computer. But if we go



1 to EOF, it's mostly SPDS.

2 MR. ROE: Right.

3 MR. IBARRA: That was lost, and --

4 MR. ROE: Because of the power supply.

5 MR. IBARRA: Because of the power supply. And yet
6 -- we understand the staff has always said reliable power
7 supply, but that has been taken to be UPS. And now we know
8 that UPS, whether it's this event or any other event, has
9 not turned out to be as reliable as we thought. Is that a
10 concern as far as human factors are concerned, as far as
11 operations are concerned, and whatever information we are
12 able to gather from that?

13 MR. ROE: Yes. Especially when the expectations
14 of the operators are that you have an uninterruptible power
15 supply from diverse points, diverse sources, is that they
16 tend to rely upon it, and when you take away that, it makes
17 their job more difficult.

18 MR. IBARRA: Okay. Any questions, Bill?

19 MR. VATTER: I don't know if this is an
20 appropriate time to do it, but I'd like to talk with you
21 about specific examples of the procedures where the
22 operators were having some difficulty. Is it okay to do
23 that now?

24 MR. IBARRA: Sure.

25 MR. VATTER: Jack, I don't know if you've been



1 through this before with the EOPs.

2 MR. ROE: Not this point with the EOPs, but some
3 of them.

4 MR. VATTER: In the event they entered this RPV
5 Control procedure because they got to Level 3.

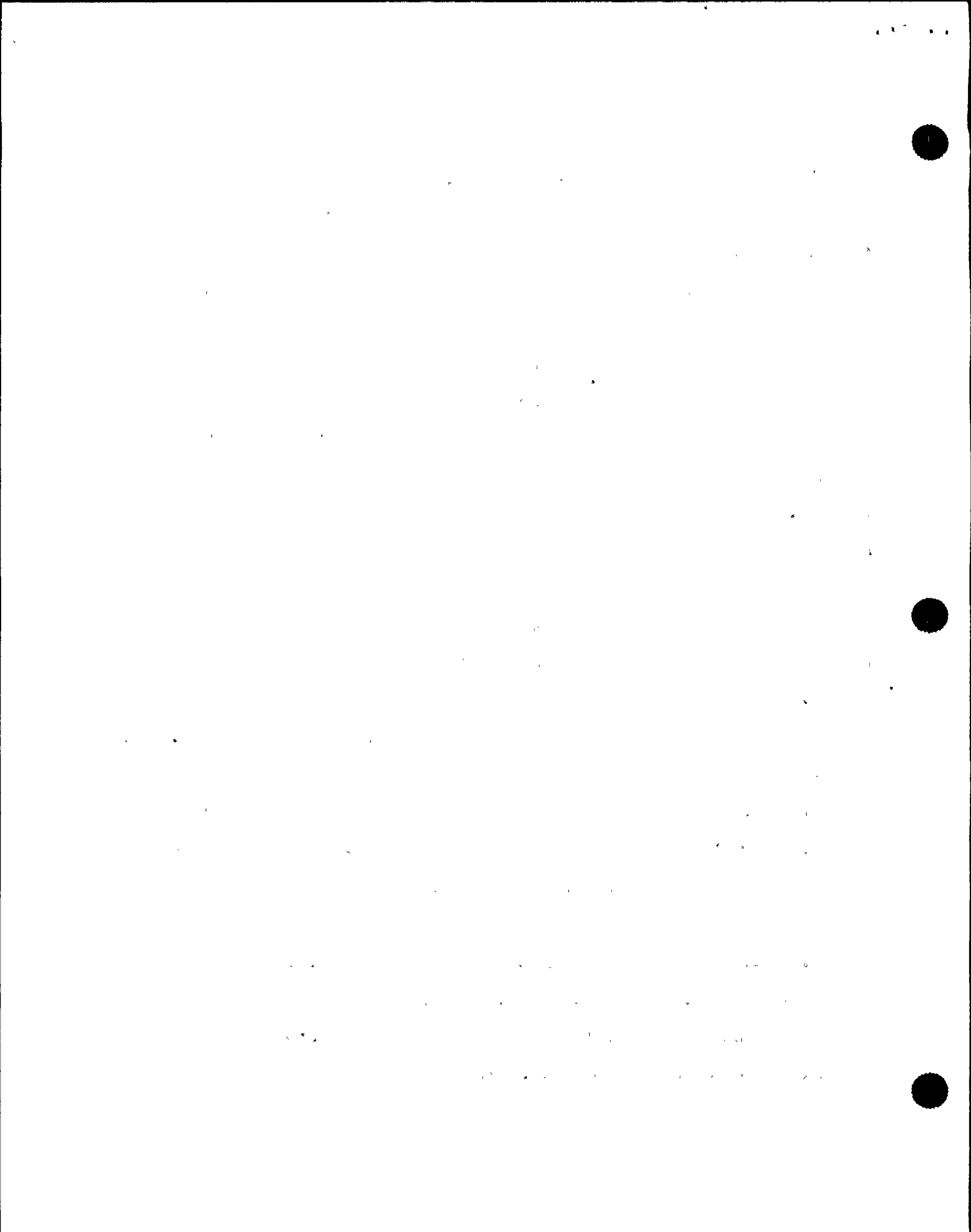
6 MR. ROE: Okay.

7 MR. VATTER: In going down here on the level, the
8 RL leg, we get down here to the fourth box down the column,
9 and it says, while executing the following steps, if the
10 control rods are not inserted to Position 02 and the reactor
11 will not remain shut down without boron, then you need to go
12 over to C5. Well, they really didn't have this condition.

13 MR. ROE: Right.

14 MR. VATTER: But because they didn't know the
15 position of the control rods, they were really without very
16 specific guidance for the situation they were in. So the
17 operators assumed the worst case, that the rods were in an
18 undesirable configuration, and they went over to C5, and
19 then in C5, they were basically stopped there until they
20 were able to determine the position of the rods.

21 Do you have any thoughts about the adequacy of
22 this kind of guidance either from a technical or human
23 factors perspective as to whether this procedure is adequate
24 or whether the operators need additional training and how to
25 address that kind of an issue?



1 MR. ROE: You really can't answer that question on
2 its face without knowing what kind of training that the
3 operators got and what they had been trained, what the basis
4 of this particular step was. That would be very important
5 to me because they've got to know what the objective going
6 through here, and what the paths mean to them.

7 MR. VATTER: Our understanding is that the
8 operators hadn't been specifically trained on loss of
9 indication, that they'd been trained on the situation that's
10 addressed by the procedure. And they, of course, understood
11 the problem with either recriticality or not having the
12 reactors subcritical, because of an inadequate insertion of
13 all the control rods. And they were basically assuming that
14 they had potential for that situation and were addressing a
15 potential situation. And in that line, without any specific
16 training or procedural guidance on what to do when they did
17 not have indications, do you think that there ought to be
18 additional guidance in the procedure, or do you think that
19 the way in which they responded was a natural response that
20 you should expect, and a correct response?

21 MR. ROE: Probably a natural one, and maybe an
22 expected one. Depends on the group of people and the
23 understanding of plant characteristics by the reactor
24 operators and senior reactor operators. There is a scenario
25 that you can say that they could have gone for and looked at



1. some alternate indications that would tell them if control
2 rods are not inserted at least position 0.2, what does this
3 really mean? This mean that the reactor is shut down, it's
4 subcritical and it's got a certain subcritical margin.

5 Now, I don't know of all the instrumentation they
6 had or did not have, but there may have been other
7 indicators that could have found that this objective is not
8 met, especially when they look at the "and" step, "and the
9 reactor will not remain shut down without boron." That's a
10 very important linkage there. That step alone has certain
11 weight. When you put these two together, it's obvious that
12 you're looking at a recriticality. So they could have
13 looked at other indications that they had and made some
14 judgment and gone on.

15 However, many times we've seen, if you expect or
16 assume the worst case and go to another procedure, that if
17 you don't have the worst case, it sometimes will back you
18 out or won't take you through, because you haven't met some
19 of the fundamental assumptions to continue on through it.

20 I have a particular philosophy, is that the EOPs
21 should be a very good assistance to the operators, but they
22 shouldn't be encumbered so that the operator has to spend a
23 great deal of time reading through all kinds of ifs, ands,
24 or buts, to get to the point that he's going to take action.
25 These things have to be done fairly quickly.



1 And I have criticized some other of the EOPs that
2 I've looked at.

3 For example, I looked at one EOP page that was not
4 flow-charted. We discussed it for 45 minutes, what the
5 steps meant, what they really meant. You don't have 45
6 minutes to confer and discuss what the steps really mean.
7 It's got to be very clear to the operator.

8 So clarity is important. We have to balance that
9 off. And there may be some lessons that we learn from this
10 event that say the balance is there needs to be a little bit
11 more depth. But --

12 MR. VATTER: Or perhaps a backup document in case
13 he has trouble with that particular step.

14 MR. ROE: That's correct. And you focused here on
15 something that's very critical, is shutdown margin of the
16 facility, and having the rods within 02 or lower. And 02 or
17 lower obviously is a very key indicator as far as RPV
18 control goes. If you have not gotten a shutdown plan, then
19 you've got some problems that you're going to have with RPV
20 control, and you have to address that.

21 MR. VATTER: It appears to us that this procedure
22 was written with the assumption that the operator would have
23 the indication of rod position.

24 MR. ROE: Clearly. Because if it focused at least
25 position, 02, so he would need that position indicator.



1 MR. IBARRA: Would this present a problem in the
2 sense that -- of course we're more knowledgeable now on this
3 type of event -- but that the information he would be
4 relying on is not safety-related?

