

ORIGINAL

OFFICIAL TRANSCRIPT OF PROCEEDINGS

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

Title: Interview of: Ashok Thadani
(Closed)

Docket No.

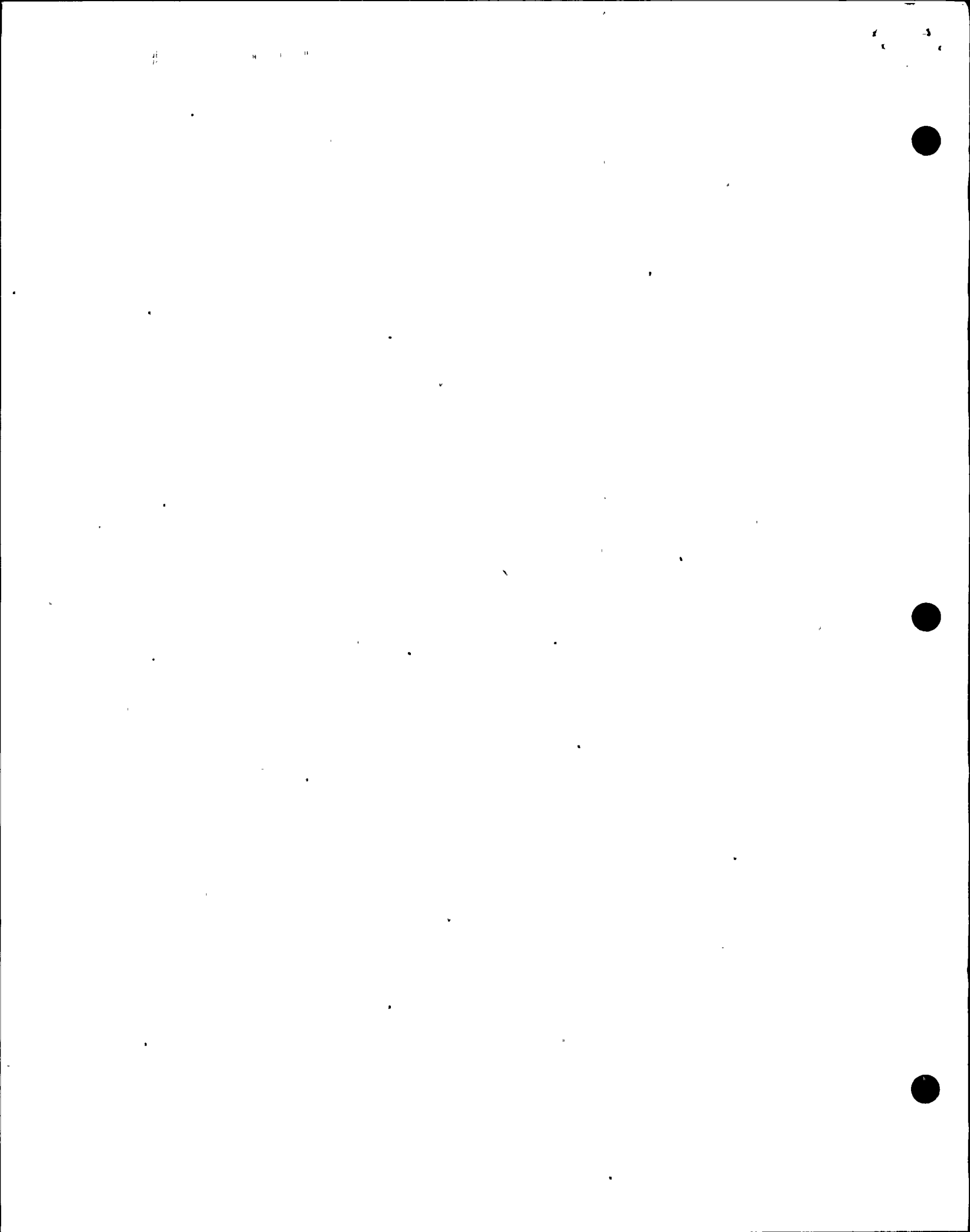
LOCATION: Bethesda, Maryland

DATE: Wednesday, September 4, 1991 PAGES: 1 - 41

ANN RILEY & ASSOCIATES, LTD.
1612 K St. NW, Suite 300
Washington, D.C. 20006
(202) 293-3950

9305070246 911031
PDR ADDCK 05000410
S PDR

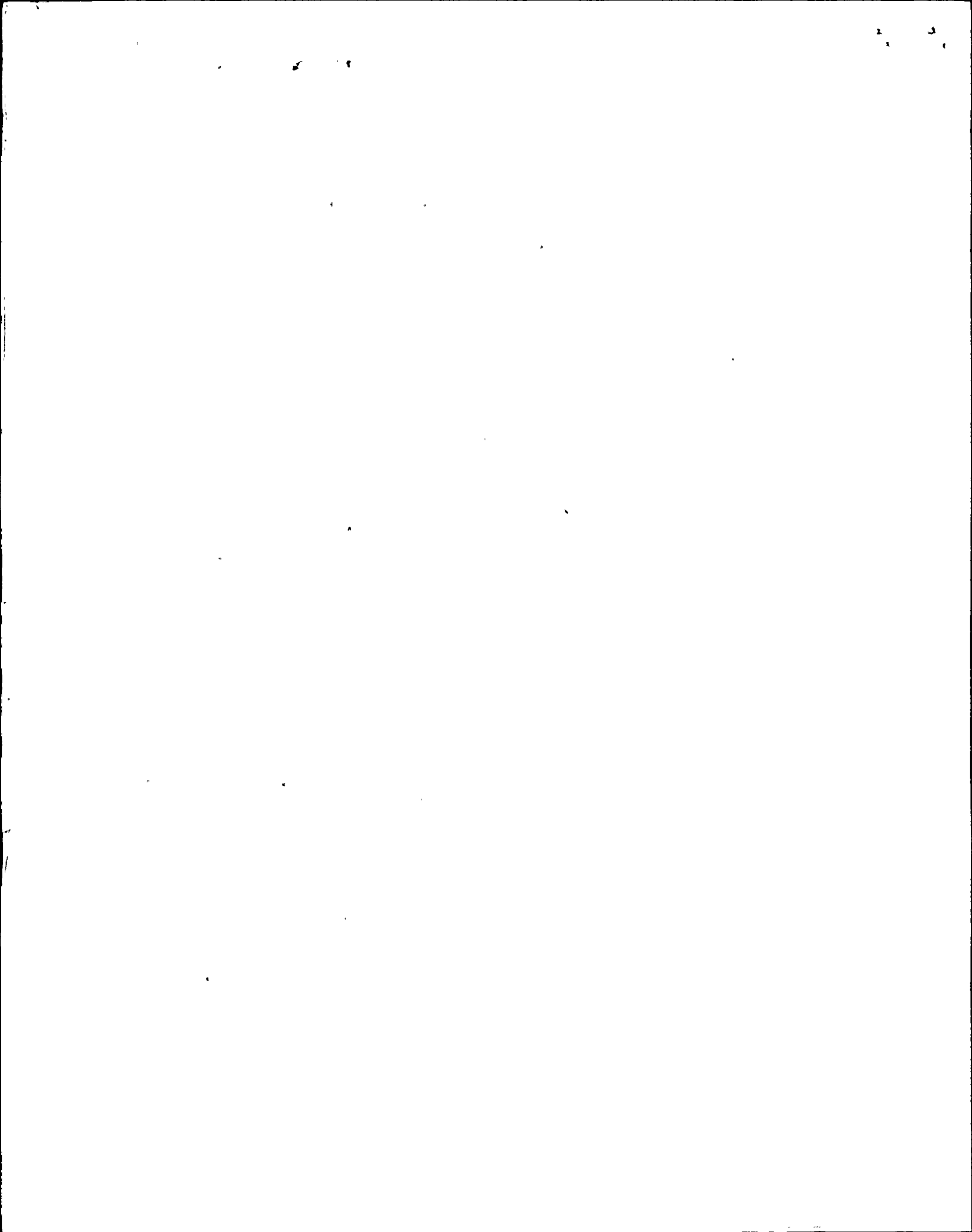




ADDENDUM

<u>Page</u>	<u>Line</u>	<u>Correction and Reason for Correction</u>
3	18	1990 should be 1989 my error
3	25	Cold should be Core Typo
20	19	to should be ten Typo?
23	23	Queue should be "Q"
27	6	Revival should be Reliability
27	8	-- should be London failures

Date _____ Signature _____



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
INCIDENT INVESTIGATION TEAM

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

- - - - -X

In the Matter of: :

INTERVIEW OF: :

ASHOK THADANI :

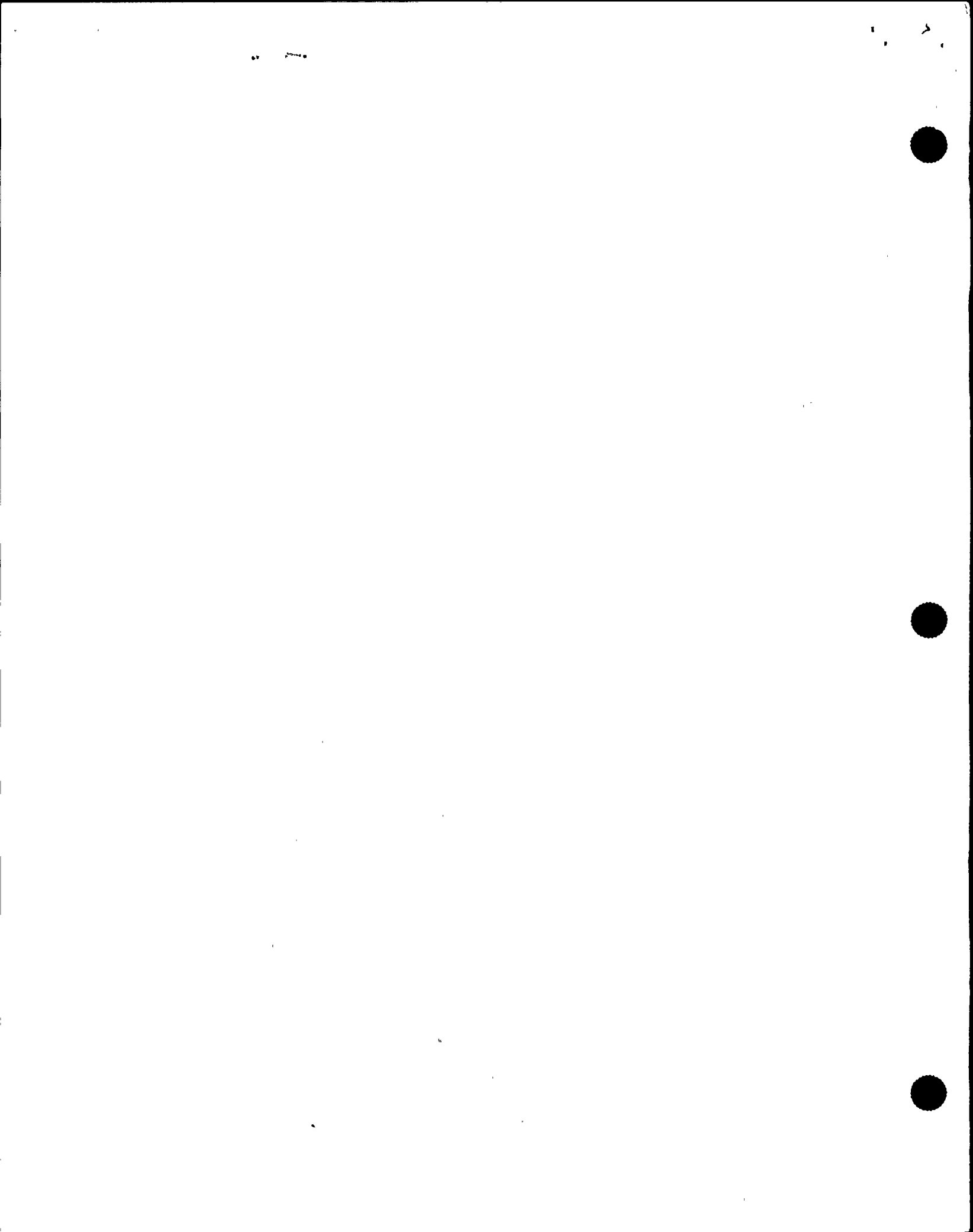
(CLOSED) :

- - - - -X

Nuclear Regulatory Commission
Interview Room
Woodmont Building
8120 Woodmont Ave.
Bethesda, Maryland
Wednesday, September 4, 1991

The above-entitled matter commenced at 4:35
O'clock p.m., when were present:

On behalf of the Incident Investigation Team:
RICH CONTE, NRC, REGION I
JOSE IBARRA, NRC, NRR
JACK ROSENTHAL, NRC, AEOD, IIT Team Leader



P R O C E E D I N G S

[4:35 p.m.]

1
2
3 MR. CONTE: Good afternoon. It's about 4:30 on
4 the 4th of September. We're in the Woodmont Building in
5 Bethesda, Maryland, conducting an interview of a Mr. Ashok
6 Thadani, concerning the event at Nine Mile II on August 13,
7 1991.

8 My name is Richard Conte. I'm from Region I.

9 MR. IBARRA: I'm Jose Ibarra. I'm a member of the
10 IIT, and I'm from NRR.

11 MR. CONTE: For the record, let it be known that
12 Jack Rosenthal, Team Leader, is joining the interview.

13 MR. THADANI: I'm Ashok Thadani. I'm Director of
14 Division of Systems Technology at NRR.

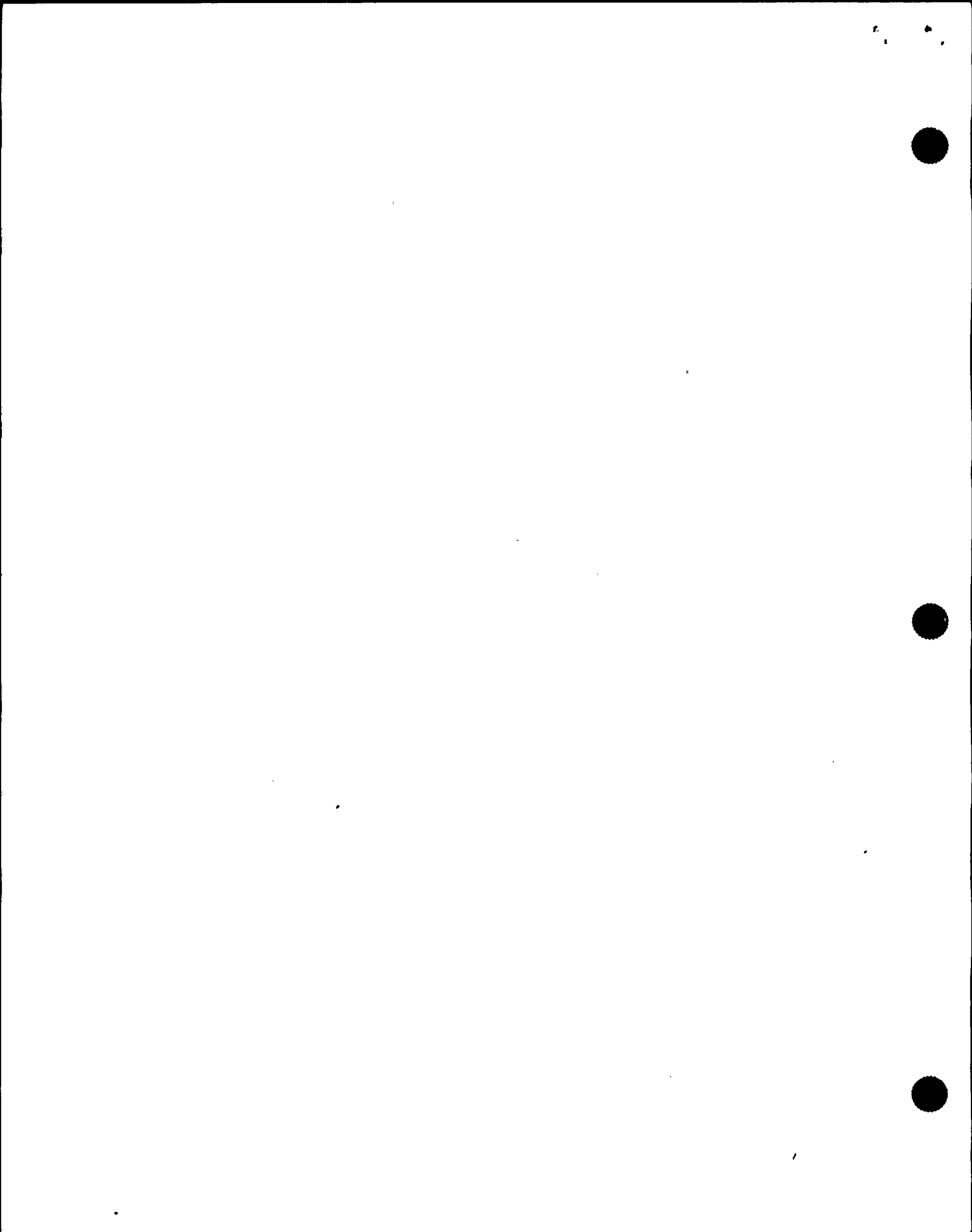
15 MR. CONTE: Let's get your name.