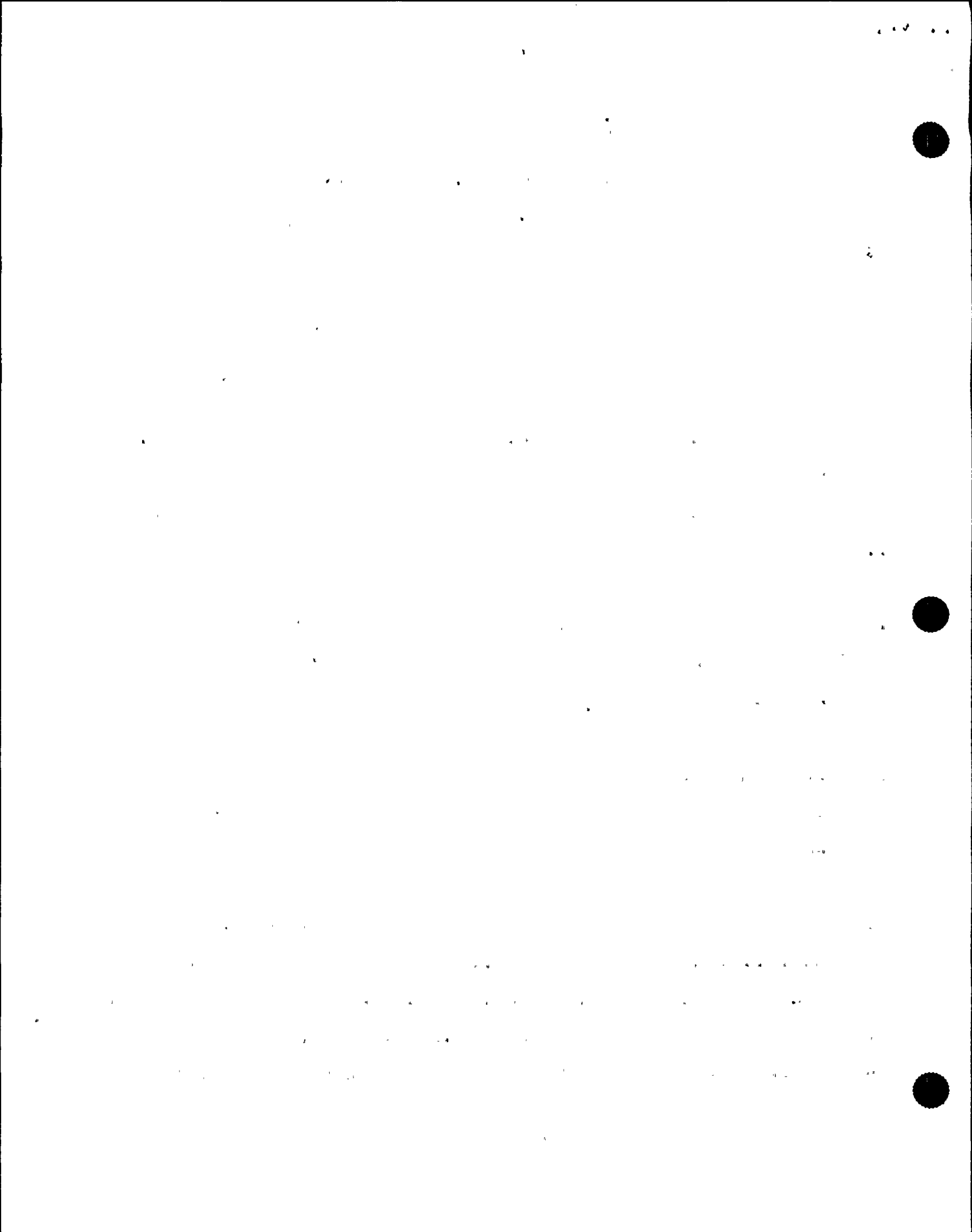
5 MR. ROE: I don't understand. Could you rephrase
6 that?

7 MR. IBARRA: This presents a problem in the sense
8 that in order to continue from the step, he's going to have
9 to rely on non-safety-related equipment.

10 MR. ROE: That presents a problem. As I said
11 before, that's why we are pleased that our new maintenance
12 rule covers just these types of instrumentation and control.
13 It doesn't call it safety-related, but it says clearly that
14 it's within our regulatory authority and has to be properly
15 kept up.

16 MR. IBARRA: Do we understand today, if we were
17 looking at this kind of flow chart, the kind of equipment
18 that would be required? What is the qualification of that,
19 what is the range of that? Not only the agency, but does
20 the vendor have an understanding?

21 MR. ROE: Of what would be required today of the
22 qualification of all the different -- yes, I think that you
23 could go through and determine what the qualification, what
24 falls within safety-related, which is under Appendix B type
25 of QA requirements, what is important-to-safety generally



1 considered, and what is balance-of-plant.

2 MR. IBARRA: You feel confident that the NSSS
3 vendor does know that information?

4 MR. ROE: They may not, they will be able to
5 determine it.

6 MR. IBARRA: Okay. But when these things were
7 drawn --

8 MR. ROE: Do they know overtly? I don't believe
9 so. But that's my own opinion.

10 MR. IBARRA: Okay.

11 MR. ROE: What they did is they took a look at the
12 path they needed to get and what equipment they had
13 available. We've seen certain circumstances where there's
14 been some reluctance to use non-safety-equipment or power
15 production equipment in the EOPs. WNP.2 is an example where
16 there was some reluctance because of their desire to protect
17 the equipment, not to utilize it in an emergency. In our
18 licensing process, with our operators, we had covered that.
19 We've remedied it.

20 MR. IBARRA: Can you explain a little bit to me --
21 I understand that the technical adequacy is covered by
22 another division. But can you explain to me how the
23 procedural guidelines, and I guess those are the methodology
24 or the process you're talking about, how they take care of
25 integrating a lot of these issues together, let's say, EQ,



1 Reg. Guide 197, all the other problems that exist, all the
2 disciplines that exist out there, how that takes care of it,
3 how the process theoretically should take care of it?

4 MR. ROE: I really don't know the answer to that.
5 It's been a long time since I've looked at the process-type
6 documents, and I'd have to pull those out. I indicated that
7 many years ago we went through that kind of what I call a
8 process review, and we found that it wasn't giving us the
9 end result that we wanted, so we went to basically a
10 performance-based review, say, how do you do it, can you
11 carry them out, are they a liability or an asset to the
12 operators? So it's been a while.

13 MR. IBARRA: These are the inspections you were
14 talking about where you go out there and you actually make
15 them do it?

16 MR. ROE: Right. Make them do it.

17 As a matter of fact, when I took over as the
18 Division Director in '87, we were doing paper, and I said
19 we've done enough of that. I want to see if it connects
20 with actually doing it. Let's go there, let's develop an
21 inspection program. I want to see if they can carry them
22 out, physically carry them out in the control room. Can
23 they get through the procedures all the way to the end using
24 the simulator number two; can they physically carry them out
25 in the plant, that says to take this particular valve and



1 open it? We found some interesting things, that we needed a
2 jumper from contact 12 to contact 57. There were no jumpers
3 available. In an emergency there's not time to start
4 manufacturing jumpers. If you have spool pieces, are they
5 available? Those sorts of things. Physical accessibility.
6 The valve is 17 feet in the air. How do you get there?
7 That's important considerations.

8 So it's those sorts of things that yes, we have
9 been involved in the process review and the paper review.
10 We wanted to be sure that they could actually carry them
11 out. And I think that it's a good program. They found some
12 interesting things. We got an awful lot of results of it.
13 They improved the EOP usage, the EOP understanding.

14 MR. IBARRA: The utilities do a lot of work,
15 especially when the NRC is coming out for inspection. It's
16 a very rigorous type review. I've participated in some of
17 them, and I realize that they do look at all angles.

18 But what I found missing in some of those was
19 specific disciplines at the utility, and that is a big
20 concern for us, and I think it keeps coming up over and over
21 again. Not that the work that they do is not good; they do
22 good work, okay. It's just that we cannot expect one
23 individual to know everything about Reg Guide 1.97.

24 MR. ROE: That's right.

25 MR. IBARRA: Electrical problems to know about,



1 human factors, probably even though human factors in this
2 aspect is pretty well covered.

3 MR. ROE: That's a point. In our inspection
4 process, the performance-oriented one, we always took a look
5 to determine if a multidisciplinary team was used, which is
6 important. We didn't indicate exactly who by discipline
7 should be on a team, but it shouldn't be a small team with
8 just a few disciplines. It should be ones where there's a
9 broader range covered. And we criticized them where we
10 found basically that EOPs had been developed by maybe just
11 one person.

12 MR. IBARRA: And we do find those.

13 MR. ROE: And we do find those, yes.

14 MR. IBARRA: Can you talk a little bit about the
15 opposition to the maintenance rule or at least the
16 opposition that we had several years over defining
17 important-to-safety?

18 MR. ROE: I'm really -- the opposition to
19 important-to-safety, probably other people can give you more
20 insight to that. I can give you the insight into the
21 maintenance rule, because for regulatory implementation, it
22 falls within my Division's responsibility.

23 The industry clearly felt that they had improved
24 greatly in the area of maintenance. They believe that
25 performance indicators show that, that there was approved or



1 reduced scrams, and that was one indicator that, in some
2 ways of looking at safety system outages, that that had
3 improved. So they did not believe that a rule was
4 warranted, especially when they had a very strong self-
5 evaluation program going.

6 And the Commission has long been interested in a
7 maintenance rule. They asked the Staff to do an evaluation.
8 We developed a maintenance team inspection, looked in depth
9 of how it was going out there, did one of those inspections,
10 and it usually five people at least eight weeks for
11 inspection.

12 The Commission also came to Staff for criteria to
13 obviate the need for a rule. But the end result is, the
14 Commission made a policy determination that a certain type
15 of rule, which was a results-oriented rule, was warranted,
16 and they decided on it.

17 And now, I think that industry understands. The
18 Commission has made that decision. They're not fighting us
19 anymore. What they're doing is trying to work with us to
20 develop the regulatory guidance that will go along with it,
21 so that if they've got some program that they believe is
22 appropriate for the rule, we can endorse it.

23 But I think the summary would be is that they did
24 not think it was needed, and the cost outweighed the
25 addition to reactor safety.



1 MR. VATTER: Do you think it was needed?

2 MR. ROE: Based on the criteria that the
3 Commission originally gave, our recommendation was that it
4 was not necessary for a maintenance rule.

5 I think it will be helpful, and I agree with the
6 Commission's decision, but it's a judgment call.

7 MR. IBARRA: A lot of utilities, though -- and it
8 varies; there's a lot of spectrum here that we're talking
9 about -- but in some utilities, it's either safety-related
10 or it's non-safety-related.

11 MR. ROE: That's correct.

12 MR. IBARRA: If it's safety-related, it's all the
13 way, and if it's non-safety-related, you don't worry about
14 it.

15 MR. ROE: I went to a plant. There was a barrier
16 up. It was a plastic sheeting. They said: On one side,
17 it's safety-related; on this side, it's not. We keep this
18 barrier up to keep that site clean.

19 I did not like that approach. I thought all the
20 equipment should be kept clean, free of dust, dirt. That
21 plant had some problems.

22 [Pause.]

23 MR. IBARRA: Any other questions?

24 MR. VATTER: No, I don't think so.

25 MR. IBARRA: You probably don't know very much of



1 what happened. Surely I think a lot of words have been
2 spoken outside of our team, and the press has gotten a hold
3 of some things that we know for sure did go wrong.

4 But is there any other thing from your knowledge
5 of the event or what you do know that you care to offer to
6 us, any question we haven't asked you, any concerns you
7 might have?

8 MR. ROE: Not that I know of. I'm interested in
9 reading the details of the report, the details of what
10 occurred. I've seen the things on -- that have been
11 generally available. But normally what I do is wait until
12 the report comes out and review it carefully and discuss it
13 with the Staff and determine how we feel about the
14 recommendations, make our response to the recommendations
15 and any additional lessons learned that we think that we
16 should look.

17 I know that we'll be interested, and Operator
18 Licensing, I've asked them a couple of times. I've asked
19 them: Did they ever run a loss of annunciator scenario?
20 And as I recall they said they believed that we've done it
21 occasionally.

22 MR. IBARRA: I did remember something else I need
23 to ask you. On quality assurance --

24 MR. ROE: Yes.

25 MR. IBARRA: Today, or let's say the maintenance



1 rule happens to come into effect, what do we look at --
2 safety-related, non-safety-related? I mean what --

3 MR. ROE: Basically the focus is on safety-
4 related, and we believe it should meet Appendix B, and for
5 those things that are not safety-related, that they should
6 conform to generally accepted industry practices.

7 MR. IBARRA: Does that mean that you would expect
8 to at least review the manual?

9 MR. ROE: Absolutely.

10 MR. IBARRA: And do a performance --

11 MR. ROE: They should review the manual. They
12 should know what the manufacturer's recommended preventive
13 maintenance is and make a determination based on the service
14 that they put that equipment into, whether or not that
15 that's warranted, whether it should be reduced or enhanced.

16 MR. IBARRA: Would it cause you problems to know
17 that they didn't have the right manual for the right
18 equipment or the right drawings?

19 MR. ROE: Certainly.

20 MR. IBARRA: I don't have any more questions.

21 Thank you.

22 MR. VATTER: Thanks.

23 [Whereupon, at 4:51 o'clock, p.m., the interview
24 was concluded.]

25



11-11-68



REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

in the matter of:

NAME OF PROCEEDING: Jack Roe

DOCKET NUMBER:

PLACE OF PROCEEDING: Bethesda, Maryland

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Marilynn Estep

Official Reporter
Ann Riley & Associates, Ltd.



OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: U.S. Nuclear Regulatory Commission
Incident Investigation Team

Title: Interview of Jack Roe
(Closed)

Docket No.

LOCATION: Bethesda, Maryland

DATE: Monday, September 9, 1991 **PAGES:** 1 - 35

ANN RILEY & ASSOCIATES, LTD.

1612 K St. N.W., Suite 300
Washington, D.C. 20006
(202) 293-3950

Dupe of

~~99050702810~~



ADDENDUM

Page Line Correction and Reason for Correction

10	8	change "licensed" to "operator license"
26	10	change "plan" to "plant"
31	25	change "approved" to "improved"
33	10	change "site" to "side"

Date 10-2-91 Signature J. W. Poe

1 2

1 2

UNITED STATES NUCLEAR REGULATORY COMMISSION

INCIDENT INVESTIGATION TEAM

-----X

INTERVIEW OF: :

JACK ROE :

(CLOSED) :

-----X

Nuclear Regulatory Commission
Conference Room 100
The Woodmont Building
8120 Woodmont Avenue
Bethesda, Maryland

Monday, September 9, 1991

The above-entitled interview convened in closed session at 4:04 o'clock, p.m.



1 PARTICIPANTS:

2

3 JOSE IBARRA, IIT Team Leader

4 BILL VATTER, IIT Team Leader

5 JACK ROE, Interviewee

6 LYNN ESTEP, Court Reporter

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25



P R O C E E D I N G S

[4:04 p.m.]

1
2
3 MR. ROE: My name is Jack Roe. I'm the Director
4 of the Division of Licensee Performance and Quality
5 Evaluation in NRR.

6 In my Division, there are three Branches: the
7 Operator Licensing Branch, the Human Factors Assessment
8 Branch, and the Performance Evaluation Branch.

9 MR. IBARRA: Good afternoon. This is Jose Ibarra,
10 and we are interviewing Jack Roe on the event that occurred
11 on August the 13th. We're at the Woodmont Building, and
12 it's about 4:00 o'clock.

13 With me, I have Bill Vatter. Bill?

14 MR. VATTER: Bill Vatter from INPO.

15 MR. IBARRA: Okay, Jack, you said you do have QA,
16 Human Factors, and Operating Licensing; is that what you
17 said?

18 MR. ROE: Operator Licensing, yes.

19 MR. IBARRA: Okay. What involvement did your
20 staff have on the event that occurred at Nine Mile Unit-2?

21 MR. ROE: My recollection is that they basically
22 conferred with our Regional Office. The event at that
23 particular time, as I recall, the Deputy Director of my
24 Division may have been the Emergency Officer, and I do not
25 believe that I was in the office on that particular day. I



1 haven't gone back to look at my calendar to see what it was.
2 But I did discuss the matter with him, and the Staff
3 discussed the general sequence of events.

4 MR. IBARRA: Okay. What can you tell me about
5 Generic Letter 83-28 -- this is the Salem ATWS action -- in
6 respect to what it means to say important to safety, safety-
7 related, non-safety-related? Can you give us some insight
8 as to the particular --

9 MR. ROE: I think for several years, there has
10 been a controversy between the NRC and the regulated
11 utilities about different classifications of equipment.
12 From the perspective of the utilities, many of the phrases
13 used in the regulations from our view have been
14 interchangeable.

15 There are some subsets of them that I think in the
16 Staff's views over time have gotten to be well-known.
17 Safety-related, obviously, is a particular set, and it comes
18 with, if I could use the term "pedigree", of certain
19 requirements.

20 Then a larger set of equipment, structures, and
21 components are ones that are important to safety. Over
22 time, that term has not been very, very well-defined. Many
23 of us think we understand it, and it's always been in
24 controversy with the utilities. They will say that we do
25 not have any regulatory authority over important-to-safety,



1 but we do have particular authority over safety-related.

2 In my mind, it has to do with the comparison
3 between the primary plant and with the balance of the plant.
4 I think in my mind also, that controversy has been settled
5 fairly clearly by the Commission in that the maintenance
6 rule that they published as a final rule and which will be
7 implemented in a five-year period makes it clear that the
8 NRC has regulatory authority in the balance-of-plant.

9 So I think that we've come to pretty much of a
10 conclusion on that particular issue. Now I think that if we
11 need to, we should sort out the specifics.

12 I do recall that Staff worked on a Commission
13 paper on the issue of safety-related and important-to-
14 safety, and as I recall, it was not approved by the
15 Commission.

16 MR. IBARRA: Okay. This is that SECY paper 86-
17 164?

18 MR. ROE: Right.

19 MR. IBARRA: Which tries to define safety --

20 MR. ROE: Tries to define, yes.

21 MR. IBARRA: Okay. But your involvement with the
22 Generic Letter 83-28, what was it?

23 MR. ROE: Not very much.

24 MR. IBARRA: Not much, okay.

25 MR. ROE: I was not a drafter, and as I recall, it



1 came out of the Office of Inspection and Enforcement that
2 was a part of our organization at that time.

3 MR. IBARRA: Okay. Can you describe to me what
4 your Branches would do in the development of the EOPs,
5 basically boiling water reactors?

6 MR. ROE: For boiling water reactors? Really the
7 responsibility for my particular group is that the EOPs
8 themselves, first of all, would be developed using technical
9 guidance that had been developed by the vendor, had been
10 reviewed and approved by the NRC, primarily by the Reactor
11 Safety Branch, and that those particular -- those particular
12 procedures would be utilized to develop site-specific
13 procedures.

14 We would have in, oh, in the early '80s have
15 looked at the process to do that. The EOPs, the Writer's
16 Guide, how the deviations were documented, how the
17 verification and validation was carried out -- process. Not
18 the results of the process, but the process itself.