16 MR. ROSENTHAL: Jack Rosenthal. I'm the IIT Team
17 Leader.

18 MR. CONTE: Ashok, could you give a little bit of
19 your background with the NRC?

20 MR. THADANI: I came to NRC in 1974, in the
21 Reactor Systems Branch. I worked in Reactor Systems Branch
22 until 1978. And we became a different division working on
23 various unresolved safety issues and generic issues.

24 At that time, I was in the last stages of my
25 involvement in an unresolved safety issue called



1 "Anticipated Transients Without Scram," and I was a task
2 manager for that.

3 At the TMI, when the TMI accident occurred, I was
4 involved with the initial team, with Harold Denton. We went
5 out to the site, and were involved in the early analysis
6 aspects of the accident.

7 And after that, I was responsible for developing
8 NRC's views and requirements for Westinghouse and Combustion
9 Engineering designed plants as a result of the TMI accident
10 to see what, if anything, needed to be done.

11 Subsequently, I became Chief of Reliability and
12 Risk Assessment Branch in 1980.

13 And in 1985, I became Project Director,
14 responsible for Combustion Engineering plants.

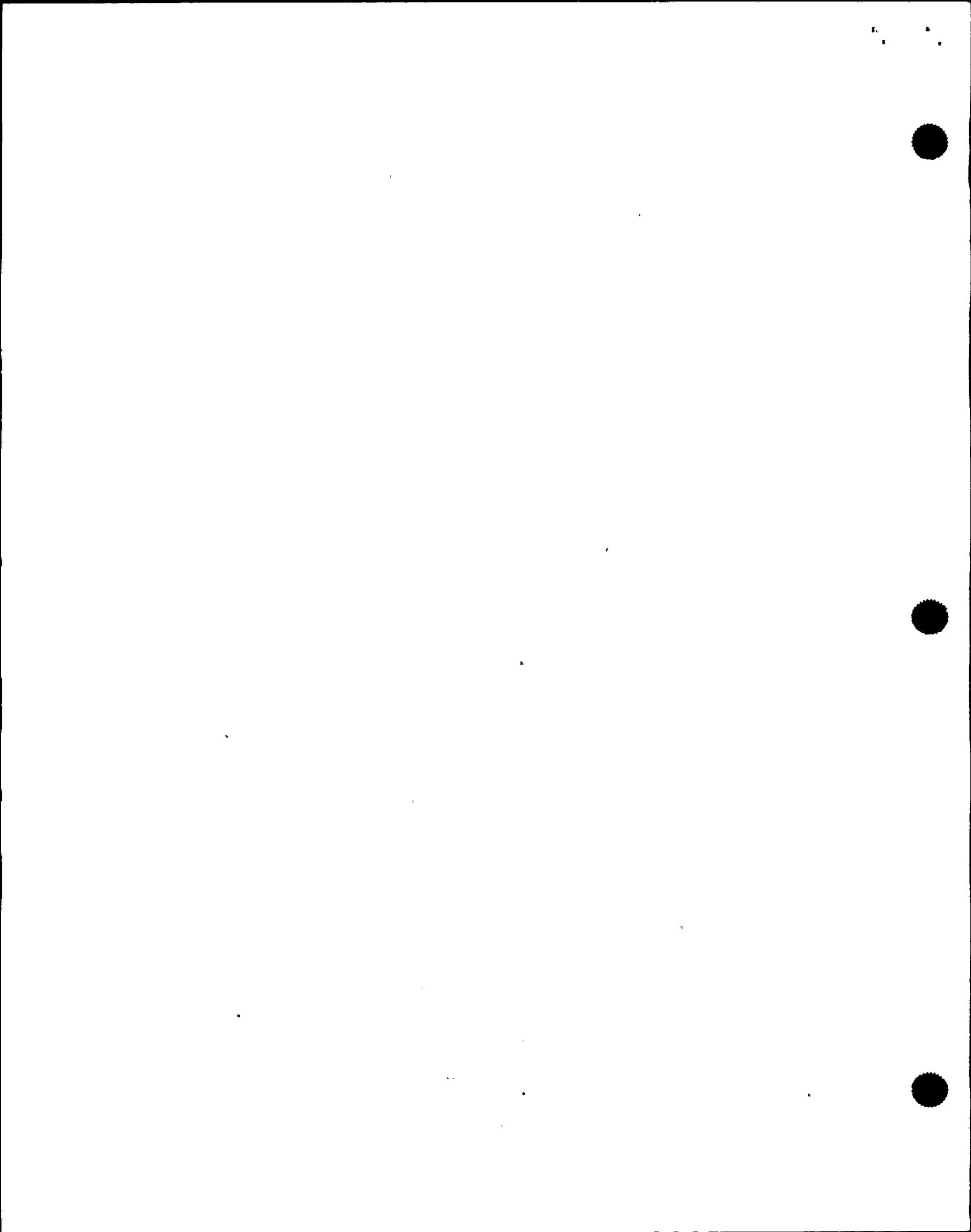
15 In 1987, I was Assistant Director, responsible for
16 systems activities, both in terms of reviews, as well as
17 inspections.

18 And in 1990, I became Director of Division Systems
19 Technology.

20 MR. IBARRA: Ashok, can you tell us the groups
21 under you, the branches?

22 MR. THADANI: Yes. I have four branches reporting
23 to me.

24 First is Reactor Systems Branch. The range of
25 responsibilities of that branch include cold physics,



1 thermal hydraulics, accident analyses, ECCS, over-pressure
2 protection, and so on.

3 The second branch is Plant Systems Branch. Plant
4 Systems Branch has responsibilities of containment systems,
5 auxiliary systems, fire protection, equipment qualification,
6 and all activities related to containment and balance-of-
7 plant systems.

8 Next is Electrical Systems Branch. Electrical
9 Systems Branch was responsible for power-related issues.
10 This includes off-site and on-site AC power and DC power.

11 And there is the Instrumentation and Control
12 Systems Branch, which is responsible for all issues related
13 to instrumentation and controls, as well as a variety of
14 generic activities.

15 Now, a significant portion of that branch nowadays
16 seems to be involved in the advanced technology, digital
17 technology issues, and so on.

18 I might let you know that all these branches, I
19 described the functions, but we have a separate set of
20 groups within each branch responsible for activities in
21 advanced light water reactors.

22 MR. ROSENTHAL: The review of emergency operator
23 procedures is over under Jack Roe, I understand.

24 MR. THADANI: Yes. The way it works is, if you
25 recall after TMI, there is an action item on symptom-based



1 procedures and the emergency procedure guidelines. The
2 guidelines are developed, technical guidelines are
3 developed; responsibility is with Reactor Systems Branch.
4 But they go to other branches, where needed.

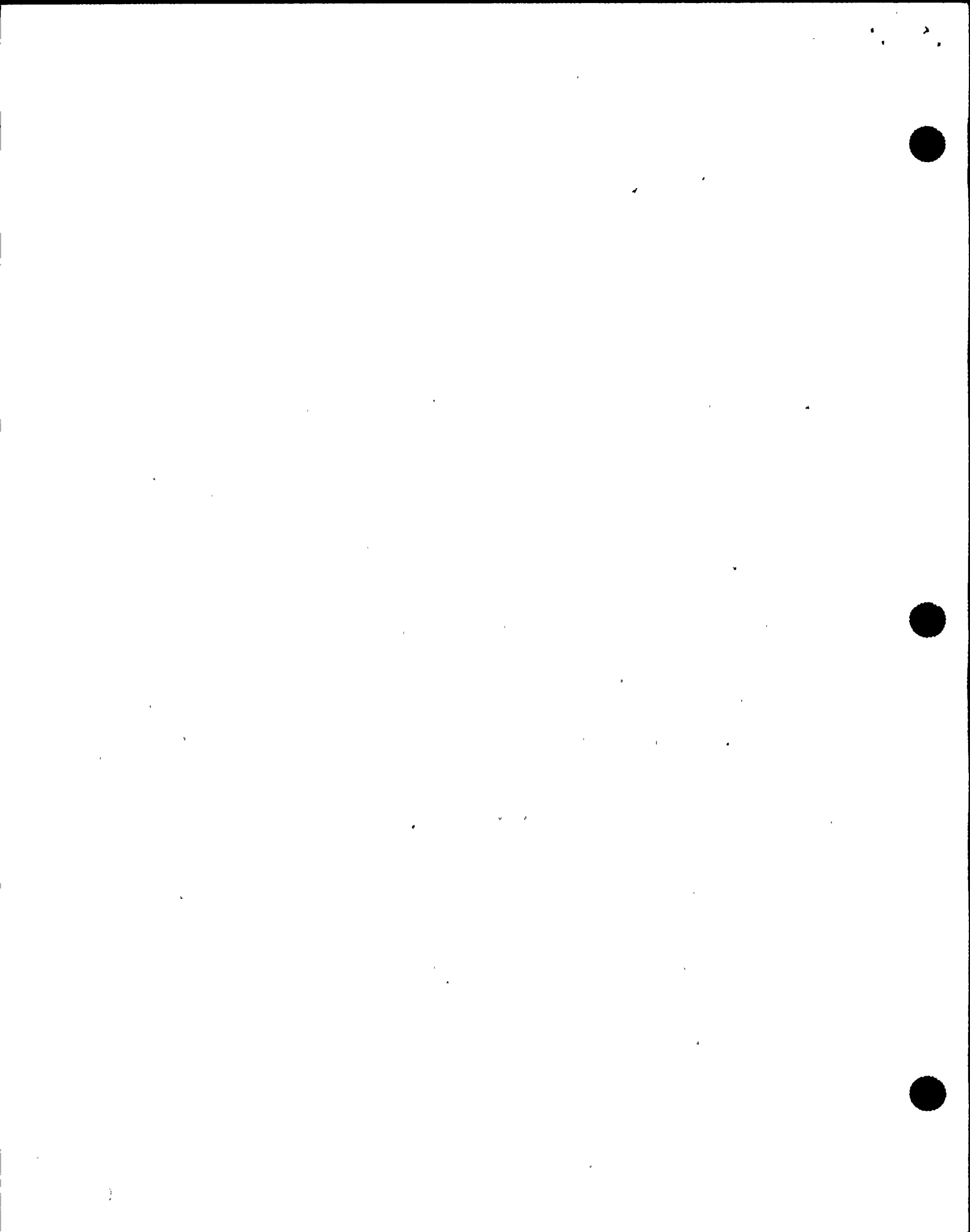
5 Once the guidelines are developed, then basically
6 the activity is turned over to Jack Roe, and they ultimately
7 transfer the guidelines into emergency operating procedures,
8 becomes his responsibility, and he's the one who follows up
9 on that. EOPs. We support him as needed, subsequent, if
10 needed.

11 MR. IBARRA: In your development of the EOPs, do
12 all of your branches contribute to that technically?

13 MR. THADANI: Several branches do. The bulk of
14 the work really comes from Reactor Systems Branch, because,
15 as I said, they do the transient and accident analysis. And
16 as you know, since TMI, we have been more and more concerned
17 about multiple failures.

18 In the old days we used to only worry about single
19 failures, and a non-mechanistic kind of look at designs.
20 But TMI taught us a lesson, that multiple failures can
21 occur, and that you ought to really do these analyses
22 realistically, and make sure you understand what the real
23 progression of events might be. So the bulk of that work is
24 Reactor Systems Branch.

25 Next level of involvement, I would say, comes from



1 Containment Group within Plant Systems Branch, because we're
2 into, substantially into severe accident considerations, in
3 some cases, more so for boilers than for pressurized water
4 reactors. So there's been a lot of involvement from the
5 Containment Section in Plant Systems Branch.

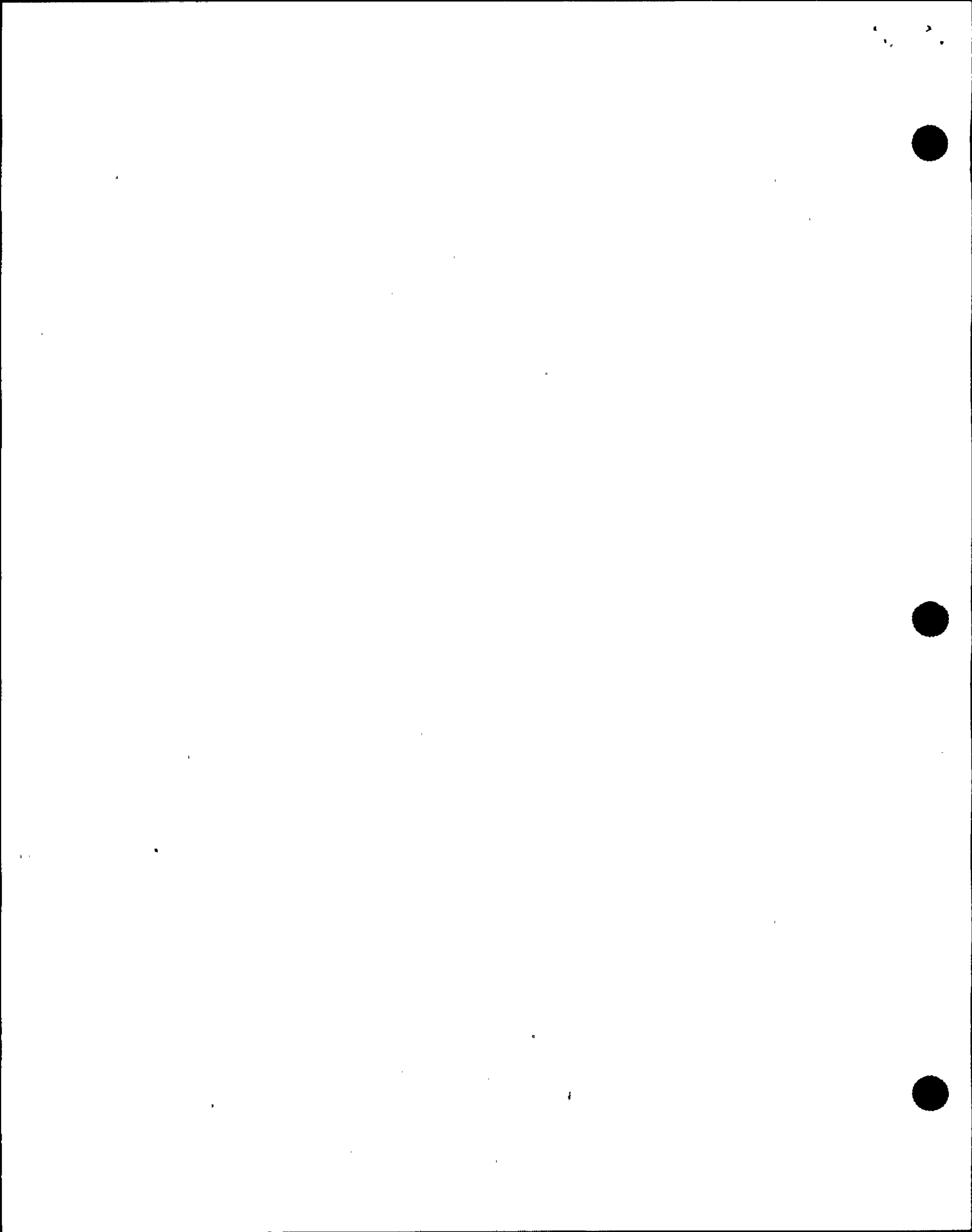
6 And then, as far as the instruments are needed and
7 so on, that level of activity would come from I&C Branch.

8 There's not much -- I'd say that's probably the
9 bulk of the activity.

10 MR. CONTE: I would imagine. You talked about
11 these other branches, like ICSB. For example, the Reg Guide
12 197 instrumentation. What is the connection between the Reg
13 Guide 197 instrumentation the EOPs? Should all the -- for
14 example, all the parameters associated with EOP
15 implementation be in the Type A, Category 1 classification?

16 MR. THADANI: It's hard for me to answer that to
17 say whether all of them should be Type A. I think clearly
18 the intention -- now, I don't know if you know, there have
19 been some appeals on some of the parameters in Reg Guide
20 197. I think we have had appeal on neutron flux monitoring
21 system. The history on that is we -- initially, the appeal
22 was rejected.

23 Subsequently, the Owners Group went to Tom Murley
24 and Tom Murley has indicated that because of what appears to
25 be the importance of neutron flux monitoring system and its



1 pedigree in the context of severe accidents, core melt
2 scenarios, that it may be appropriate to look at it as part
3 of accident management and not push for it under Reg Guide
4 197.

5 Now, I don't know how that issue is going to end
6 up because we have to go to CRGR and go through the process
7 to see how it ends up.

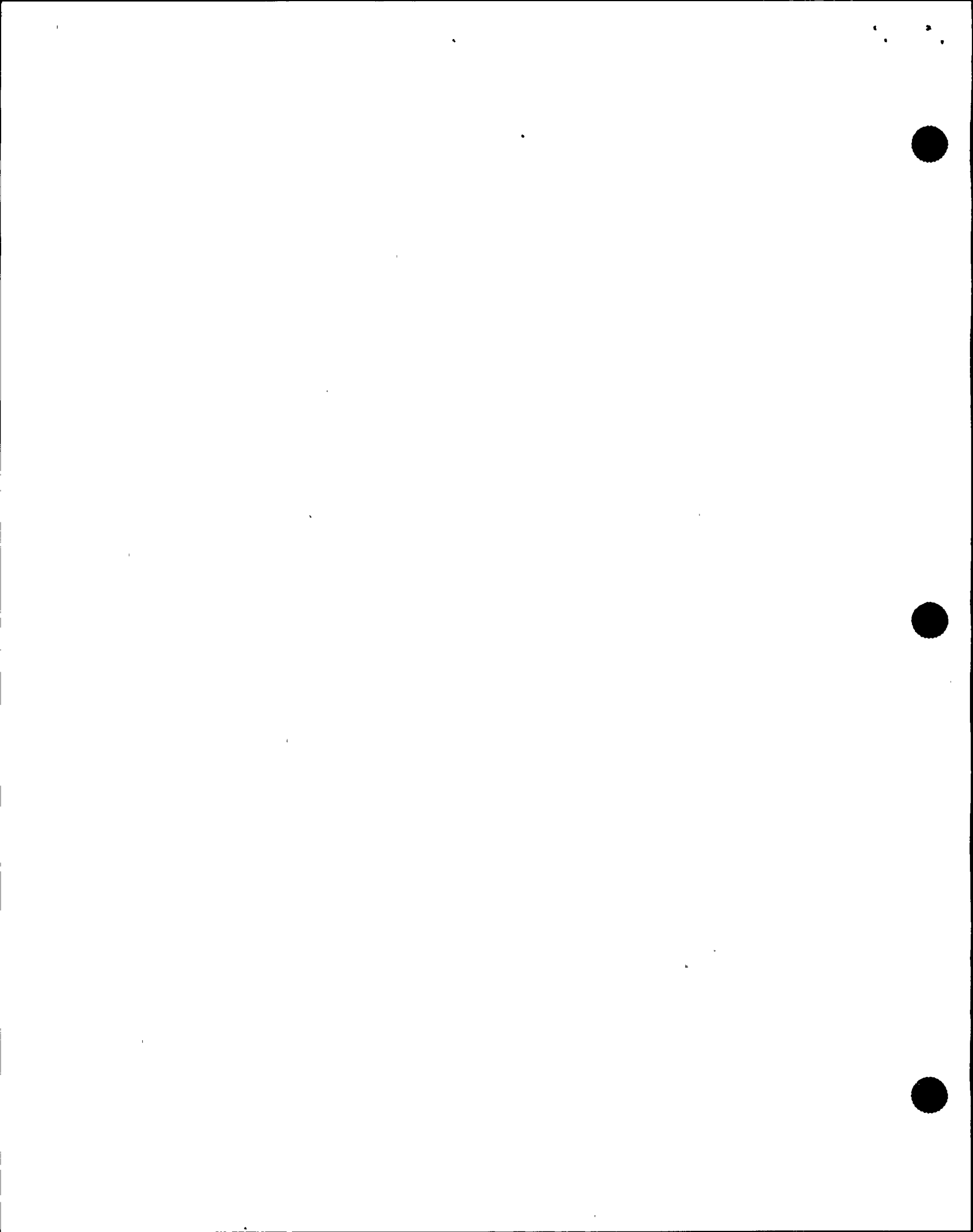
8 MR. ROSENTHAL: Did he rely on control rod
9 indication in his decision process?

10 MR. THADANI: Well, I think clearly that was a
11 consideration. And whether you have a situation where the
12 rods didn't go in and you -- or a situation where you might
13 go critical again and not know, the sense he had was that
14 the likelihood of those things is low enough that we don't
15 need to push.

16 As a result of Nine Mile Point, I said, well,
17 maybe this is something we didn't appreciate before. That's
18 a curve, so to speak, because I know we didn't think about
19 stuff like that. When you talked about getting into a loop
20 or do a loop on ATWS procedures and not knowing for sure if
21 the rods are in or not, to me, that's a very serious issue.

22 MR. CONTE: That's why we're asking the question.

23 MR. THADANI: Now I'm having second thoughts, in
24 my mind, whether we -- did we really consider events like
25 this, and now what would I say today, I don't know the



1 answer. I think as a minimum -- as a matter of fact, a
2 package came to me yesterday for my concurrence and I sent
3 it back. I said it needs a little more work and
4 particularly I have two questions.

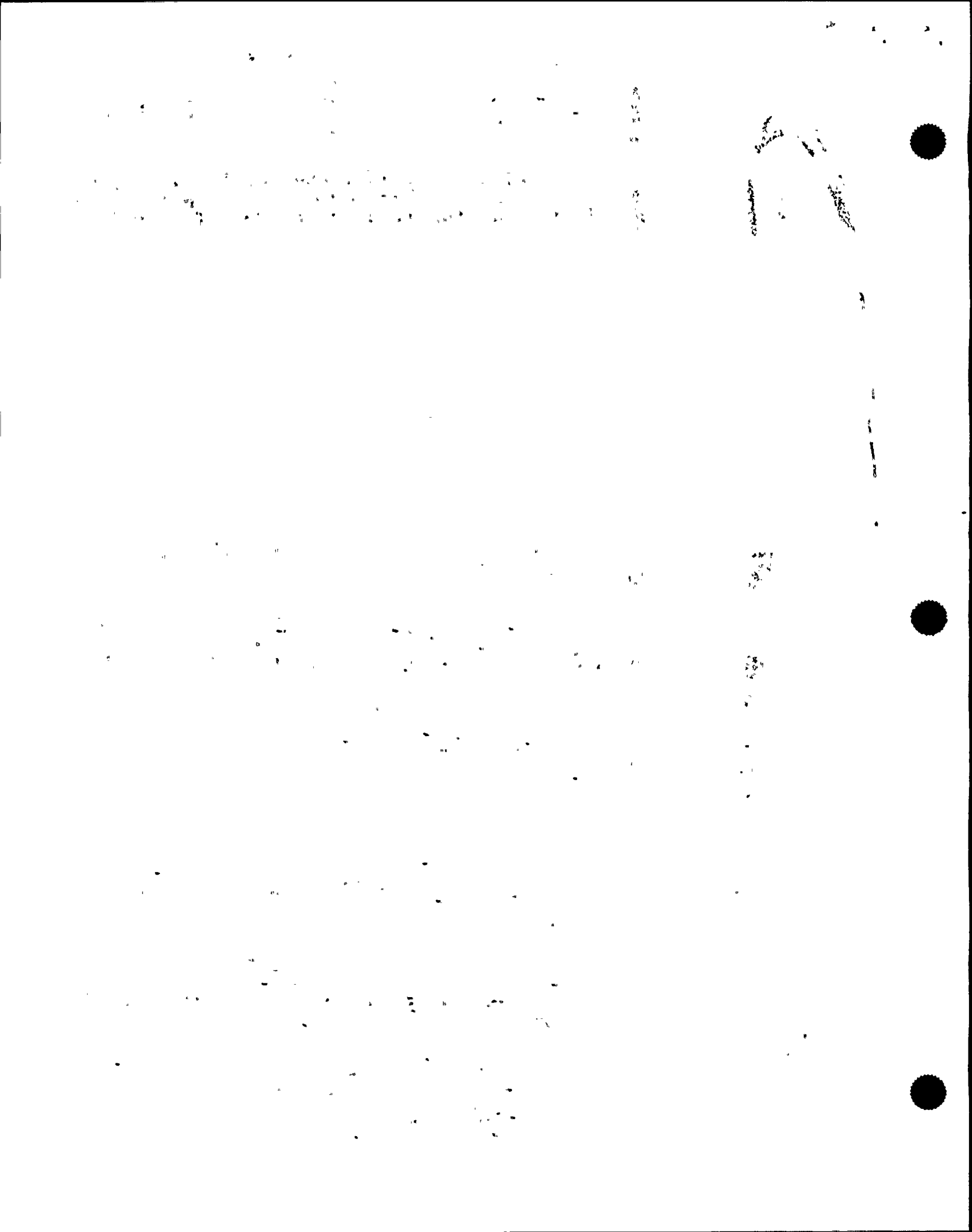
5 First of all, it needs more work, I think, but
6 second of all, more importantly, is how much do we really
7 know now about Nine Mile Point and what should its role be
8 in that decision. I'm not ready to answer that. I don't
9 know. We're going to wait for your report.

10 MR. ROSENTHAL: Well, as I understand it, since
11 they had APRMs low and LPRMs low, they knew that under that
12 condition they would shut down without knowing the rods.
13 And they end up in this little tight ATWS loop where they're
14 afraid to cool down, depressurize cool down the plant
15 because without knowing the rod positions, you don't know if
16 you might be re-critical.

17 MR. THADANI: Right.

18 MR. ROSENTHAL: I believe that there is folklore
19 on the emergency procedures where we told licensees, hey,
20 write realistic procedures, use all the real instruments
21 that you really will have in the plant, and that we will
22 make you make every one of them safety-grade.

23 And what we wanted to avoid was the set of real
24 procedures and then another set of stylized procedures that
25 would only have 1-E stuff, etcetera, for the regulators, but



1 they weren't the real -- we wanted the real procedures to be
2 one and the same.

3 MR. THADANI: That's right.

4 MR. ROSENTHAL: Okay. I don't know where that's
5 ever -- is that written down anyplace or was that espoused
6 anyplace or is that just folklore?

7 MR. THADANI: Well, let me see. I'm not sure it's
8 written down anywhere, but I think what we have said, and if
9 you look at -- well, let's use an example and maybe that
10 would help us. I remember when we did BWR Emergency
11 Procedure Guidelines Revision 4, and I'm using that because
12 --

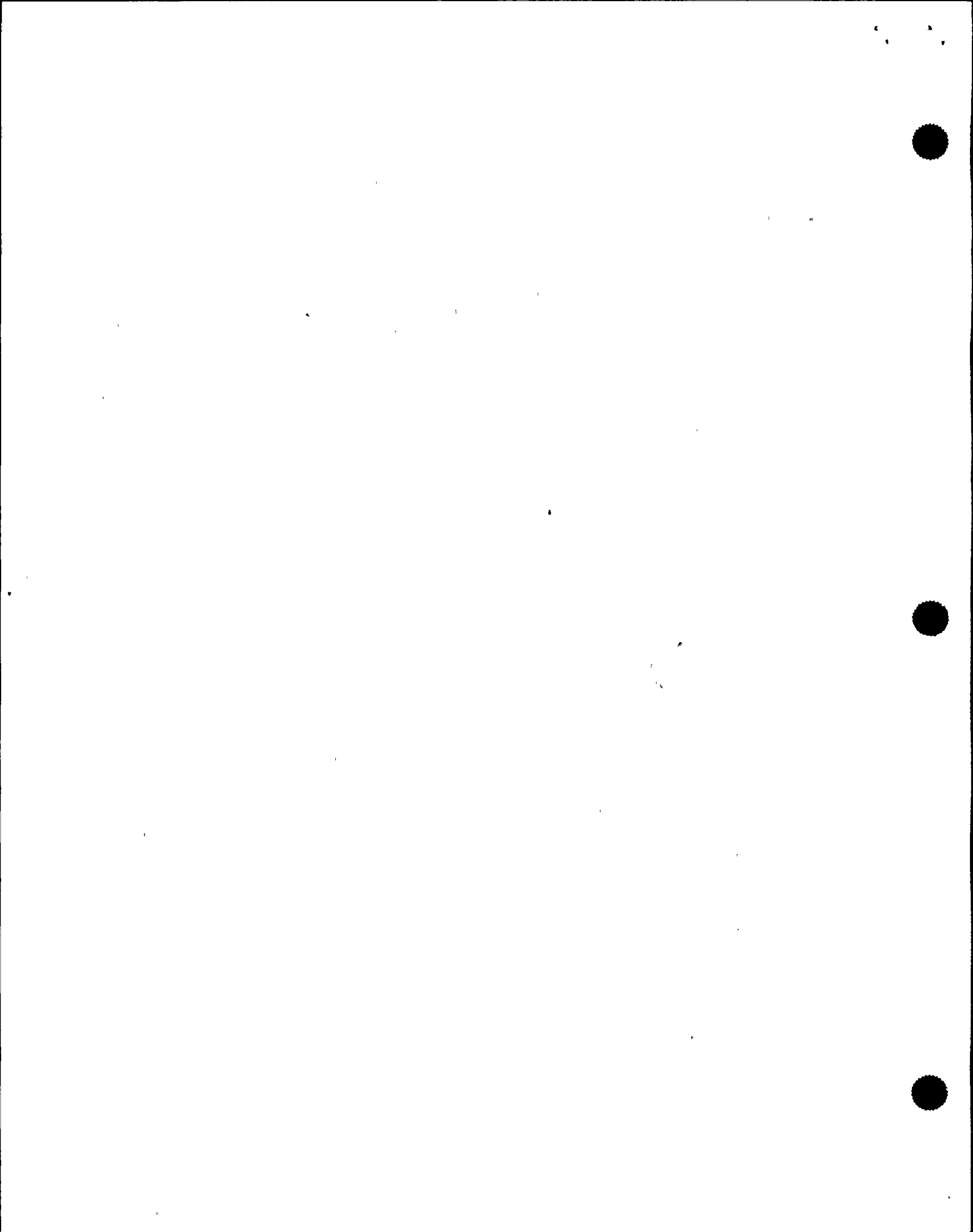
13 MR. ROSENTHAL: That's what this plant works to.

14 MR. THADANI: That happened during my period of
15 responsibility.

16 MR. ROSENTHAL: That's good. These plants.

17 MR. THADANI: So I said -- I guess what we said,
18 if I remember correctly, was the following. I think we have
19 said that use whatever is available, and I don't know if we
20 said reliable. We said you should do these things with
21 these analyses and decisions should be based on realistic
22 considerations.

23 But we had a hooker in there someplace, if I
24 remember correctly, in our evaluation. The hooker we put in
25 there was that if, by choosing to go forward with EPG Rev.



1 4, you are going to find yourself outside the design basis,
2 you have to systematically evaluate that and decide what's
3 the right thing to do.

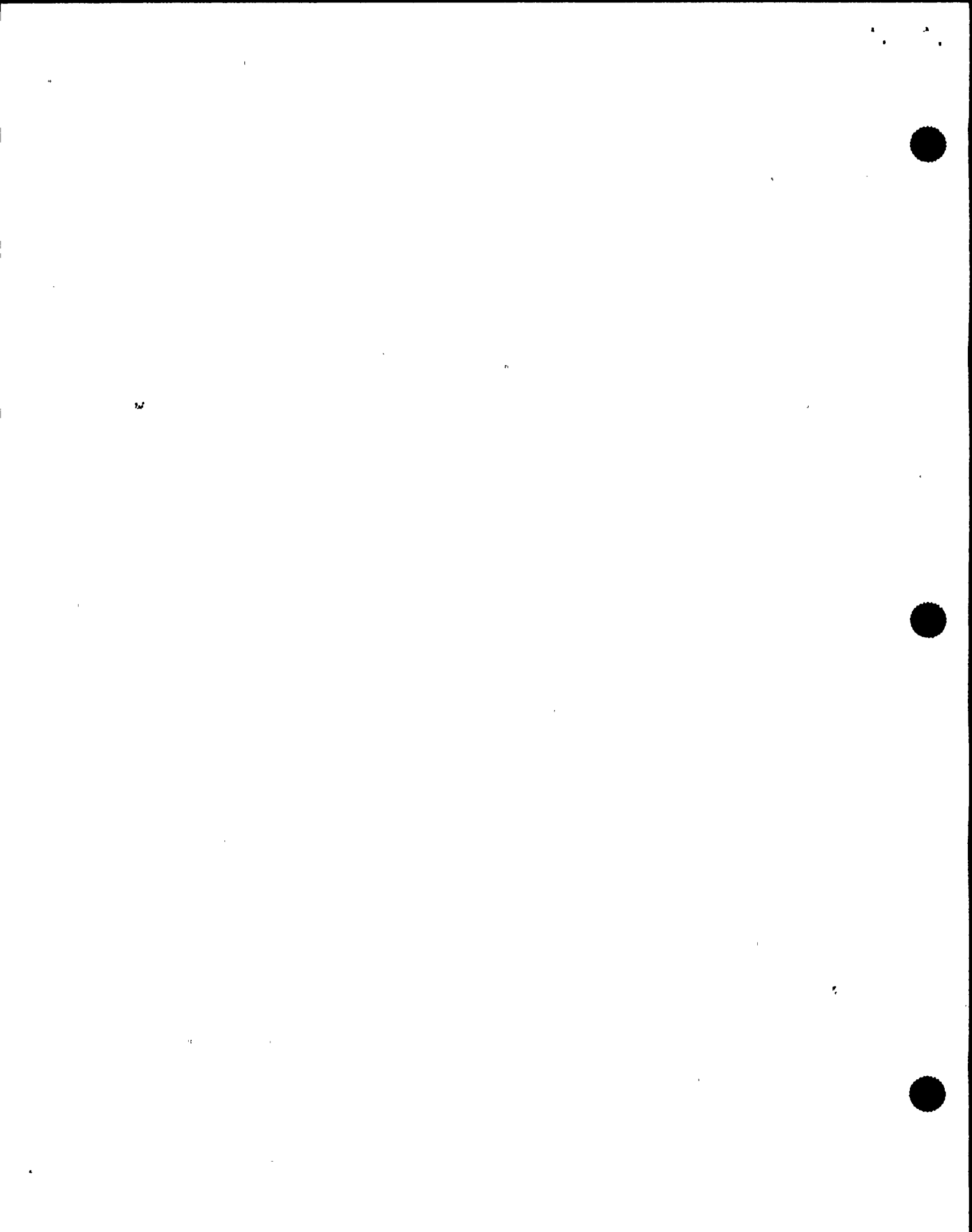
4 Now, you can kind of infer things from that, but
5 I'm not sure how one would -- whether there would be
6 systematic inference drawn by each licensee. I guess what
7 it tells me is that I went through a set of analyses in the
8 FSAR, made a set of assumptions, available information and
9 so on, everything, and I took certain actions.