19 After a period of time, we realized that our
20 review of process was not sufficient; therefore, I think in
21 the past three years, we've carried out an inspection
22 program, and the objectives of the inspection program were
23 to, one, see if the EOPs could be carried out by a crew.
24 They actually checked them in the simulator.

25 The second thing was to see if the EOPs could



1 actually be conducted in the field. Was the equipment
2 available? Were the jumpers there? Were the valves
3 actually that were supposed to be manipulated, were they in
4 the plant?

5 And the third objective was to take a look and see
6 how the EOPs were with respect to human factors
7 considerations. Could they easily be used? Were they an
8 assistance to the operator, or were they a liability for the
9 operators?

10 MR. IBARRA: The technical aspect is taken care of
11 Ashok Thadani?

12 MR. ROE: Ashok Thadani's Division and the Reactor
13 Safety Branch.

14 MR. IBARRA: How does that interface when you do
15 do that review?

16 MR. ROE: We will take as a given their technical
17 review and say that those particular EPGs have been approved
18 by -- or approved with open items. And then our review
19 sometimes will take a look and see if the technical
20 deviations have been satisfactorily documented.

21 If we need some technical assistance, then we'll
22 go back to the Reactor Safety Branch.

23 MR. VATTER: With regard to human factors and
24 emergency procedure, how do you look at that as far as
25 usability and the procedure and whether they operate or that



1 they're able to do the things, or able to apply the
2 procedure to the situation?

3 MR. ROE: Normally it is done in two ways, a desk
4 type review, take a look at the procedures themselves and
5 see what the ease of actually stepping through the
6 procedures and then during our inspections we'll ask them to
7 carry it out to see, in a simulator or environment to see
8 what the ease or the difficulty of using actual procedures
9 that they have in the plant.

10 MR. VATTER: How do you go about selecting what
11 scenario you want to challenge them with in the simulator?

12 MR. ROE: I couldn't give you the answer to that.
13 The staff picks ones that they think are appropriate.

14 MR. VATTER: They are going to exercise areas of
15 the procedure that they might have had questions with?

16 MR. ROE: Yeah. They may be, but as I said, I am
17 not sure which ones -- which scenarios they select.

18 MR. VATTER: But it's your guys that figure it
19 out?

20 MR. ROE: Yes. My guys being a term that would
21 indicate that it is -- at one time it was a headquarters led
22 inspection of a multi-disciplinary team which has now
23 evolved to a regional based inspection where we'll provide
24 them support, either directly with an NRC employee or
25 indirectly with an employee of one of our principle



1 contractors that we have full confidence in.

2 MR. IBARRA: Is that program now in the core
3 inspection or how is that done?

4 MR. ROE: No.

5 MR. IBARRA: Is that still a special --

6 MR. ROE: It's still a special one and it's not
7 completed.

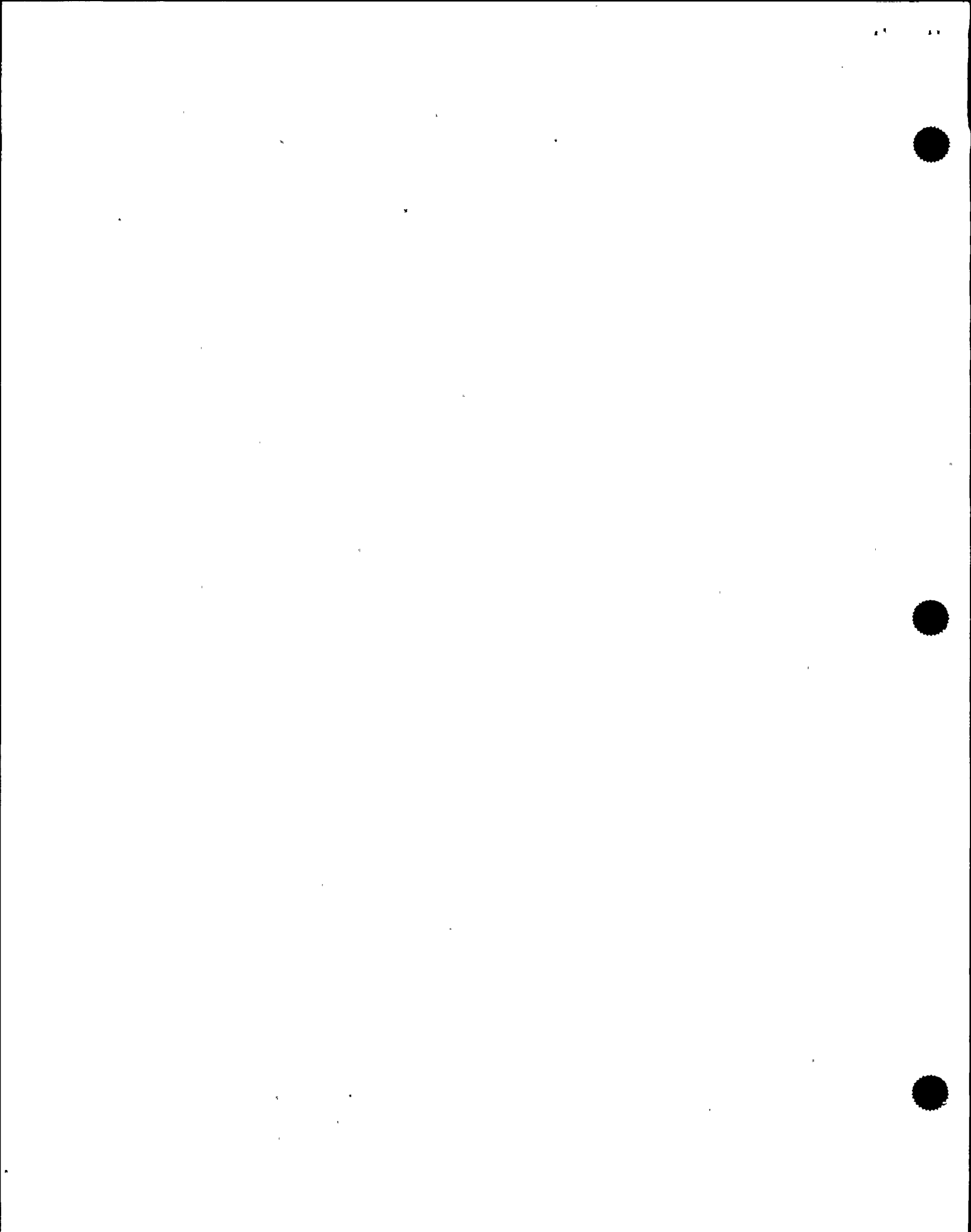
8 MR. IBARRA: Would you happen to know the number
9 to that inspection module?

10 MR. ROE: No.

11 MR. IBARRA: Okay. When it comes to
12 instrumentation and -- let's say, special instrumentation,
13 Reg Guide 1.97, post action monitoring, how is your group
14 assured that that was integrated into the EOP?

15 MR. ROE: I think -- that may not be done overtly,
16 to the best of my knowledge, is that we do have the specific
17 Reg Guide 1.97 inspection program. And that should look at
18 the integration of that, but to my knowledge, I don't know
19 if we do that overtly. I know that occasionally we do have
20 issues about it, so it may be something that we cover if we
21 find something that's obvious, but I don't recall our
22 inspection procedure, I don't think we specifically looked
23 at that.

24 MR. IBARRA: In the inspection team, is there an
25 I&C individual?



1 MR. ROE: Frequently there will be, I don't know
2 if there is always one.

3 MR. IBARRA: How about an electrical?

4 MR. ROE: Not necessarily. It depends upon the
5 mixture.

6 MR. IBARRA: And a reactor system?

7 MR. ROE: Reactor systems, and someone with a good
8 operations background, normally, like a licensed examiner.
9 So that examiner may have a very strong background in
10 instrumentation control or electrical, but principally
11 select from the team because of their operational experience
12 and expertise.

13 MR. IBARRA: Okay. In respect to what parameters
14 are being looked at in the EOP's, -- let's see how to phrase
15 that. Well, I'll get back to that.

16 MR. VATTER: When you look at the usability of the
17 EOP's in the simulator, do you also consider what the
18 operator would do in cases where he might not have the
19 instrumentation that's necessary to complete a step?

20 MR. ROE: I think they've looked at that at some
21 level, to what depths, I am not sure.

22 MR. VATTER: As you may be aware, one of the
23 problems in this event was that the operators didn't have
24 rod position indication?

25 MR. ROE: Right.



1 MR. VATTER: And there isn't really specific
2 guidance in the emergency procedure on what they should do
3 in that case. So they took action that in hindsight we
4 think was the best they could have done -- is to assume that
5 the rods were in an undesirable configuration until they
6 were able to prove otherwise?

7 MR. ROE: Um hm.

8 MR. VATTER: But there might have been other
9 things that they could have done to determine that the rod
10 configuration was acceptable, but there wasn't any guidance
11 there.

12 MR. ROE: Um hm.

13 MR. VATTER: And I'm curious whether that is an
14 area that human factors look at the procedure would have
15 addressed or not? Is that within the scope?

16 MR. ROE: It could be within the scope, but I
17 think we're well aware that there are situations that occur
18 that aren't going to be covered with procedures everytime.
19 So they may not have had a very significant look at that
20 particular thing to see if there were things that should be
21 covered at maybe very low probabilities.

22 I know that they do look for completeness with a
23 certain set of the EOP's to be sure that certain things are
24 covered.

25 MR. IBARRA: Like what? A certain set of



1 instruments?