10 Now comes EPG Rev. 4 and in the initial analysis I
11 assumed the containment integrity would be maintained for a
12 design base accident, let's say, and here comes EPG Rev. 4
13 that says when certain things happen, vent the containment.
14 I scratched my head, said wait a minute. If I vent the
15 containment, could I be -- could I possibly be within my
16 design base set of conditions.

17 If I am and I vent the containment, have I now
18 violated what I said in the FSAR. So that was really the
19 intent. But you could stretch it, you could push it further
20 and say, well, that means rely only on a certain set of
21 instruments and so on.

22 But that's about -- I mean, we have some more
23 information, but that's the way I remember the extent of it.

24 MR. CONTE: Let me see if I can rephrase what I
25 thought I heard: that the Staff's position -- and it may



1 not be very clearly written down -- that all of the
2 parameters and associated instrumentation in the EOPs do not
3 necessary have to be pedigree Category 1 safety grade.

4 MR. THADANI: Okay. That's right. The neutron
5 flux monitoring system is an example.

6 MR. CONTE: And we don't know what document that's
7 stated it, but it's the way we've been operating perhaps.

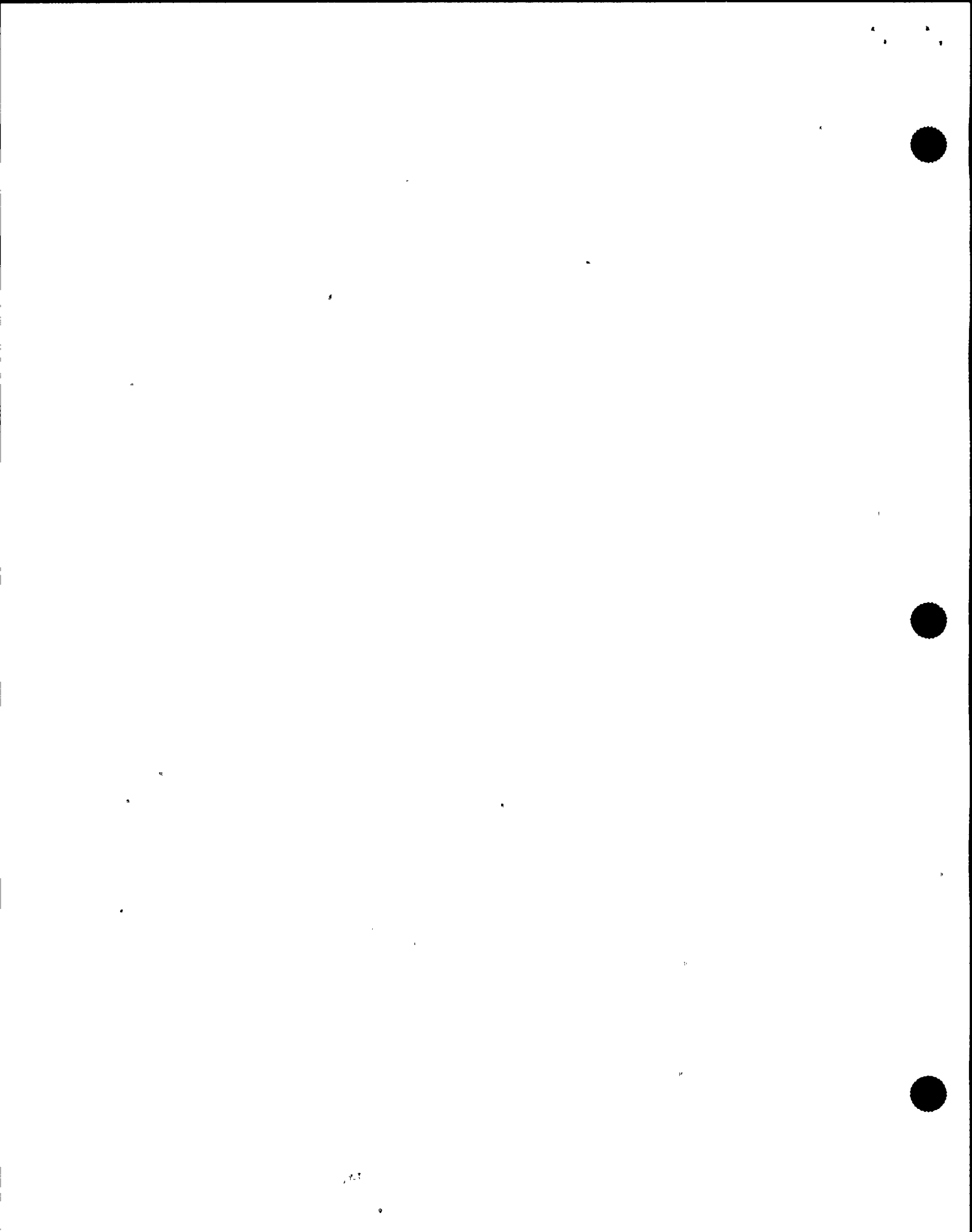
8 Now the next question is: How about an integrated
9 review by the NRC Staff to look at what the Reg Guide 197 is
10 saying, what licensees are doing in response to 197, and the
11 EOPs and maybe coming to an independent conclusion that,
12 hey, maybe one of these parameters that is perhaps powered
13 by non-safety sources ought to be safety grade?

14 MR. THADANI: Well, I guess I can't give you
15 details, but Reg Guide 197 splits them up into Category A,
16 B, and so on types of parameters, and they have to meet
17 certain pedigree requirements. And whether we go back and
18 check the EOPs, I can't answer that, against those
19 parameters.

20 I don't know if Jack can. I know I can't.

21 MR. ROSENTHAL: Well, apparently for the -- and
22 surely I was a contributor on 197, so I'm going to one day
23 interview myself.

24 MR. THADANI: You've have been a contributor to a
25 lot of things.



1 MR. ROSENTHAL: I'm going to sit on both sides of
2 this table one of these sessions.

3 MR. IBARRA: And I'd like to question you.

4 [Laughter.]

5 MR. ROSENTHAL: We clearly know that ICSB -- and I
6 don't know to what extent power systems -- reviewed
7 equipment against 197, and there were systematic 197
8 inspections, et cetera.

9 MR. THADANI: Right.

10 MR. ROSENTHAL: Okay. For type BC variables. But
11 this is a broad thing that says: Hey, Type A variables, if
12 it's a pre-planned manual action, then it ought to be
13 pedigreed. And apparently that was left up to the licensee
14 to identify those Type As.

15 MR. THADANI: That's correct.

16 MR. ROSENTHAL: Okay. So where did RSB, based on
17 their review of the thermal hydraulic adequacy of the EPGs
18 or human factors over -- not in your division -- feed back
19 what should be these Type A variables, or how did they worry
20 about this?

21 MR. THADANI: Well, maybe we need to make sure and
22 confirm with both Scott Newberry and perhaps Jerry Wermeil
23 over on the human factors side.

24 But I don't think we went back -- as far as I
25 know, we haven't gone back and checked. I think we have



1 accepted what the licensees have said, and to the extent the
2 check is there is that you see that there are significant
3 variations in what people are telling you.

4 And I also don't think there's a check to go back
5 and look at the EOPs and check each of the variable out to
6 see under what set of conditions, which variable is being
7 relied upon. And so as far as I know, we don't -- we have
8 not done that .

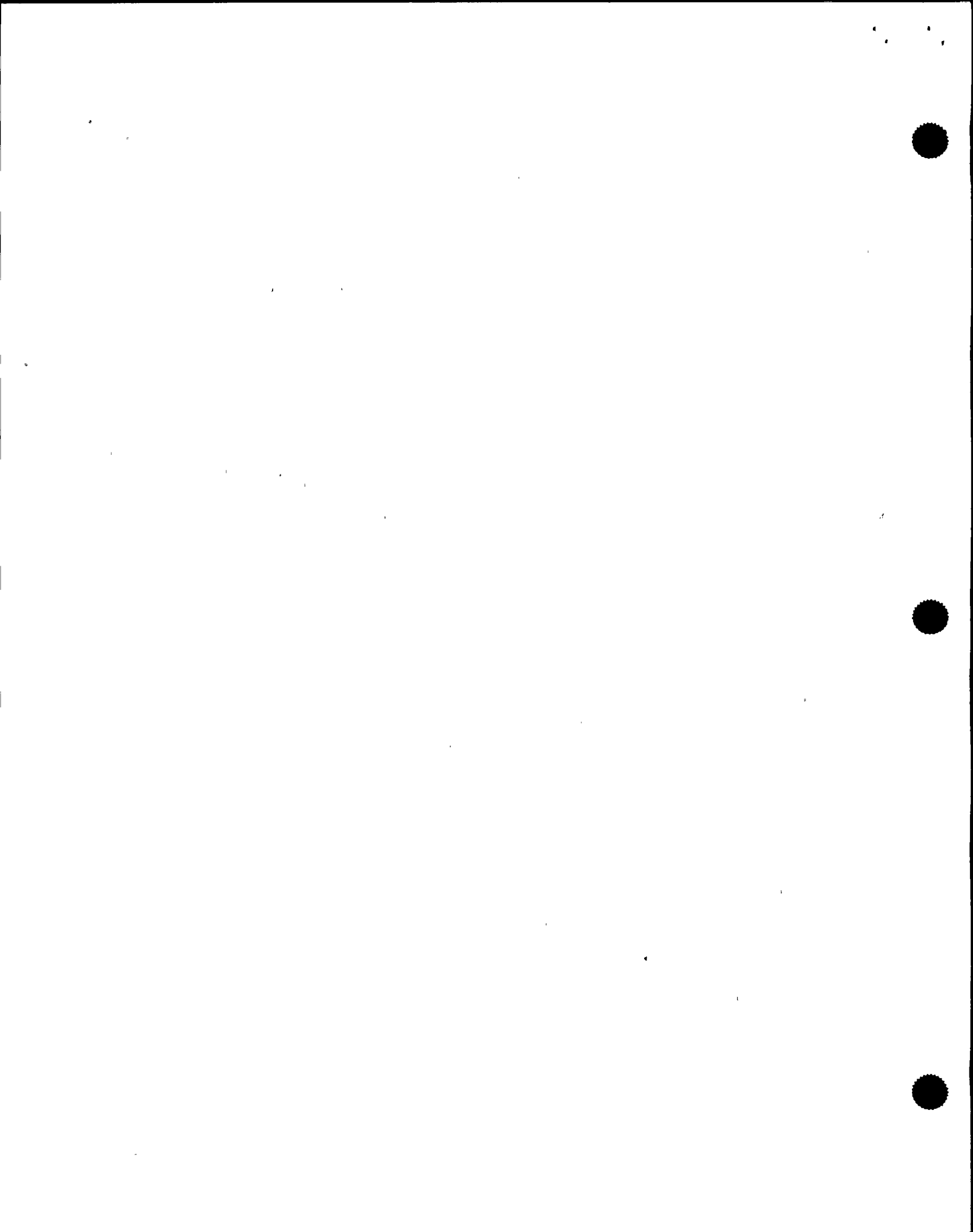
9 But since I have part of the responsibility, I
10 could be wrong, and maybe Jack is, you know -- or Jerry
11 Wermeil's folks have actually done that. But I don't think
12 so. I don't think so.

13 MR. CONTE: They're saying they haven't.

14 MR. THADANI: No. And I don't think it's been
15 done either.

16 You know, it's kind of a strange thing we do. We
17 have never historically -- historically, we have not got
18 into EOPs. It's only since the Three Mile Island accident,
19 I think, that we've got into it to some depth, I think, and
20 even then I guess what we do on EOPs largely is, you know --
21 I guess we look at PGPs, right, procedure generation
22 packages, and if they're good enough -- in other words,
23 we're looking at a lot of paper and process and so on.

24 But in terms of EOPs, the only -- again, as far as
25 I know -- the only real substantive look we give is through



1 inspections and examinations that we just do, for example.

2 Outside of that, at least at Headquarters, I don't
3 think we do any more.

4 MR. IBARRA: Ashok, there was a program under CRDR
5 called the functional task analysis, which basically did --
6 I think what we're getting at, an integrated approach where
7 you took the PGPs and broke it down to the instrumentation
8 level, what kind of ranges they needed for the qualification
9 of instruments and so forth.

10 What part did your Branches play in that, or did
11 they play any?

12 MR. THADANI: Yes. I believe the ranges and so on
13 were -- you know, this is going back to history, and I
14 wasn't involved -- but I believe that part came from the
15 Reactor Systems Branch, as well as, I would think, at that
16 time, I think, was Containment Systems Branch, wasn't it,
17 about that time?

18 MR. ROSENTHAL: Well, on the original Reg Guide
19 197, Rev 2, actually it was put together by me when I was in
20 ICSB, and I ran off to Containment Systems and Reactor
21 Systems.

22 MR. THADANI: Okay, right. That's what I mean,
23 that the ranges and so on would have to come from those
24 groups supposedly who have that function.

25 MR. ROSENTHAL: Unfortunately, that was before Rev



1 0 left the NRC, the emergency operating procedure
2 guidelines. You know, the generic owners group guidelines
3 and 197, these were all parallel activities in the early
4 '80s.

5 MR. CONTE: So what was driving the development of
6 the Reg Guide? Not the EOPs.

7 MR. THADANI: No.

8 MR. CONTE: The development of the Reg Guide was
9 post-accident monitoring?

10 MR. THADANI: That's right.

11 MR. ROSENTHAL: Safety-related stuff?

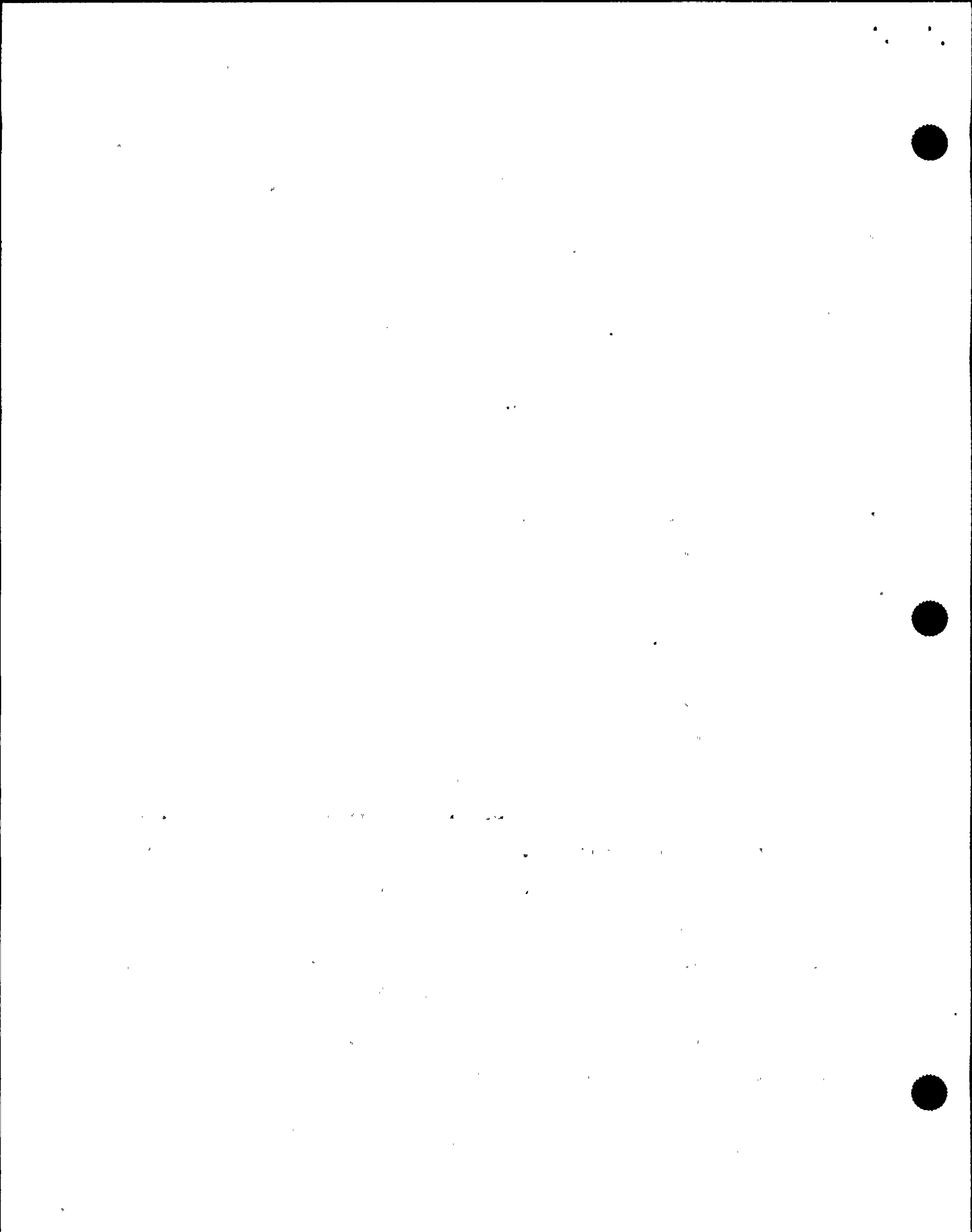
12 MR. THADANI: Yes.

13 MR. CONTE: Versus non-safety.

14 MR. THADANI: That's right; that's right. And
15 again, you know, there must be someplace where we say you
16 can rely on all this instrumentation. Somewhere we must
17 have said that. I think we have, but I can't pinpoint it.

18 MR. ROSENTHAL: Of course, it was well folklore,
19 and in fact it makes sense, that we didn't want stylized
20 procedures that satisfied a regulator and then the real
21 procedures at the plant. But I can't find a piece of paper.

22 MR. THADANI: Yes, you know, it's an issue even
23 now. It has nothing to do with Nine Mile Point, I don't
24 think. But somewhere along the road, is the FSAR consistent
25 with the figures, because you see you make certain



1 assumptions there in the FSAR?

2 And you go through hearings and you tell everybody
3 these sets of assumptions and conditions. We know the plant
4 is safe; it meets all our regulations.

5 Now suppose we turn around and tell them: Now
6 ignore what we said there. Your procedures should be based
7 on realistic response. Could there be a disconnect between
8 the two?

9 And I think that's an issue where I don't know how
10 the utilities are -- they can do this under 50.59 or some
11 other mechanism. I don't know how many such issues are
12 there. There could be some.

13 MR. CONTE: Well, haven't we put that burden on
14 the licensees?

15 MR. THADANI: Yes.

16 MR. CONTE: From the statement that you made --

17 MR. THADANI: Yes, we have.

18 MR. CONTE: -- they need to make sure that they're
19 consistent with their FSAR.

20 MR. THADANI: Right.

21 MR. CONTE: Not use the 50.59 process.

22 MR. THADANI: We didn't say it that way. But they
23 can under 50.59, those procedures and so on.

24 The other point I am making is there might be some
25 deviations out there. I suspect there are, but they



1 hopefully have been all analyzed and looked at
2 systematically by licensees.

3 MR. CONTE: Is that an active issue with the Staff
4 right now? Has someone got the action to look at that --

5 MR. THADANI: Yes, it's an issue that the owners
6 group has raised, BWR owners group has raised, because
7 apparently there is disagreement amongst the BWR owners on
8 some elements of the guidelines.

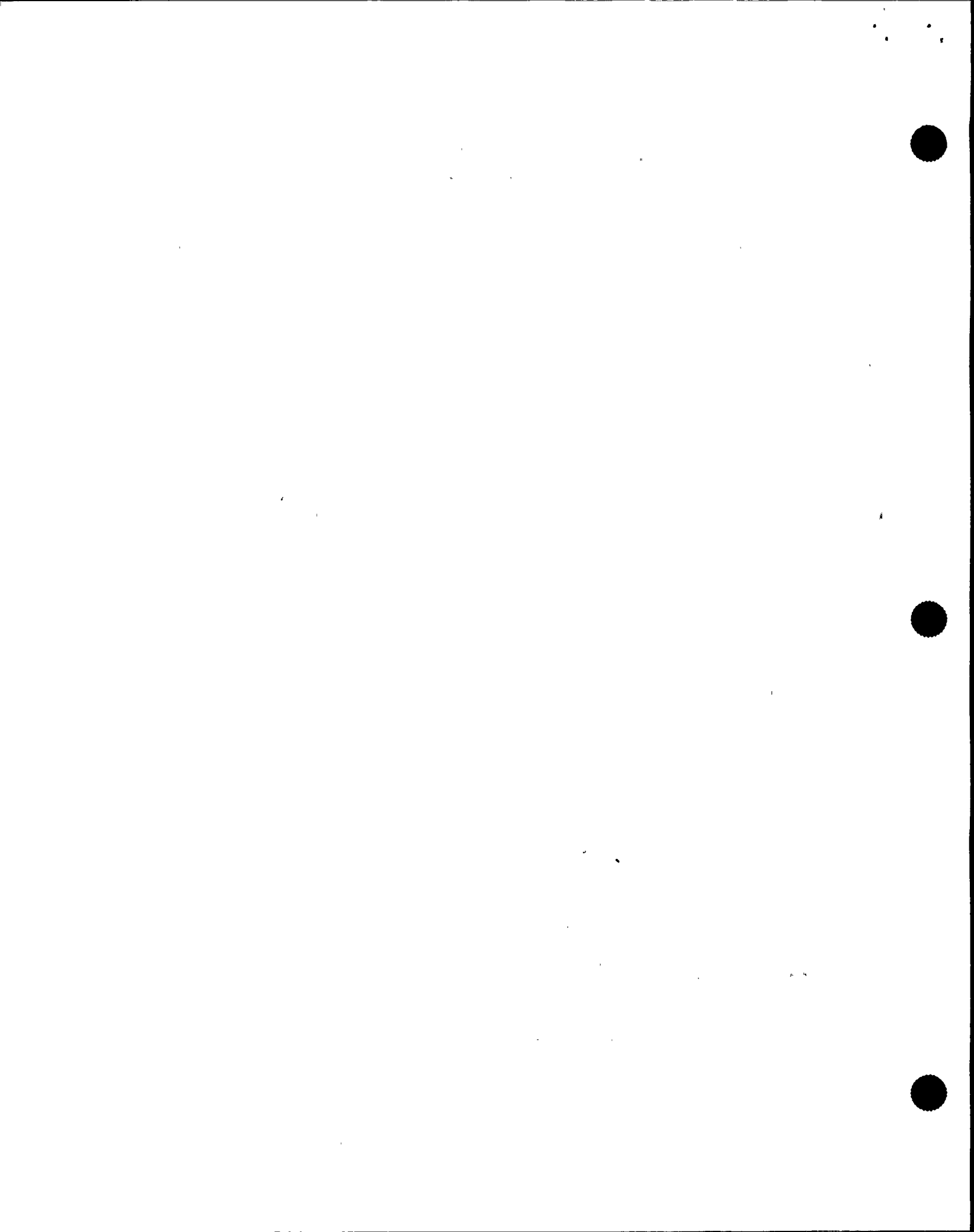
9 In some cases they don't want to do that because
10 they think that puts them outside their design basis. Other
11 licensees say no, we don't think so, so there is a little
12 bit of disagreement amongst the owners.

13 MR. CONTE: Like the lowering of level on an ATWS
14 mitigating --

15 MR. THADANI: That's an example. Lowering the
16 level is an example. Containment flooding is an example,
17 because it depends on what signal you are using for
18 containment flooding.

19 For example, it could be that you're initiating
20 containment flooding looking at information that might be
21 just that you had a design basis accident, just a LOCA, and
22 if you're initiating flooding of the containment, at some
23 point you are going to have to vent the containment too.

24 Now is that inconsistent is what you said in the
25 FSAR, but you have to look at it -- level, ATWS level.



1 MR. CONTE: So the owners group was raising this
2 question, but what is the Staff doing about the question? I
3 mean is there a tackle in this thing? What's the Staff
4 doing about it?

5 MR. THADANI: The only issue the Staff has had a
6 meeting with the BWR owners group and they are probably come
7 back and right now the action is with the owners group, not
8 with the Staff.

9 They raised the issue; we told them they need to
10 go back and systematically tell us what are the issues. I
11 mean, you know, general discussion is fine, but what are the
12 specifics, and what is the right think to do from an overall
13 safety point of view, and let's discuss it then. Until then
14 we'll just -- we're just having kind of general discussions.

15 MR. CONTE: One more little detail about the reg
16 guide 197 equipment that relates to the power supplies and
17 the quality of the power supplies to the instrumentation.

18 I guess what I am hearing you say and in light of
19 that we kind of left it to the utilities to make the
20 determinations of what the Type A variables were, I got the
21 impression we've also left it to them to do a review on the
22 adequacy of the power supplies for that instrumentation?

23 MR. THADANI: No, I mean I must admit I'm not as
24 close to it as I probably should be, but I thought that -- I
25 think in Type A variables the power supply had to be 1E.



1 MR. CONTE: Sure, but rod position for example is
2 not a Type A?

3 MR. THADANI: That's right.

4 MR. CONTE: But it's an uninterruptable power
5 supply.

6 MR. THADANI: That's right. I tell you, it's an
7 interesting issue here because it's almost uncanny I think.

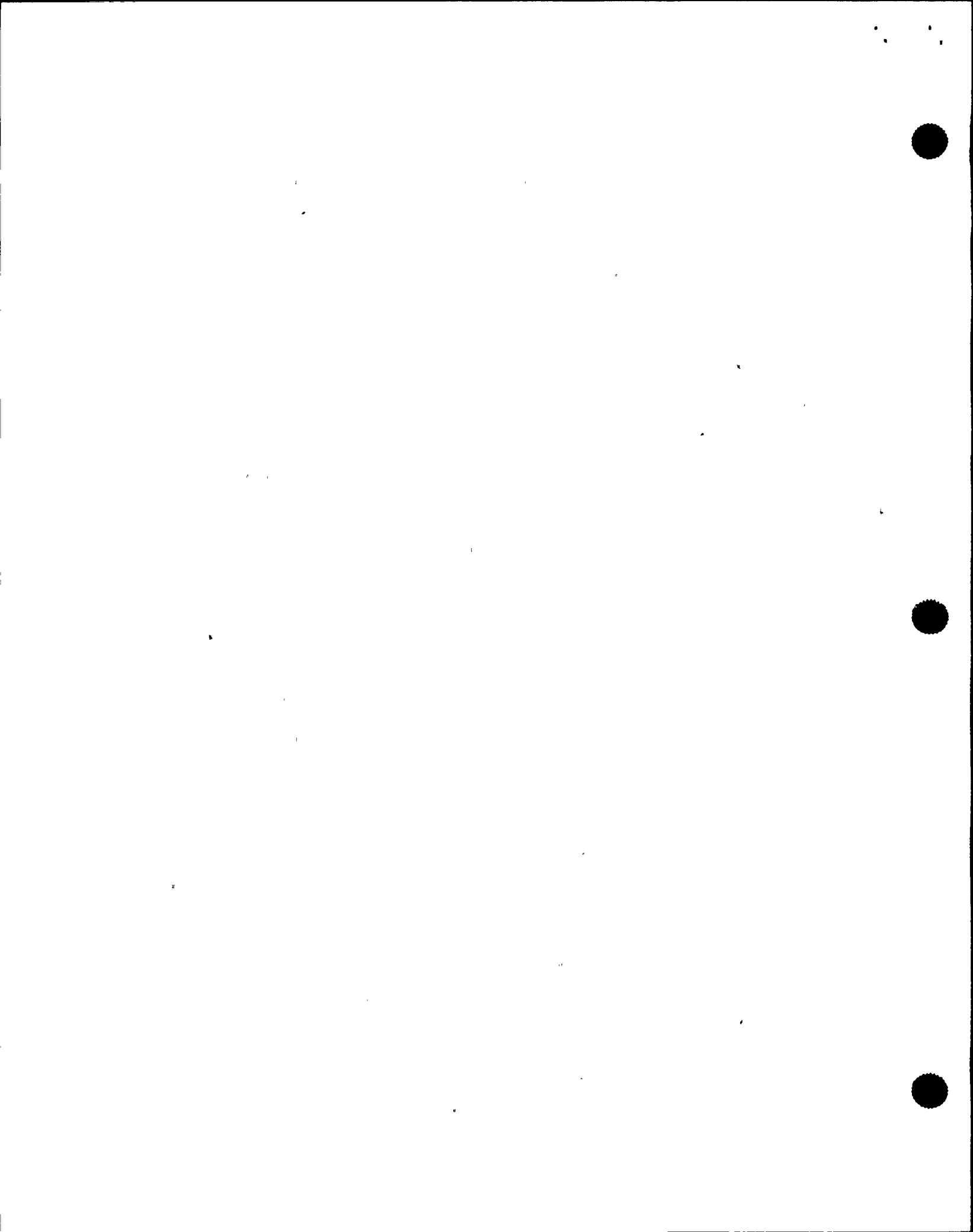
8 When was it, a couple months ago Millstone Unit
9 Two had an event and when Millstone Unit Two had the event,
10 Tom Murley asked me, he called me.

11 He said what do you think, how significant is this
12 issue?

13 I said, well, I think it's important but, boy, it
14 would be very serious if that happened along with a
15 transient at the same time. I said, boy, that would be bad
16 news because you're running blind and things are happening.

17 So he said, well, why don't you think about it and
18 let me know what we should do. Well, this is interesting
19 because I asked, I called Scott Newberry. I said, hey,
20 Scott, what do you think about this Nine Mile Point -- I
21 mean Millstone Unit Two event, and why don't you take a
22 look? I said how many of these have occurred?

23 Matt Chiramel, whom you know very well, Matt comes
24 back -- he was the one I talked to actually I think it was
25 -- Matt came back and said, hey, I remember in 1977 Zion had



1 an event and I said, look, not to do a big search but let's
2 at least see what we know and we found three events in '88 I
3 think it was -- Beaver Valley, Rancho Seco -- I forget the
4 third plant.

5 But they had to do with problems in remote control
6 cabinets and fire. Apparently it was one vendor stuff.
7 There were four plants if I remember correctly that had this
8 stuff.

9 MR. CONTE: Well, there is also a statement in
10 that information notice that Scott provided to us that there
11 was a lack of specific emergency procedures to address the
12 loss of annunciators.

13 MR. THADANI: That's a good point, good point.
14 You actually reminded me about that because, yes, that was
15 the other thing and so when we looked at this information, I
16 remember sitting down and talking to Tom and saying, well,
17 you know, there's not even a thorough search and we already
18 know about four or five events that have happened, frequency
19 five times to the minus three or ten to the minus two.

20 I said it's probably higher because there are
21 probably other events if we were to really search we might
22 find so let's just for the sake of argument say it's ten to
23 the minus two kind of an event -- it may not be so bad if
24 nothing else is going on, but if something else is going on,
25 now you don't know what the -- how to deal with the operator



1 response. You really don't know.

2 So I said the procedures are very important and
3 that information notice went out and apparently said some
4 words about the importance of procedures and Millstone Two
5 apparently did have procedures -- apparently, okay?

6 The upshot of all this is that my recommendation
7 to Tom was that it will take four to six weeks to take a
8 look at this issue a little more carefully and in the
9 meantime --

10 MR. CONTE: Nine Mile Two happens!

11 MR. THADANI: -- in the meantime we'll probably go
12 out and make sure the advanced reactors fix this problem,
13 and there is Nine Mile Point! Absolutely incredible --
14 having this event with a trip.

15 Clearly we need to do something about it.

16 MR. ROSENTHAL: When we issue an IN, what's your
17 opinion on the regulatory requirements and our expectations,
18 and they may not be the same, with respect to the licensee's
19 actions?'

20 MR. THADANI: I think an information notice -- you
21 cannot have any new regulatory requirements on an
22 information notice. But there has to be some purpose for an
23 information notice, it seems to me.

24 When we issue some information notice, that is
25 what it is, is useful, important information that I think a



1 responsible licensee should take a look at and make a
2 conscious decision whether there is something that they
3 ought to be doing with it or not.

4 Otherwise, you -- well, I'm not sure what we
5 achieve through issuance of information notices other than
6 saying, "Well, you know, we informed everybody else." But I
7 think it's, in my view, licensee responsibility to carefully
8 assess the information notices and make conscious decisions,
9 whatever actions they take. But nevertheless, they ought to
10 have some way.

11 MR. ROSENTHAL: Does that take us off the hook?

12 MR. THADANI: Does it take us off the hook in what
13 sense, though?

14 MR. ROSENTHAL: Well, "Okay. We told them."

15 MR. THADANI: Well, I think that the things we do,
16 we issue information notice if we believe it's a useful
17 thing for the industry to know, but our level of concern is
18 not so high as to say we ought to develop some new
19 requirements as a result of that. If we -- our sensitivity
20 is high enough, then we have to go through the generic
21 letters, bulletins, orders, or some other vehicle.

22 MR. ROSENTHAL: Let me switch to the area of
23 safety related and important to safety. The agency had
24 deliberations for years on the issue of important to safety.