2 MR. ROE: Certain set of -- I guess you would call
3 them scenarios or symptoms since most of them are symptoms,
4 to be sure that the symptoms are properly covered.

5 MR. IBARRA: Does the NRC have a set amount of
6 instrumentation that is required?

7 MR. ROE: A set amount?

8 MR. IBARRA: A set amount.

9 MR. ROE: I guess the answer would be yes; you
10 would have to look at the standard review plan to determine
11 plants that would be licensed in this particular stage. But
12 the amount of instrumentation in the plant has evolved over
13 time. So the set that might be required now, it may be a
14 different set that's in a plant that was licensed earlier in
15 the process.

16 MR. IBARRA: In the inspections that you do do, do
17 you take into account loss of annunciators -- loss of
18 annunciators?

19 MR. ROE: Not that I'm aware of.

20 MR. IBARRA: Loss of UPS's?

21 MR. ROE: It may be covered -- what you're doing
22 is providing scenarios and the inspections that we look at -
23 - since the procedures are symptom based, if that particular
24 procedure has been written to cover that sort of a
25 situation, yes, we would look at it, but we don't go in to

2
3
4
5
6



1 see specific scenarios. We would look and see if the
2 procedures were developed. For example, it may be that the
3 procedures envisions a loss of an uninterruptable power
4 supply or loss of annunciators; it could be covered, but we
5 don't take a check list approach to see if those particular
6 scenarios were covered. It's a start from emergency
7 procedures guidelines as then the site-specific program to
8 put those into the site-specific EOP's.

9 MR. IBARRA: Who actually leads the inspections?
10 I understand you said this has been turned over, but
11 initially who was leading that? Was Brian's group -- how
12 was that interfaced with you?

13 MR. ROE: Yeah. Initially, it was our human
14 factors branch, primarily it was developed by Dr. Jay
15 Persensky and then we exported it to the regions. We held
16 some training and there was a policy decision -- not made
17 for this particular inspection, but generally inspections
18 that if they were to be carried out from headquarters, they
19 would be carried out from the special inspection branch and
20 Brian Grimes, division of reactor inspection and safeguards.

21 They did carry out a group of them, I think there
22 might have been a couple and they assisted in others. But
23 primarily we wanted them to be conducted as a regional team
24 inspection.

25 MR. IBARRA: Would one of your inspectors go along



1 with Brian Grimes.

2 MR. ROE: Yes, generally.

3 MR. IBARRA: Okay. When the EOPs were revised,
4 let's say Rev 3 or Rev 4 of the boiling water reactors,
5 could you explain to me the process that goes about in every
6 revision? What is the extent of the review?

7 MR. ROE: That particular review is more of a
8 technical review, and that's carried out in another
9 division. So, we wouldn't be involved in that review. We
10 would be interested in the implementation of those
11 revisions, to be sure that they made a positive contribution
12 to safety, versus a negative contribution to safety. I know
13 that we did have an issue with a TVA.

14 I believe it was with Browns Ferry, that they
15 wanted to accelerate the implementation of the EOPs, and we
16 felt it was best that they not accelerate it; they get
17 trained well during their start up on this particular
18 version, and then when they had an opportunity to fully
19 train, fully integrate it into the plant operations, then to
20 go to the next revision. But, generally, ours is focused on
21 that aspect, not on what the technical changes are. That is
22 done by technical experts in reactor safety.

23 MR. IBARRA: When there are bulletins that come
24 out like 79-27, that looked at the losing of busses and the
25 instrumentation upon it and their impact upon shutdown



4



1 cooling --

2 MR. ROE: Uh-huh?

3 MR. IBARRA: -- what kind of involvement would you
4 all have, as far as looking back at the EOP and seeing if it
5 has an impact? Can you explain to me a little bit about
6 what process would go by there, making sure that the EOPs
7 are still good?

8 MR. ROE: From my division's perspective, no,
9 because we would be looking at more of the process to be
10 sure that the utilities captured the current information and
11 reflect it in their EOPs. We would be interested that they
12 had a process in effect that would bring revisions to bear
13 and would validate and verify them. And, as a matter of
14 fact, in our inspection process, we've had a specific
15 concern that many utilities looked at this, they developed
16 their EOPs, they seemed to leave them stagnant. There
17 wasn't a process that was robust to assure that changes that
18 occurred were reflected in EOPs and that those changes were
19 verified, validated and implemented in the plant. I know
20 many of the inspection reports I wrote -- pardon me -- that
21 I read, that my staff wrote, had that kind of a finding in
22 it; that they needed to have a more dedicated program for
23 that.

24 MR. IBARRA: Were all the plants inspected for
25 EOPs?



1 MR. ROE: I believe that almost all of them have.
2 Not all the reports would have been issued. There may be
3 one or two that we still have remaining. But, essentially,
4 all of them have. As I recall, it might have been that we
5 did our last one at the Perry Plant this last month.

6 MR. IBARRA: Okay. But there are situations
7 though where it's not a matter of an upkeep of the EOPs as
8 much as the change in the design like --

9 MR. ROE: Oh, yes.

10 MR. IBARRA: -- you know like what was done for
11 the CE plants. Can you explain to me what involvement your
12 group would have in design changes?

13 MR. ROE: Design changes, again, would be looked
14 at by Reactor Safety, because they're the ones that look at
15 the technical aspect. Ours is more of the human factors
16 aspect, and to make sure that the process was in place.

17 MR. IBARRA: Okay.

18 MR. ROE: Another one like the Rev 3 and Rev 4 of
19 the BWR, EPGs would be reviewed technically by Reactor
20 Safety, and then when they approved it, in our inspection
21 process, we would review it and see what the status of the
22 implementation of that revision is.

23 MR. IBARRA: Okay.

24 MR. VATTER: If I could get back for a minute to
25 the human factors of implementing the EOPs. When you review



1 the human factors of the procedure, do you relate it to the
2 hardware in the plant?

3 MR. ROE: Yes.

4 MR. VATTER: Do you consider the availability of
5 Reg Guide 1.97 instrumentation for supporting that?

6 MR. ROE: I think that's taken into consideration.

7 MR. VATTER: Do you know how that's done?

8 MR. ROE: No, I do not.

9 MR. IBARRA: When Reg Guide 1.97 was being
10 developed in Rev 2, right after TMI, what human factors
11 input, for operational consideration or QA from your group
12 was put into it?

13 MR. ROE: We reviewed that. Really, it's the
14 predecessors that looked at that, but I know of so many
15 activities that my predecessors conducted. We looked at the
16 Reg Guide 1.97 parameters with respect to how we would
17 integrate that for the SPDS. A decision was made because we
18 wanted the SPDS to be a relatively simple machine, is that
19 we wouldn't encumber it with a long laundry list. We
20 basically looked at functions that had to be covered and
21 allowed the utilities the option of how they would cover
22 them. Some would use Reg Guide 1.97 type of
23 instrumentation, some may have just gone to a computer link.

24 Also, from a quality assurance aspect, I believe
25 we would have looked at that particular Reg Guide to see



1 that it was properly mentioned or that the regulations would
2 cover it. I think that's going to be straight-forward. I
3 think that would have been the level of involvement at that
4 time.

5 MR. IBARRA: The issue of certain instrumentation,
6 nonsafety instrumentation dropping out and yet the operators
7 using that to carry out their EOPs, is a major concern for
8 us, because they did lose a lot -- in fact of all of it.
9 All they have to rely now is on the safety-related issues.

10 As far as your understanding, was there ever a
11 consideration for that kind of scenario?

12 MR. ROE: If I understand your question right,
13 yes. As a matter of fact, if you look at the new rule that
14 the Commission has published on maintenance, it says that
15 you have to have an effective maintenance program for those
16 equipments that are used in EOPs. And we believe that that
17 will address -- the concern we've had for a while is that
18 the people will utilize the equipment in their EOPs that is
19 not classically safety-related, and they will maybe have a
20 different standard for maintaining it and different
21 resulting reliability. I believe if it's used in the EOPs,
22 that it should be highly-reliable instrumentation, highly-
23 reliable structures and components. So, that's why it got
24 encompassed in the rule.

25 MR. IBARRA: Okay. Just to rephrase what I think



1 you initially said was that this maintenance rule would
2 essentially define important safety -- or it would get to
3 that point of finding instrumentation that's a little bit
4 higher than non-safety?

5 MR. ROE: It would cover.

6 MR. IBARRA: It would cover

7 MR. ROE: It would cover instrumentation that was
8 used in the EOPs, clearly -- clearly covers it. It requires
9 that there be an effective maintenance program for it.

10 MR. IBARRA: The issue of integration is of
11 concern to us right now in the sense that all of the safety
12 related instrumentation did work, okay, in this event, but
13 we're still a little bit amazed that the operators
14 themselves sometimes don't understand what the red markings
15 on the Reg Guide 1.97 instruments are.

16 Have you found that to be a problem, that after
17 all these years they still don't understand what some
18 indications in the control room are, the post-accident
19 monitoring?

20 MR. ROE: We have found in certain areas that the
21 understanding of the meaning of the instrumentation has not
22 been at the standards that we thought it was, even some
23 routine instrumentation. We do think that there should be
24 some focus and training. We do cover those sorts of things
25 in our operator examinations, where we have requalification



1 exams. Part of the requalification exam is usually a set of
2 two dynamic scenarios run in the simulator that go well into
3 the EOPs. So we're able to determine what the operators
4 know about that particular scenario and the usage of EOPs
5 for that scenario.

6 MR. IBARRA: The human factor aspect of it, would
7 that be a concern here also?

8 MR. ROE: Yes.

9 MR. IBARRA: Okay.

10 MR. ROE: And we normally have taken care of that
11 concern by the EOP inspection. In the EOP inspections, we
12 conduct similar types of simulator scenarios, but it's not
13 for the purpose of relicensing somebody as an RO or an SRO;
14 a little bit different level of concern by the operator.
15 They come in to run a scenario for an examination that will
16 lead to them being relicensed. They have a different set of
17 stressors than if they come in just to do one that shows the
18 capability to carry out EOPs.

19 MR. IBARRA: Okay.

20 MR. ROE: I think what -- we made that decision
21 not to do it is a co-mingled program because we wanted to be
22 sure that we did not have any additional factors that would
23 be present in a requalification examination when we were
24 looking at the EOPs. Just focus on the EOPs, and when we do
25 the requal, then we focus on operator performance, and don't



1 try to put the two together.

2 MR. IBARRA: Does your branch take care of SPDS
3 reviews?

4 MR. ROE: Yes.

5 MR. IBARRA: Okay. What has been the history of
6 losing SPDS?

7 MR. ROE: In the majority of cases, we believe
8 it's a reliable piece of equipment. In some other cases, we
9 know that it has not been reliable. That has caused us
10 concern. We think it should be reliable, and the regulatory
11 requirements call for reliable, but didn't define the
12 particular term.

13 One thing that does balance the fact that
14 sometimes it's not available is that the training
15 requirements are that you are trained to operate with it and
16 you are trained to operate without it. So we believe that
17 training has covered it. But because it's a very useful
18 piece of equipment, we think it should be reliable, and we
19 have provided some additional guidance in generic letters to
20 the industry. It looks like most of them have solved that
21 problem.

22 MR. IBARRA: The technical information available
23 in the EOF and the TSC mostly comes from SPDS, and --

24 MR. ROE: Or the plant computer.

25 MR. IBARRA: Or the plant computer. But if we go



1 to EOF, it's mostly SPDS.

2 MR. ROE: Right.

3 MR. IBARRA: That was lost, and --

4 MR. ROE: Because of the power supply.

5 MR. IBARRA: Because of the power supply. And yet
6 -- we understand the staff has always said reliable power
7 supply, but that has been taken to be UPS. And now we know
8 that UPS, whether it's this event or any other event, has
9 not turned out to be as reliable as we thought. Is that a
10 concern as far as human factors are concerned, as far as
11 operations are concerned, and whatever information we are
12 able to gather from that?

13 MR. ROE: Yes. Especially when the expectations
14 of the operators are that you have an uninterruptible power
15 supply from diverse points, diverse sources, is that they
16 tend to rely upon it, and when you take away that, it makes
17 their job more difficult.

18 MR. IBARRA: Okay. Any questions, Bill?

19 MR. VATTER: I don't know if this is an
20 appropriate time to do it, but I'd like to talk with you
21 about specific examples of the procedures where the
22 operators were having some difficulty. Is it okay to do
23 that now?

24 MR. IBARRA: Sure.

25 MR. VATTER: Jack, I don't know if you've been



1 through this before with the EOPs.

2 MR. ROE: Not this point with the EOPs, but some
3 of them.

4 MR. VATTER: In the event they entered this RPV
5 Control procedure because they got to Level 3.

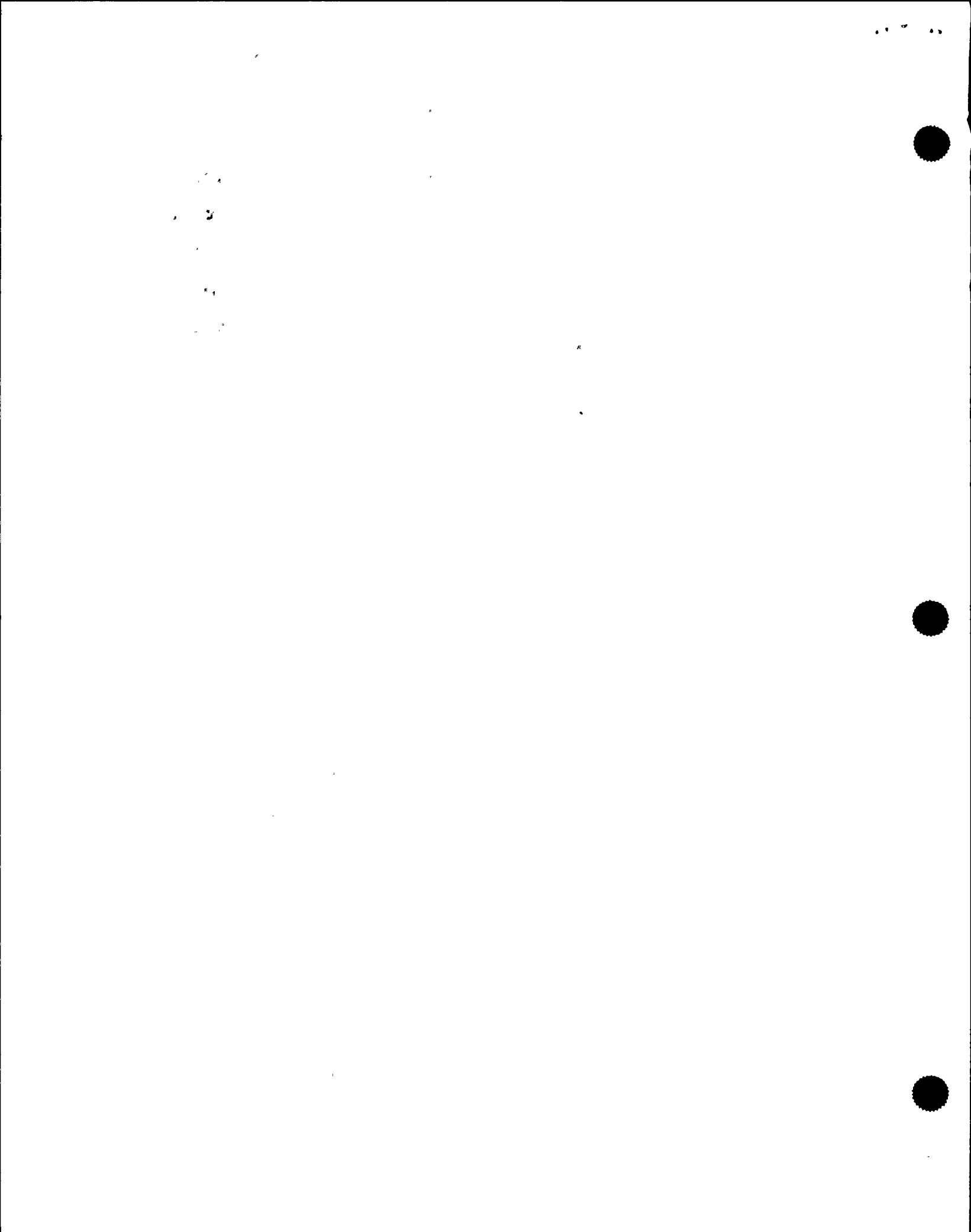
6 MR. ROE: Okay.

7 MR. VATTER: In going down here on the level, the
8 RL leg, we get down here to the fourth box down the column,
9 and it says, while executing the following steps, if the
10 control rods are not inserted to Position 02 and the reactor
11 will not remain shut down without boron, then you need to go
12 over to C5. Well, they really didn't have this condition.

13 MR. ROE: Right.

14 MR. VATTER: But because they didn't know the
15 position of the control rods, they were really without very
16 specific guidance for the situation they were in. So the
17 operators assumed the worst case, that the rods were in an
18 undesirable configuration, and they went over to C5, and
19 then in C5, they were basically stopped there until they
20 were able to determine the position of the rods.

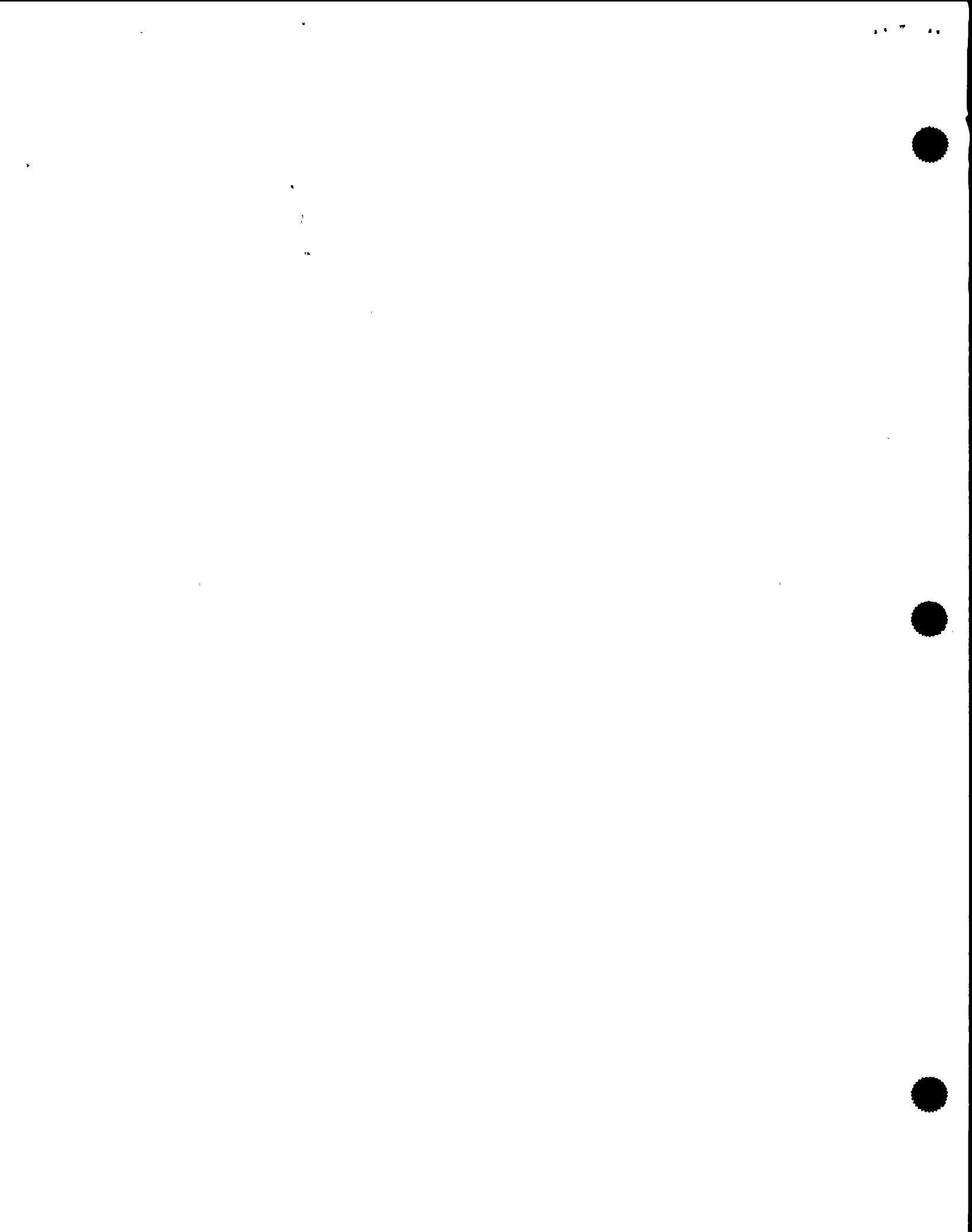
21 Do you have any thoughts about the adequacy of
22 this kind of guidance either from a technical or human
23 factors perspective as to whether this procedure is adequate
24 or whether the operators need additional training and how to
25 address that kind of an issue?