25 MR. THADANI: Is it resolved?



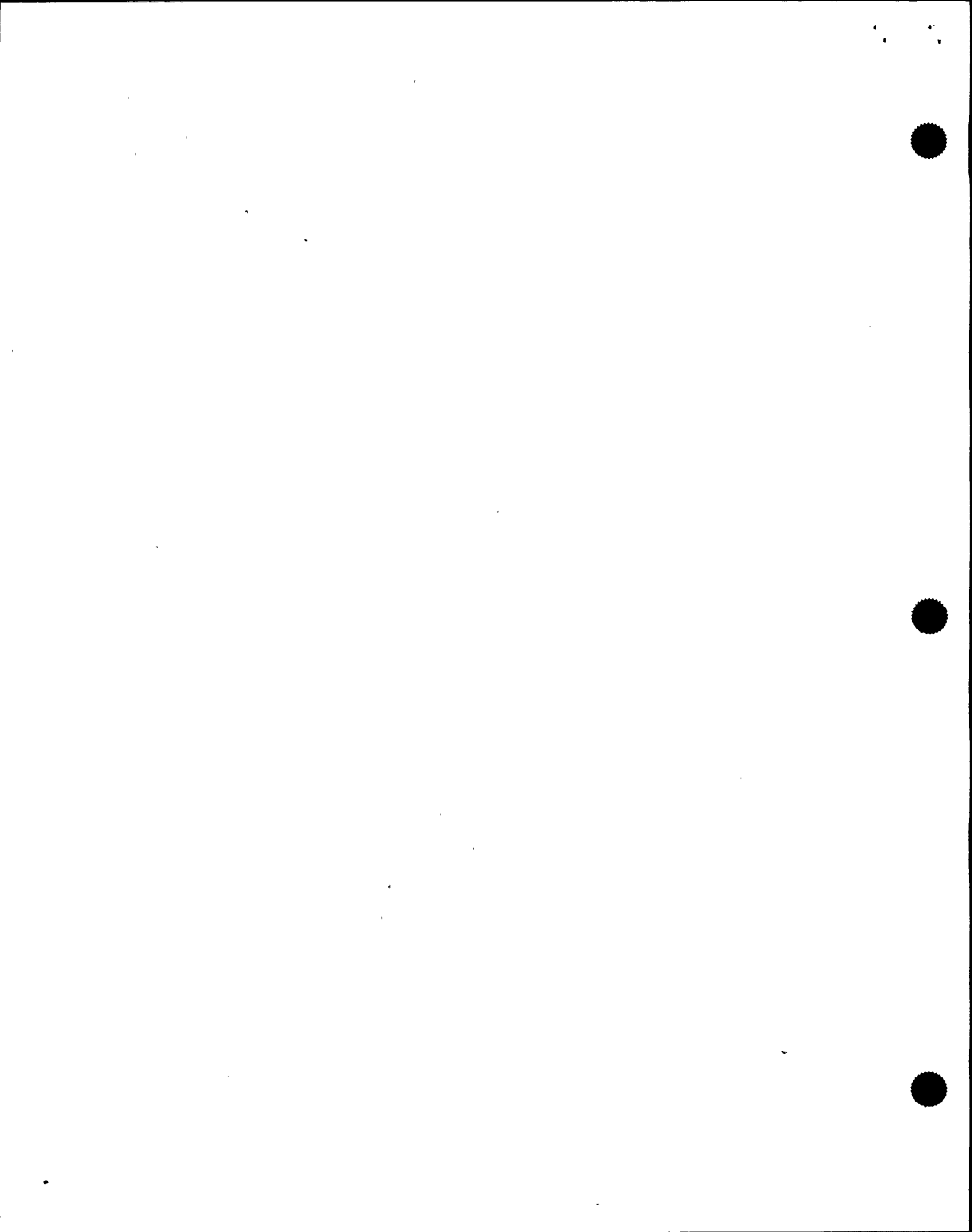
1 MR. ROSENTHAL: And it is not resolved. Were you
2 involved in this, and maybe you could share your personal
3 views.

4 MR. THADANI: I was only involved in a very
5 peripheral kind of way because -- well, let me see. If I
6 remember correctly, back in '82, I think Jim Conran used to
7 work in my branch, Reliability and Risk Assessment Branch,
8 and Jim Conran had -- I think it was on Shoreham, if I
9 remember correctly -- had a DPO, and I think one of his
10 issues of concern was the particular aspect of safety
11 related and important to safety and so on. So that's almost
12 -- that's the peripheral involvement I had. But I --

13 MR. CONTE: You mentioned a -- oh, I'm sorry. Go
14 ahead.

15 MR. THADANI: Let me give you my own view. I find
16 it very -- I get uncomfortable at just saying, safety
17 related, you got all these things to do. I'm not going to
18 pay attention to the rest of the equipment. I think it
19 would be helpful if there were a way to develop some sort of
20 -- I hate to use this word "graded," but some kind of
21 mechanism so that we have maybe, I don't know, maybe three
22 categories or four categories, or some way.

23 There is safety related, our queue list, and this
24 has to go with Appendix B. The rest don't have to deal with
25 Appendix B, or whatever. It seems to me too much of a black



1 and white kind of a demarcation because I think a hell of a
2 lot of stuff that's non safety related is very important to
3 safety, and all we have to do is look at a lot of studies.

4 So in a way, it would be desirable to have
5 something beyond what we have today. To be honest with you,
6 I'm not sure where we stand on it.

7 MR. ROSENTHAL: After the Salem event in the early
8 '80s, the NRC sent out a generic letter, 83-28, which speaks
9 to safety related equipment.

10 MR. THADANI: Yes.

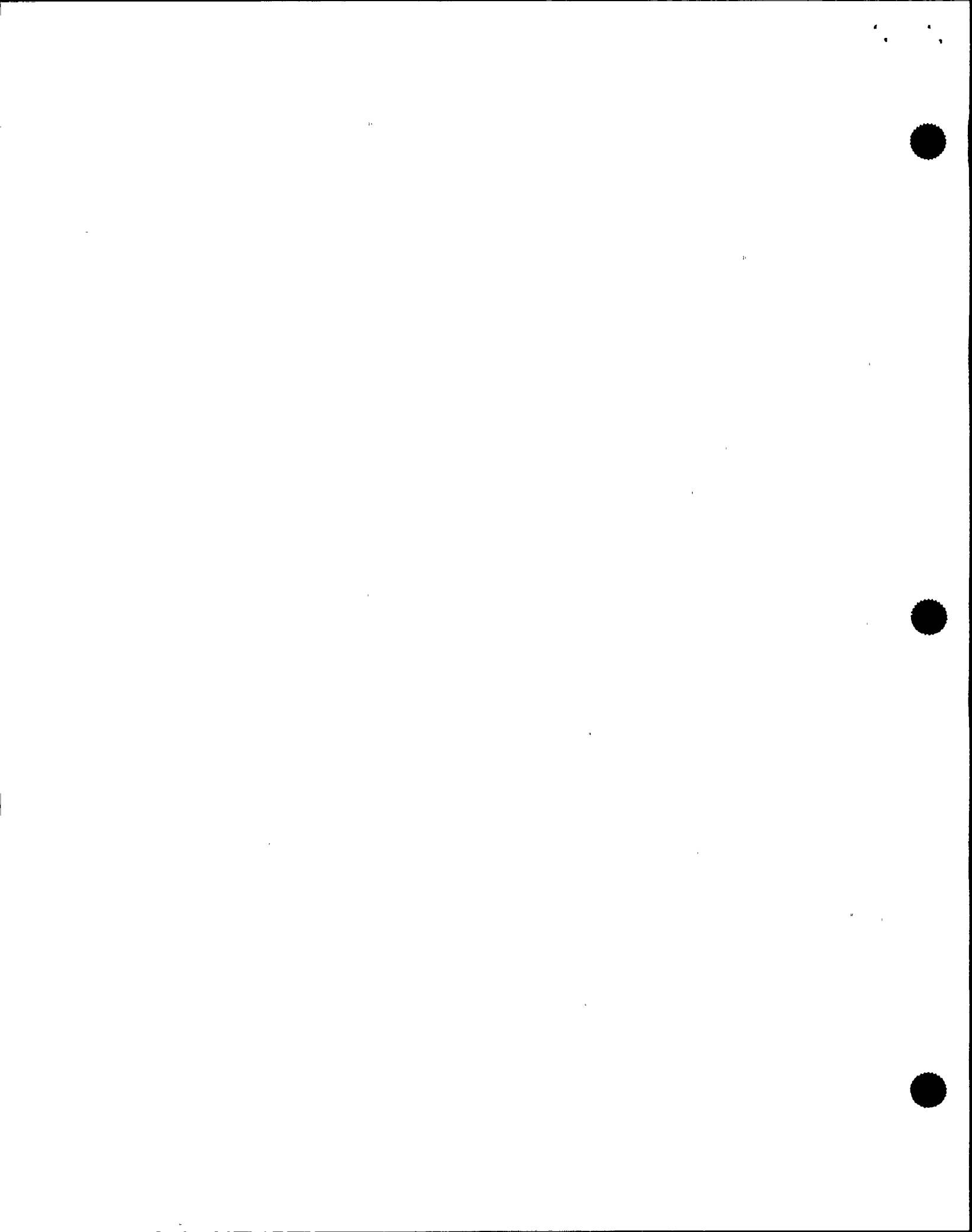
11 MR. ROSENTHAL: Okay. And we expected -- for
12 safety related equipment, we make it very clear we want
13 owners -- interfaces with the manufacturers and more
14 maintenance, et cetera, et cetera, et cetera.

15 MR. THADANI: Well, it wasn't all safety -- as you
16 know, that got -- at least in terms of vendor interfaces
17 that had to be established, the level of interface and -- so
18 it was if I remember correctly ultimately this limited set
19 of hardware for which they have to have that interface.

20 MR. ROSENTHAL: For instance, there's a section on
21 trip breakers, and then there's another section on safety
22 related --

23 MR. THADANI: There was safety related and then
24 the other --

25 MR. ROSENTHAL: Yes. But there's no requirements



1 for stuff that isn't safety related in that letter, if you
2 go back and read it. Nevertheless, people may have had
3 expectations of licensees that went beyond the letter of the
4 generic letter, okay?

5 MR. THADANI: Uh-huh.

6 MR. ROSENTHAL: Do you have a perception of what
7 those expectations were?

8 MR. THADANI: Well, post-Salem, 83-20,
9 expectations beyond what was in the generic letter? Are you
10 saying -- I suppose you have to go to what? 0660? Was it
11 0660? Well, I can't -- I tell you, I can't answer that. I
12 was not involved to be able to tell you.

13 MR. ROSENTHAL: Okay. In the Salem event, there
14 is the issue of potential common mode failure of reactor
15 trip breakers due to inadequate maintenance.

16 MR. THADANI: Correct.

17 MR. ROSENTHAL: In --

18 MR. THADANI: And aging.

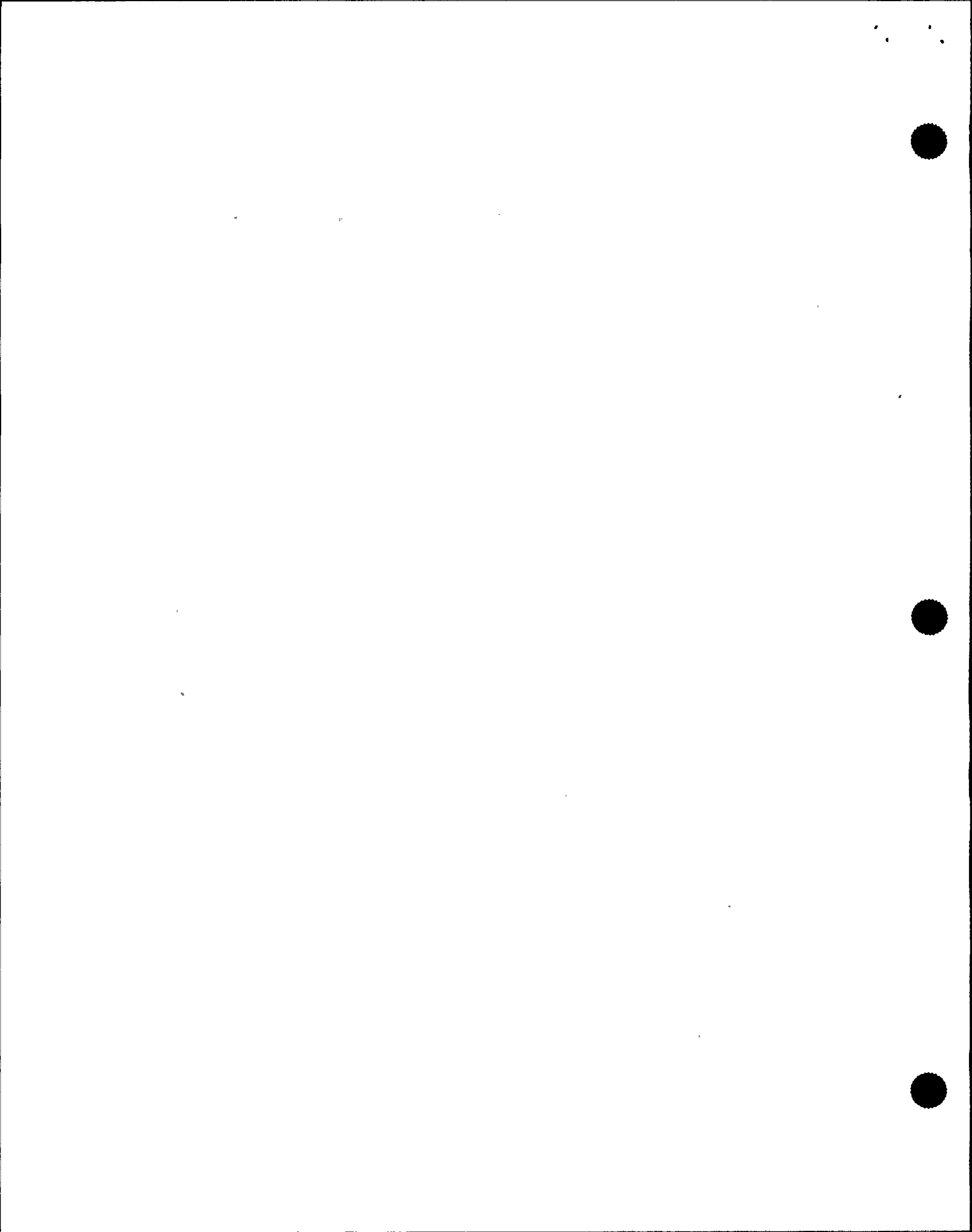
19 MR. ROSENTHAL: Excuse me?

20 MR. THADANI: And aging effects.

21 MR. ROSENTHAL: And aging.

22 MR. THADANI: The next piece of that requirement
23 was on aging concerns.

24 MR. ROSENTHAL: In Nine Mile Point, we see common
25 mode again, we see a maintenance theme, and we see an aging



1 theme.

2 MR. THADANI: Yes.

3 MR. ROSENTHAL: Go on. I don't want to cut you
4 off.

5 MR. THADANI: No, no, no. I think I was going to
6 say that you're exactly right on reactor trip breakers. I
7 guess it was the -- having the automatic shunt over and
8 above on the voltage trip breaker trip assembly, and
9 preventive maintenance, and life cycle testing. I think, if
10 I remember, those were the key things.

11 MR. ROSENTHAL: Well, we have a lot of redundancy
12 of equipment but little diversity except in selected areas
13 like ATWS.

14 MR. THADANI: That's correct.

15 MR. ROSENTHAL: And that came back to haunt us at
16 Salem and it came back to haunt us in this event. We're
17 down to, you know, what wire goes to what phase. It's a
18 three-phase. It's all the same.

19 MR. THADANI: Yes.

20 MR. ROSENTHAL: So it's all subject to the same
21 unanticipated common mode.

22 MR. THADANI: Yes. We need to get --

23 MR. ROSENTHAL: Does that say that we should
24 rethink common mode, and is there an implication for future
25 designs?



1 MR. THADANI: Good question. First of all, we
2 need to get to your level of understanding with this event,
3 so I'm not going to be able to speak intelligently.

4 MR. ROSENTHAL: Okay.

5 MR. THADANI: But in principle, I think our goal
6 is to improve overall revival of equipment, and wherever you
7 have multiple trains, then I think that you have taken care
8 of -- it's my opinion that you have -- if you do it right.
9 I mean, you know, we're assuming that it's engineered right
10 and so on, that you've probably dealt with all reasonable
11 kinds of random failures, and then if you're going to have a
12 problem, it's probably going to be some common cause or
13 common mode, one way or another.

14 Then you have to ask yourself a question: How
15 reliable does this equipment have to be? Which then goes
16 back to an earlier question: How important is it? What's
17 its role in the overall safety, scheme of safety?

18 If it turns out that it's very important in terms
19 of that level of safety we're looking for, such as the
20 protection system, and protection system already has a lot
21 of redundancy, then it's my view that the best way to
22 achieve improvement in overall reliability is to go for
23 diversity.