1 MR. ROE: You really can't answer that question on
2 its face without knowing what kind of training that the
3 operators got and what they had been trained, what the basis
4 of this particular step was. That would be very important
5 to me because they've got to know what the objective going
6 through here, and what the paths mean to them.

7 MR. VATTER: Our understanding is that the
8 operators hadn't been specifically trained on loss of
9 indication, that they'd been trained on the situation that's
10 addressed by the procedure. And they, of course, understood
11 the problem with either recriticality or not having the
12 reactors subcritical, because of an inadequate insertion of
13 all the control rods. And they were basically assuming that
14 they had potential for that situation and were addressing a
15 potential situation. And in that line, without any specific
16 training or procedural guidance on what to do when they did
17 not have indications, do you think that there ought to be
18 additional guidance in the procedure, or do you think that
19 the way in which they responded was a natural response that
20 you should expect, and a correct response?

21 MR. ROE: Probably a natural one, and maybe an
22 expected one. Depends on the group of people and the
23 understanding of plant characteristics by the reactor
24 operators and senior reactor operators. There is a scenario
25 that you can say that they could have gone for and looked at



1 some alternate indications that would tell them if control
2 rods are not inserted at least position 0.2, what does this
3 really mean? This mean that the reactor is shut down, it's
4 subcritical and it's got a certain subcritical margin.

5 Now, I don't know of all the instrumentation they
6 had or did not have, but there may have been other
7 indicators that could have found that this objective is not
8 met, especially when they look at the "and" step, "and the
9 reactor will not remain shut down without boron." That's a
10 very important linkage there. That step alone has certain
11 weight. When you put these two together, it's obvious that
12 you're looking at a recriticality. So they could have
13 looked at other indications that they had and made some
14 judgment and gone on.

15 However, many times we've seen, if you expect or
16 assume the worst case and go to another procedure, that if
17 you don't have the worst case, it sometimes will back you
18 out or won't take you through, because you haven't met some
19 of the fundamental assumptions to continue on through it.

20 I have a particular philosophy, is that the EOPs
21 should be a very good assistance to the operators, but they
22 shouldn't be encumbered so that the operator has to spend a
23 great deal of time reading through all kinds of ifs, ands,
24 or buts, to get to the point that he's going to take action.
25 These things have to be done fairly quickly.

117



1 And I have criticized some other of the EOPs that
2 I've looked at.

3 For example, I looked at one EOP page that was not
4 flow-charted. We discussed it for 45 minutes, what the
5 steps meant, what they really meant. You don't have 45
6 minutes to confer and discuss what the steps really mean.
7 It's got to be very clear to the operator.

8 So clarity is important. We have to balance that
9 off. And there may be some lessons that we learn from this
10 event that say the balance is there needs to be a little bit
11 more depth. But --

12 MR. VATTER: Or perhaps a backup document in case
13 he has trouble with that particular step.

14 MR. ROE: That's correct. And you focused here on
15 something that's very critical, is shutdown margin of the
16 facility, and having the rods within 02 or lower. And 02 or
17 lower obviously is a very key indicator as far as RPV
18 control goes. If you have not gotten a shutdown plan, then
19 you've got some problems that you're going to have with RPV
20 control, and you have to address that.

21 MR. VATTER: It appears to us that this procedure
22 was written with the assumption that the operator would have
23 the indication of rod position.

24 MR. ROE: Clearly. Because if it focused at least
25 position, 02, so he would need that position indicator.



113
114
115
116
117
118
119
120



1 MR. IBARRA: Would this present a problem in the
2 sense that -- of course we're more knowledgeable now on this
3 type of event -- but that the information he would be
4 relying on is not safety-related?

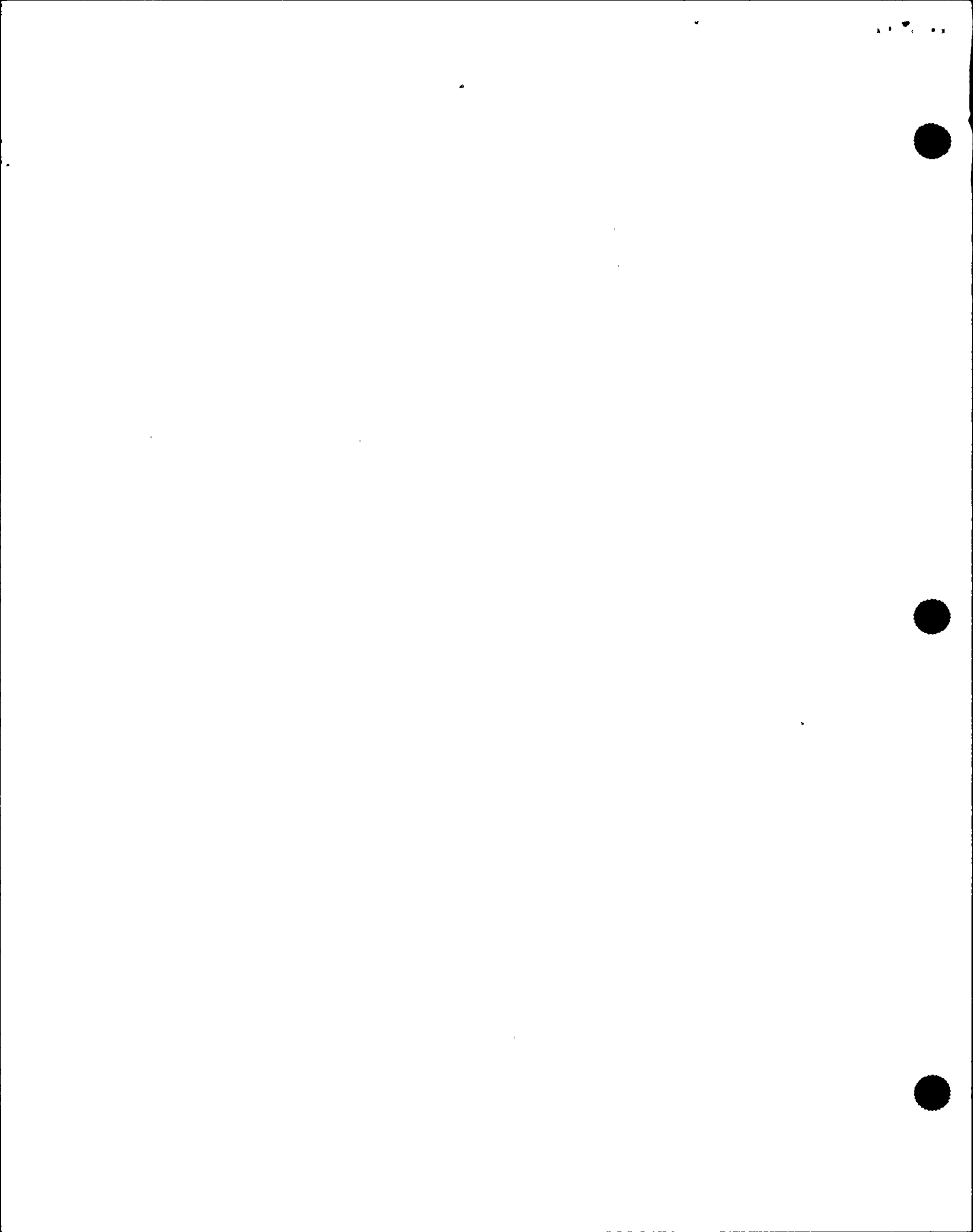
5 MR. ROE: I don't understand. Could you rephrase
6 that?

7 MR. IBARRA: This presents a problem in the sense
8 that in order to continue from the step, he's going to have
9 to rely on non-safety-related equipment.