24 Now, on the other hand, let me take another
25 example. I have a plant with two diesel generators, and if



1 you ask me, say, "Now I want to add another source of, let's
2 say, on-site AC power. What's the best thing to do? Should
3 I add another diesel generator, for example, of the same
4 manufacture, or should I add a gas turbine or something?"
5 It would be tough to answer that.

6 I mean, you know, you get diversity, but is it as
7 reliable to random failures? Now, two or three diesels
8 actually can fail. One may be out for maintenance, two can
9 fail from random failures, and so on. So it's a tougher
10 call then, I think. So there is some level where I think
11 it's easier to say you should have diversity.

12 It's sa tough call in other cases. But I,
13 personally, am a believer that if two things or three things
14 are equally reliable to random failures, diversity is a good
15 thing to go for if that's not going to cause problems with
16 reliability through different maintenance procedures and
17 greater complexity, more parts and this and that. So, you
18 have to be careful.

19 But I, myself, am of the opinion that you should
20 look for diversity where you can.

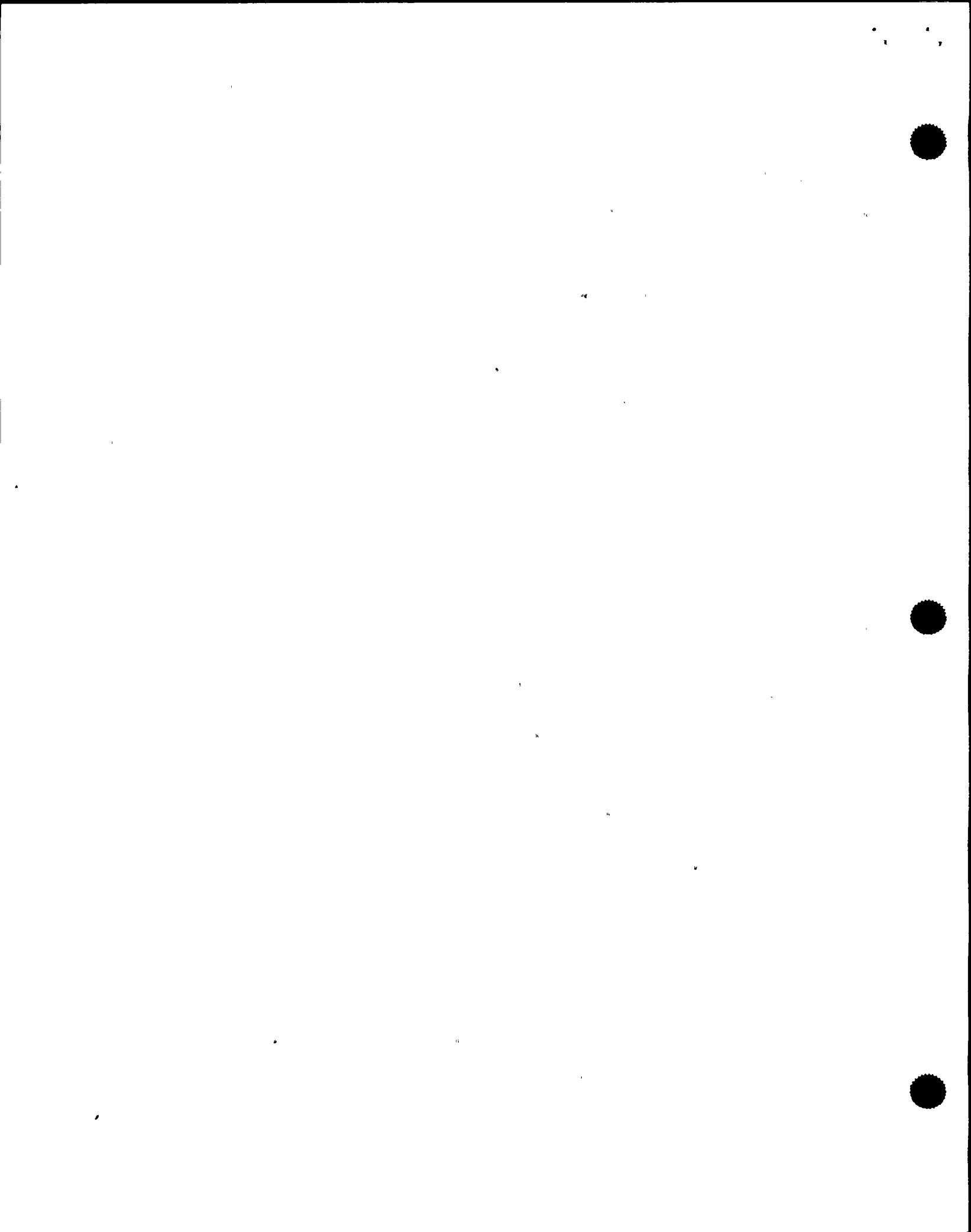
21 MR. ROSENTHAL: Let's go off.

22 [Recess.]

23 MR. ROSENTHAL: Let's go back on the record.

24 MR. CONTE: What was your question?

25 MR. IBARRA: Within your practice -- within the



1 instrumentation electrical reactor systems and plant
2 systems, the way I understand it is that the reactor systems
3 people are the ones that do locate the EOPs?

4 MR. THADANI: They don't really look at EOPs.
5 They develop technical guidelines.

6 MR. ROSENTHAL: They look at the owner group
7 guidelines --

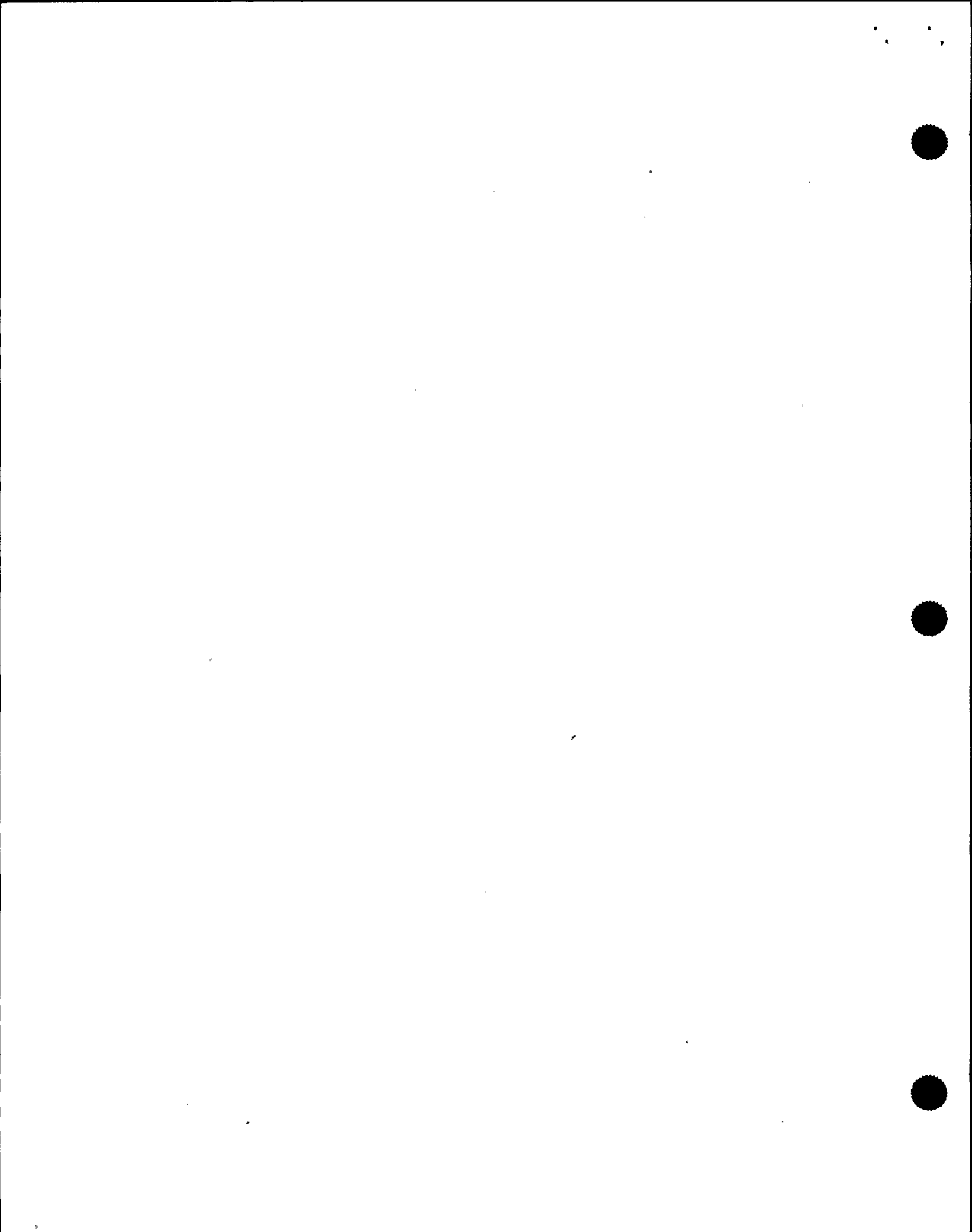
8 MR. THADANI: Guidelines.

9 MR. ROSENTHAL: -- for technical adequacy, based
10 on their knowledge of system response --

11 MR. THADANI: And analysis. Accident analysis and
12 et cetera. That's correct.

13 MR. IBARRA: But within your own division, how are
14 this reactor systems people know enough about accident
15 monitoring and balance of plant and EQ and so forth to be
16 able to, within their own division, be able to ask for
17 specialized help?

18 MR. THADANI: I believe the answer is yes. The
19 Reactor Systems Branch has lead responsibility. That means
20 more than what they normally review. They have the
21 responsibility for assessing technical adequacy of the
22 guidelines. They have the responsibility of -- which means
23 that they have the responsibility of coordination --
24 coordination with several branches. Generally, I mean, they
25 are probably other branches involved, and I might not even

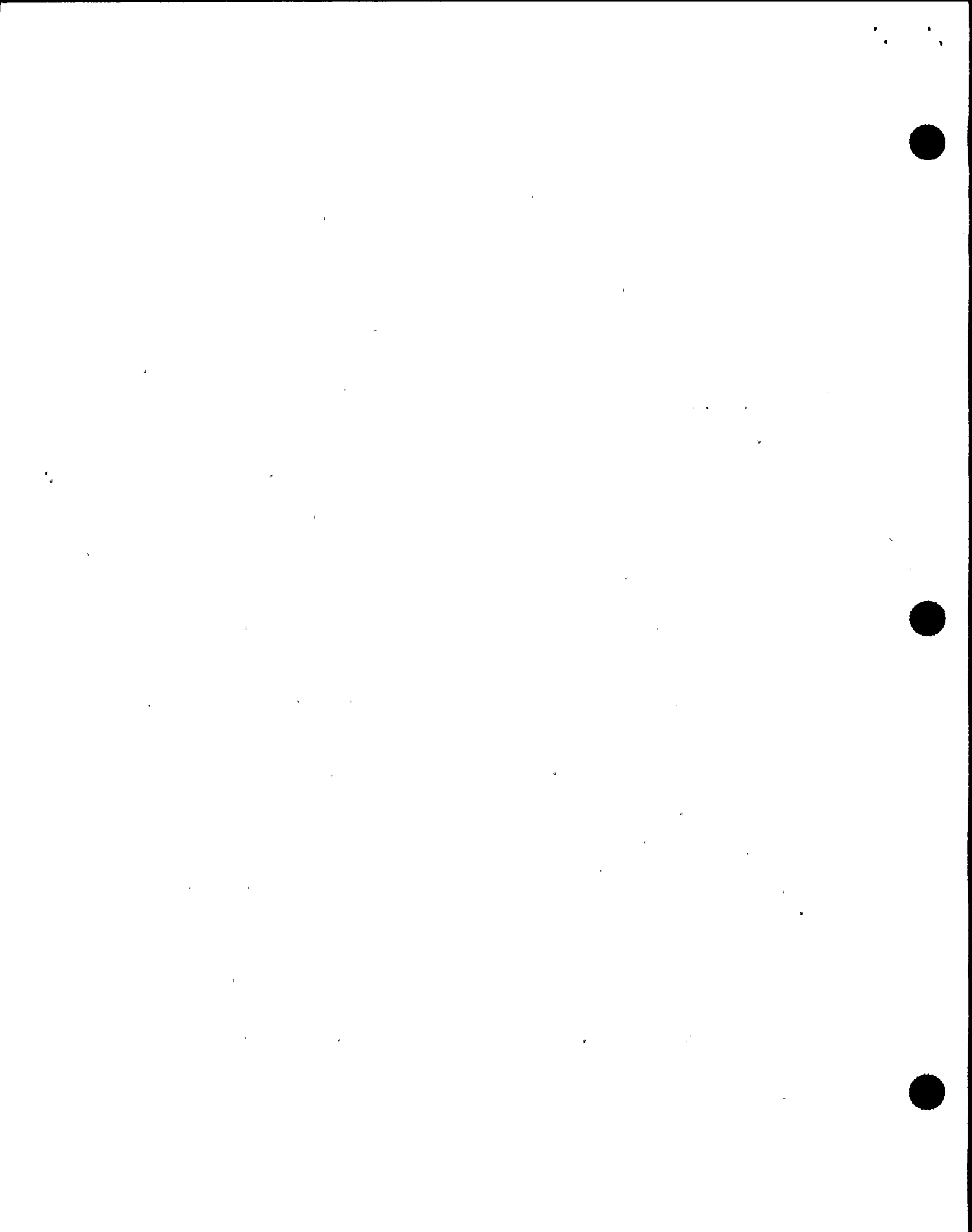


1 know all the branches that are involved. But, generally,
2 the bulk of the involvement is from Reactor Systems Branch,
3 Plant Systems Branch.

4 Plant Systems Branch brings the expertise on
5 containment and auxiliary systems, that includes emergency
6 feedwater system and the auxiliary systems, safety related
7 and others, balance-of-plant, includes service water system,
8 component cooling water system and so on.

9 In terms of the instrumentation and the monitoring
10 is the I&C Branch. But it is the responsibility of reactor
11 systems branch to coordinate the technical assessment. They
12 get people from Scott Newberry's branch to help look at
13 stuff. When it comes to equipment qualification, for
14 example, EQ per se is under Plant Systems Branch. But when
15 it comes to uncertainties in instrumentation and so on, in
16 the different environment is Newberry's branch, because it's
17 related to instruments. But if its penetrations and even if
18 it's low-voltage stuff -- penetrations -- containment
19 penetrations, it would be the lead responsibility is Plant
20 Systems Branch, but that doesn't mean that they -- they have
21 to sometimes there are issues where they have to go to
22 different branches for specific technical expertise. But
23 that's generally how it's set up.

24 MR. CONTE: Does ORSB have the responsibility to
25 issue the SER for the --



1 MR. THADANI: Yes.

2 MR. CONTE: -- owners group analysts?

3 MR. THADANI: That's correct.

4 MR. CONTE: They're the lead for that?

5 MR. THADANI: They're the lead. They get input
6 and they get concurrences from the right people, but they're
7 responsible for getting it done.

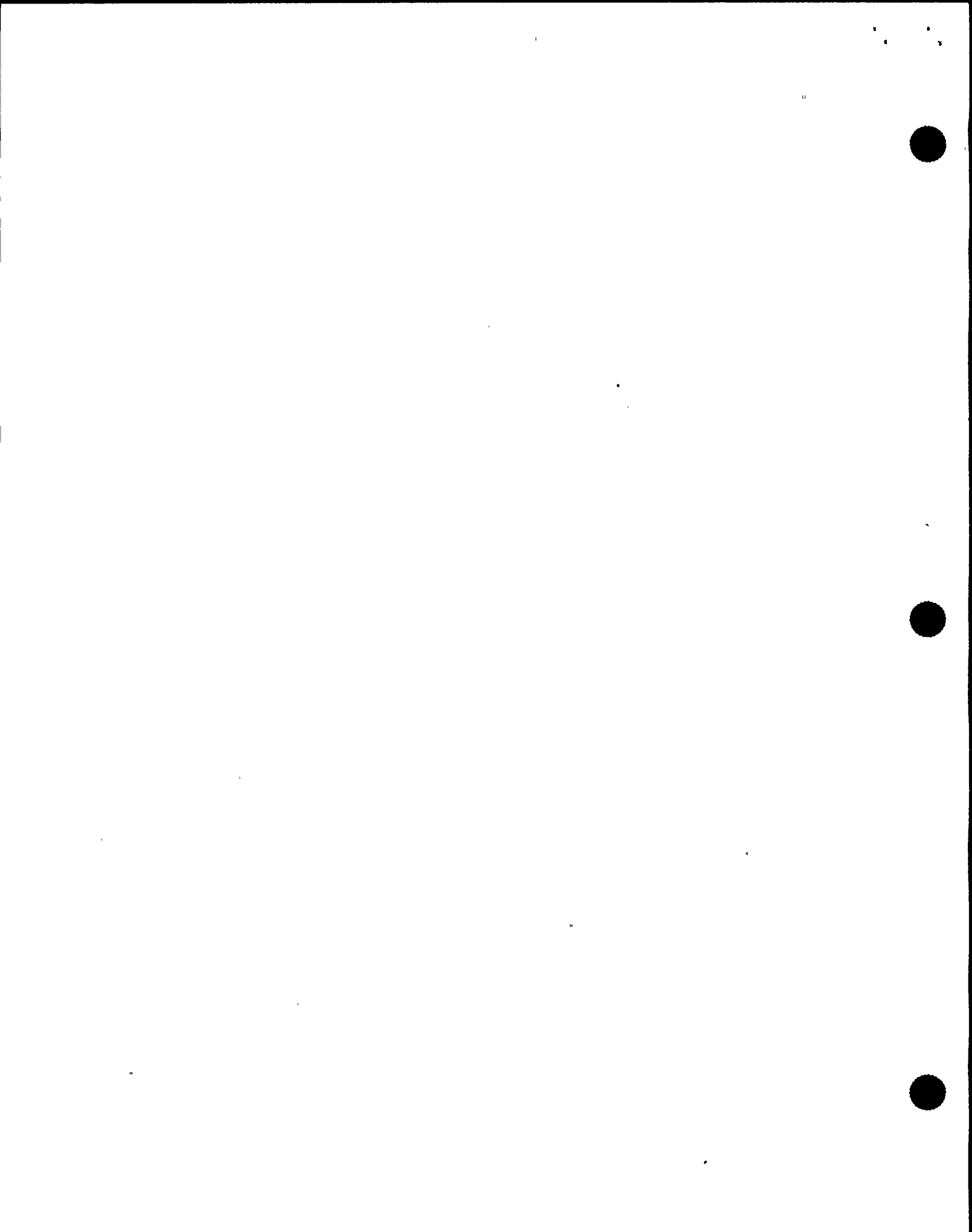
8 MR. CONTE: Does that include HFB?