10 MR. ROE: That presents a problem. As I said
11 before, that's why we are pleased that our new maintenance
12 rule covers just these types of instrumentation and control.
13 It doesn't call it safety-related, but it says clearly that
14 it's within our regulatory authority and has to be properly
15 kept up.

16 MR. IBARRA: Do we understand today, if we were
17 looking at this kind of flow chart, the kind of equipment
18 that would be required? What is the qualification of that,
19 what is the range of that? Not only the agency, but does
20 the vendor have an understanding?

21 MR. ROE: Of what would be required today of the
22 qualification of all the different -- yes, I think that you
23 could go through and determine what the qualification, what
24 falls within safety-related, which is under Appendix B type
25 of QA requirements, what is important-to-safety generally



1 considered, and what is balance-of-plant.

2 MR. IBARRA: You feel confident that the NSSS
3 vendor does know that information?

4 MR. ROE: They may not, they will be able to
5 determine it.

6 MR. IBARRA: Okay. But when these things were
7 drawn --

8 MR. ROE: Do they know overtly? I don't believe
9 so. But that's my own opinion.

10 MR. IBARRA: Okay.

11 MR. ROE: What they did is they took a look at the
12 path they needed to get and what equipment they had
13 available. We've seen certain circumstances where there's
14 been some reluctance to use non-safety-equipment or power
15 production equipment in the EOPs. WNP.2 is an example where
16 there was some reluctance because of their desire to protect
17 the equipment, not to utilize it in an emergency. In our
18 licensing process, with our operators, we had covered that.
19 We've remedied it.

20 MR. IBARRA: Can you explain a little bit to me --
21 I understand that the technical adequacy is covered by
22 another division. But can you explain to me how the
23 procedural guidelines, and I guess those are the methodology
24 or the process you're talking about, how they take care of
25 integrating a lot of these issues together, let's say, EQ,



1 Reg. Guide 197, all the other problems that exist, all the
2 disciplines that exist out there, how that takes care of it,
3 how the process theoretically should take care of it?

4 MR. ROE: I really don't know the answer to that.
5 It's been a long time since I've looked at the process-type
6 documents, and I'd have to pull those out. I indicated that
7 many years ago we went through that kind of what I call a
8 process review, and we found that it wasn't giving us the
9 end result that we wanted, so we went to basically a
10 performance-based review, say, how do you do it, can you
11 carry them out, are they a liability or an asset to the
12 operators? So it's been a while.

13 MR. IBARRA: These are the inspections you were
14 talking about where you go out there and you actually make
15 them do it?

16 MR. ROE: Right. Make them do it.

17 As a matter of fact, when I took over as the
18 Division Director in '87, we were doing paper, and I said
19 we've done enough of that. I want to see if it connects
20 with actually doing it. Let's go there, let's develop an
21 inspection program. I want to see if they can carry them
22 out, physically carry them out in the control room. Can
23 they get through the procedures all the way to the end using
24 the simulator number two; can they physically carry them out
25 in the plant, that says to take this particular valve and



1 open it? We found some interesting things, that we needed a
2 jumper from contact 12 to contact 57. There were no jumpers
3 available. In an emergency there's not time to start
4 manufacturing jumpers. If you have spool pieces, are they
5 available? Those sorts of things. Physical accessibility.
6 The valve is 17 feet in the air. How do you get there?
7 That's important considerations.

8 So it's those sorts of things that yes, we have
9 been involved in the process review and the paper review.
10 We wanted to be sure that they could actually carry them
11 out. And I think that it's a good program. They found some
12 interesting things. We got an awful lot of results of it.
13 They improved the EOP usage, the EOP understanding.

14 MR. IBARRA: The utilities do a lot of work,
15 especially when the NRC is coming out for inspection. It's
16 a very rigorous type review. I've participated in some of
17 them, and I realize that they do look at all angles.

18 But what I found missing in some of those was
19 specific disciplines at the utility, and that is a big
20 concern for us, and I think it keeps coming up over and over
21 again. Not that the work that they do is not good; they do
22 good work, okay. It's just that we cannot expect one
23 individual to know everything about Reg Guide 1.97.

24 MR. ROE: That's right.

25 MR. IBARRA: Electrical problems to know about,



1 human factors, probably even though human factors in this
2 aspect is pretty well covered.

3 MR. ROE: That's a point. In our inspection
4 process, the performance-oriented one, we always took a look
5 to determine if a multidisciplinary team was used, which is
6 important. We didn't indicate exactly who by discipline
7 should be on a team, but it shouldn't be a small team with
8 just a few disciplines. It should be ones where there's a
9 broader range covered. And we criticized them where we
10 found basically that EOPs had been developed by maybe just
11 one person.

12 MR. IBARRA: And we do find those.

13 MR. ROE: And we do find those, yes.

14 MR. IBARRA: Can you talk a little bit about the
15 opposition to the maintenance rule or at least the
16 opposition that we had several years over defining
17 important-to-safety?

18 MR. ROE: I'm really -- the opposition to
19 important-to-safety, probably other people can give you more
20 insight to that. I can give you the insight into the
21 maintenance rule, because for regulatory implementation, it
22 falls within my Division's responsibility.

23 The industry clearly felt that they had improved
24 greatly in the area of maintenance. They believe that
25 performance indicators show that, that there was approved or



1 reduced scrams, and that was one indicator that, in some
2 ways of looking at safety system outages, that that had
3 improved. So they did not believe that a rule was
4 warranted, especially when they had a very strong self-
5 evaluation program going.

6 And the Commission has long been interested in a
7 maintenance rule. They asked the Staff to do an evaluation.
8 We developed a maintenance team inspection, looked in depth
9 of how it was going out there, did one of those inspections,
10 and it usually five people at least eight weeks for
11 inspection.

12 The Commission also came to Staff for criteria to
13 obviate the need for a rule. But the end result is, the
14 Commission made a policy determination that a certain type
15 of rule, which was a results-oriented rule, was warranted,
16 and they decided on it.

17 And now, I think that industry understands. The
18 Commission has made that decision. They're not fighting us
19 anymore. What they're doing is trying to work with us to
20 develop the regulatory guidance that will go along with it,
21 so that if they've got some program that they believe is
22 appropriate for the rule, we can endorse it.

23 But I think the summary would be is that they did
24 not think it was needed, and the cost outweighed the
25 addition to reactor safety.



1 MR. VATTER: Do you think it was needed?

2 MR. ROE: Based on the criteria that the
3 Commission originally gave, our recommendation was that it
4 was not necessary for a maintenance rule.

5 I think it will be helpful, and I agree with the
6 Commission's decision, but it's a judgment call.

7 MR. IBARRA: A lot of utilities, though -- and it
8 varies; there's a lot of spectrum here that we're talking
9 about -- but in some utilities, it's either safety-related
10 or it's non-safety-related.

11 MR. ROE: That's correct.

12 MR. IBARRA: If it's safety-related, it's all the
13 way, and if it's non-safety-related, you don't worry about
14 it.

15 MR. ROE: I went to a plant. There was a barrier
16 up. It was a plastic sheeting. They said: On one side,
17 it's safety-related; on this side, it's not. We keep this
18 barrier up to keep that site clean.

19 I did not like that approach. I thought all the
20 equipment should be kept clean, free of dust, dirt. That
21 plant had some problems.

22 [Pause.]

23 MR. IBARRA: Any other questions?

24 MR. VATTER: No, I don't think so.

25 MR. IBARRA: You probably don't know very much of



1 what happened. Surely I think a lot of words have been
2 spoken outside of our team, and the press has gotten a hold
3 of some things that we know for sure did go wrong.

4 But is there any other thing from your knowledge
5 of the event or what you do know that you care to offer to
6 us, any question we haven't asked you, any concerns you
7 might have?

8 MR. ROE: Not that I know of. I'm interested in
9 reading the details of the report, the details of what
10 occurred. I've seen the things on -- that have been
11 generally available. But normally what I do is wait until
12 the report comes out and review it carefully and discuss it
13 with the Staff and determine how we feel about the
14 recommendations, make our response to the recommendations
15 and any additional lessons learned that we think that we
16 should look.

17 I know that we'll be interested, and Operator
18 Licensing, I've asked them a couple of times. I've asked
19 them: Did they ever run a loss of annunciator scenario?
20 And as I recall they said they believed that we've done it
21 occasionally.

22 MR. IBARRA: I did remember something else I need
23 to ask you. On quality assurance --

24 MR. ROE: Yes.

25 MR. IBARRA: Today, or let's say the maintenance



1 rule happens to come into effect, what do we look at --
2 safety-related, non-safety-related? I mean what --

3 MR. ROE: Basically the focus is on safety-
4 related, and we believe it should meet Appendix B, and for
5 those things that are not safety-related, that they should
6 conform to generally accepted industry practices.

7 MR. IBARRA: Does that mean that you would expect
8 to at least review the manual?

9 MR. ROE: Absolutely.

10 MR. IBARRA: And do a performance --

11 MR. ROE: They should review the manual. They
12 should know what the manufacturer's recommended preventive
13 maintenance is and make a determination based on the service
14 that they put that equipment into, whether or not that
15 that's warranted, whether it should be reduced or enhanced.

16 MR. IBARRA: Would it cause you problems to know
17 that they didn't have the right manual for the right
18 equipment or the right drawings?

19 MR. ROE: Certainly.

20 MR. IBARRA: I don't have any more questions.

21 Thank you.

22 MR. VATTER: Thanks.

23 [Whereupon, at 4:51 o'clock, p.m., the interview
24 was concluded.]

25



REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

in the matter of:

NAME OF PROCEEDING: Jack Roe

DOCKET NUMBER:

PLACE OF PROCEEDING: Bethesda, Maryland

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Marilynn Estep

Official Reporter
Ann Riley & Associates, Ltd.