9 MR. ROSENTHAL: The Human Factors Branch?

10 MR. THADANI: I'm trying to think of how much
11 involvement they had. My belief is they were involved.
12 That's my belief. I would want to confirm that.

13 MR. CONTE: Earlier you described it as a
14 different flow path coming out your division and going over
15 to Jack Roe's.

16 MR. THADANI: Typically, that's how it works. But
17 the question is -- let me -- let me tell you why I'm
18 hesitating a little bit. It may be that we weren't --
19 venting is an example or containment flooding, or pick
20 issues that are kind of tough issues. You want to --
21 venting you can't do purely, I think, on just simple
22 technical considerations. There's a lot involved. If a
23 real situation develops, who's going to make the decision to
24 vent? Governor of the state where this plant may be
25 involved might want to know. And there are factors above



1 and beyond just standard technical analysis, I think, that
2 you have to be sensitive to.

3 And I'm trying to remember to what extent human
4 factors people would have been involved; to what extent
5 emergency planning people would have been involved in that.
6 So, there are probably some issues where even in the
7 development of guidelines, we may have had other people help
8 us; in this case, Reactor Systems Branch may have had other
9 people help them.

10 MR. ROSENTHAL: Or should have.

11 MR. THADANI: It depends on the issues, yes.

12 But the typical approach is you do the technical
13 guidelines. Once you are satisfied with the guidelines,
14 then the human factors aspects get picked up into this
15 procedure generation package I think is what it's called.
16 And that's Jack Roe's. You'd get much more information from
17 him than me.

18 MR. ROSENTHAL: He'll be talking to us also. On
19 the SPDS, I don't know how much involvement you had, and
20 okay, it was decided that it didn't have to be let's say
21 seismically qualified.

22 MR. THADANI: Uh-huh.

23 MR. ROSENTHAL: In this event, they lose the SPDS
24 and they lose, in turn, the numerical display of information
25 in both the TSC and the EOF. So, they're back down to a



1 phone system.

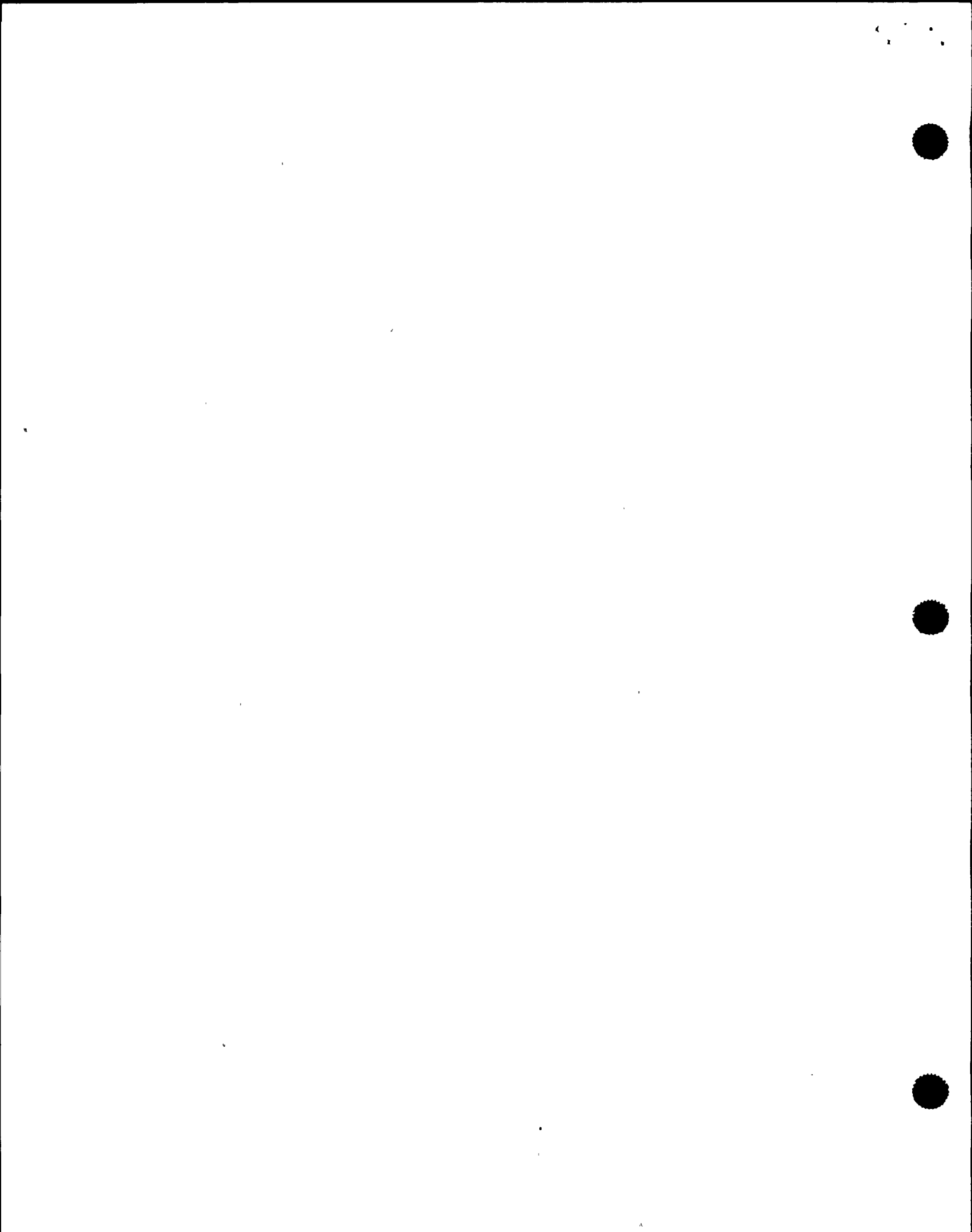
2 MR. THADANI: Right.

3 MR. ROSENTHAL: Now, I'm thinking of you as one of
4 the NRC's division directors, rather than in that detail.
5 Was this -- what were the expectations with respect to this
6 system? You know, we knew that it wouldn't be available
7 maybe if there was a seismic event. How crucial do you see
8 this that you lost the SPDS in the control room and in the
9 TSC and in the EOF?

10 MR. THADANI: Again, let me just give you an
11 opinion. I thought the objective of having SPDS was to say,
12 okay, there's some important things we'd like to have
13 available; not only the control room, but other places.

14 I am a little biased. I don't really think that
15 we need, on the east coast, at least, seismic events are a
16 big issue and on the other hand I think information
17 availability to operators and those who are assisting the
18 operators, particularly if things are not going well, is
19 critical.

20 Thus, I'd like to think that the reliability of
21 SPDS should be high. It doesn't matter it doesn't meet
22 seismic or anything. It's just a red herring. But the
23 reliability of the system should be high. That, to me, I
24 would think it would be an important issue, and that's just
25 a --



1 MR. CONTE: In terms of power supplies to the
2 SPDS.

3 MR. THADANI: No. In terms of just -- not
4 necessarily -- let's not try to limit ourselves to power
5 supplies. I think it's the end function that's important.
6 And no matter what it takes to get there, and if it's the
7 power supplies that might be the weak link and one needs to
8 pay attention to that. But I do think the availability of
9 SPDS should be high because if it is not, then I think the
10 real objective is kind of lost, that we didn't achieve what
11 we were going to try to achieve through SPDS for a set of
12 parameters.

13 MR. IBARRA: SPDS does have regulatory parameters
14 for availability and, in this case, it was not met. That's
15 a concern of ours.

16 MR. ROSENTHAL: The SPDS comes off redundant rad,
17 the rad monitor, the radiation computers, rad waste
18 computers. There's two rad waste computers.

19 MR. IBARRA: The RMS.

20 MR. THADANI: I see. I see.

21 MR. ROSENTHAL: And the SPDS software sits on
22 those redundant computers which comes off the same --

23 MR. THADANI: I knew you were going to say that.
24 That's why --

25 MR. ROSENTHAL: I thought I tickled you. You



1 needed a little smile.

2 MR. THADANI: I'll tell you. I honestly think
3 that today, I'm very surprised at the number of events where
4 so much of the information is lost to the operators, just
5 surprised, because I think that's so important.

6 We're going to have to deal -- I think we're
7 looking for your report and, to me, it's an important
8 generic activity that we have to --

9 MR. ROSENTHAL: It was IB 79-27 speaks to loss of
10 an instrument bus and required people, that if you lose an
11 instrument bus, you lose half the instruments in the control
12 room. If it's an older plant --

13 MR. THADANI: That was on the BW plants, wasn't
14 it?

15 MR. ROSENTHAL: Yes. It came out of Crystal River
16 event or --

17 MR. THADANI: Rancho Seco.

18 MR. CONTE: Rancho Seco.

19 MR. ROSENTHAL: This plant was licensed in mid-
20 1986. Actually, it's before you had that responsibility.
21 But the branches involved are under you.

22 MR. THADANI: Yes.

23 MR. ROSENTHAL: Is there a slip?

24 MR. THADANI: I don't know the answer. I don't
25 think so, because I don't -- see, I don't think we reviewed



1 this kind of stuff. I'm trying to remember back to 79-27,
2 which was Rancho, because Crystal was in 1980, I think.

3 There was a concern with the non-nuclear
4 instrumentation, single failure, not only tell you blind,
5 but do you recall the ICS screw-ups. And then I guess, if I
6 remember correctly, what we wanted to do is to say you
7 should not -- let me think -- single failures should not
8 cause events like that, like that meaning Rancho Seco -- and
9 I think this was the light bulb event that led to this.

10 You're running blind and you're over-cooling for
11 several minutes and concerns of almost shock on the vessel,
12 and that led to all kinds of improvements in ICS to the
13 extent now it's really completely different than the way it
14 was.

15 Now, what this -- I have to -- as I said, I have
16 to make sure we get to your level of understanding of Nine
17 Mile Point to really give you reasonable responses. We need
18 to know, make sure and understand with a single failure,
19 which seems to be the situation at Nine Mile, not only
20 caused you to lose a lot of instruments, but caused a
21 transient, as well.

22 To me, that's a very serious event and one that --
23 I'll be honest with you, I just don't care what the
24 requirements are, we ought to go forward and do the right
25 analysis and make sure we fix that kind of a problem,



1 because that doesn't make sense that we should tolerate
2 that.

3 Now, but in the same vein, we just don't -- as far
4 as I know, we don't review that aspect. So that's why I
5 said generic implications.

6 MR. CONTE: You were very focused on the
7 availability of SPDS being highly reliable or very
8 available, a high degree of availability. Let's focus our
9 attention on another particular parameter, rod position
10 indication.

11 I believe it is at the design here -- it's either
12 the 1-A or the 1-B, the loss of the 1-A wipes out the power
13 supply to the read switches when we run a position
14 indication. How does that strike you?

15 We're not talking the common mode failure portion.
16 We're talking the 1A, in all likelihood will wipe out rod
17 position indication and cause a reactor trip because of its
18 influence on feedwater.

19 Unbelievable?

20 MR. THADANI: It's hard to fathom. That's all I
21 can say.

22 MR. ROSENTHAL: However, we didn't review it
23 because it's non-1E.

24 MR. THADANI: That's right. And you see this is -
25 - now I see some method to your madness and safety versus

11



1 non-safety. And what we review and what we don't. You're
2 right. I think that is a problem. Somehow -- it's a shame
3 in a way, because that's really what has maybe let some of
4 these unusual situations. Because we sort of don't really
5 review non-safety stuff.

6 MR. CONTE: One last question.

7 MR. ROSENTHAL: Then I'm going to switch the
8 topic.

9 MR. CONTE: Okay. Safety functions, clearly we
10 all recognize, have to have full pedigree category one,
11 hardware, or what have you, for the verification of safety
12 functions, do you have an opinion?

13 For example an instrumentation string not needed
14 for the safety function, but to verify a safety function has
15 been completed.

16 To a certain extent rod position indication. Do
17 you have an opinion on that type of instrumentation?
18 Whether it should be safety related, important to safety or
19 non-safety related?

20 MR. THADANI: Well, I'll tell you again, I will
21 give you an answer in part, because if -- if the function is
22 really critical -- very critical -- then the verification of
23 that function is actually taking place should be through
24 reliable instrumentation. Again, to me, that does not
25 necessarily mean the full pedigree of safety-grade.



1 I mean, I'll go back and use -- maybe it doesn't
2 have to be seismic. But what's important is that the things
3 you rely on are, in fact, highly reliable. And the degree
4 of how important a function is, is what should really drive
5 things. It was a complicated thing to do.

6 It's not been easy for us to sit in this room and
7 talk about it. But, maybe that's a better way to deal with
8 issues than to say we just want to look at something.

9 MR. ROSENTHAL: Well, apparently there's a
10 folklore among some, and I'm getting back, like the earlier
11 folk were, that if you needed an instrument to know when to
12 take action it ought to have a full pedigree. But if you
13 needed that instrument to confirm that an automatic action
14 had taken place, then you accepted a different pedigree and
15 that sounds a rational discussion, but I don't know where
16 it's written down.

17 Have you heard this sort of exposition or
18 folklore?

19 MR. THADANI: If I have, I guess I don't know in
20 what context, though.

21 MR. ROSENTHAL: That's okay. Can I change the
22 subject now?

23 MR. IBARRA: Just one question.

24 MR. ROSENTHAL: Okay.

25 MR. IBARRA: We had five UPS's that went down.



1 Does it concern you that the distribution wasn't quite what
2 it should have been? They didn't really need to loose all
3 these things.

4 MR. THADANI: We'll wait for your report, but
5 based on what I've heard, very much so. But we'll have to
6 wait until -- you know -- all the details are in.

7 MR. ROSENTHAL: Were you involved with the
8 maintenance rule, the development of the maintenance rule?

9 MR. THADANI: No.

10 MR. ROSENTHAL: Okay. We just saved ten minutes.

11 [Laughter.]

12 MR. CONTE: I think we covered most of the planned
13 -- these are reminders here --

14 MR. THADANI: Yeah. Sure. I understand.

15 MR. ROSENTHAL: Let me flip it the other way.
16 Okay? Before we let you go.

17 MR. THADANI: Okay.

18 MR. ROSENTHAL: And that is that, you know, we
19 have a bunch of questions and we wanted to get your views as
20 the division director. You know, somebody senior in the
21 NRC. It's conceivable to us that we're not asking the right
22 questions. Are you -- is there something, based on what you
23 know, questions that we haven't posed? Or areas that you
24 think you'd like to tell us about?

25 MR. THADANI: That's interest. I think you asked



1 and pursued areas far beyond than I had thought about.

2 No. I can't really think of anything because when
3 -- as I told you, it's almost uncanny when Tom had asked me
4 this question, which is specifically what you're asking, I
5 think, the same sort of question; what's the importance of
6 this?

7 And I think you're saying exactly what my own
8 reaction was, that while it's extremely unpleasant for
9 operators to loose a fair amount of instrumentation, it is
10 extremely critical if that happens along with a transient.
11 To me that's the issue at hand. And I think what you're
12 doing is the right kind of inquiry.

13 How serious? How reliable should systems be? How
14 redundant they should be? What kind of procedures they have
15 in place and what's the role of diversity in this?
16 Instrumentation, their -- I think, it seems to me you're
17 asking almost exactly the kinds of things I would probably
18 ask, if I gave it a lot of thought.

19 MR. ROSENTHAL: Well, I think that you're more
20 creative than us and we just have three weeks to worry about
21 it, that you haven't yet. I'd like to thank you for coming.

22 MR. THADANI: You're welcome.

23 MR. ROSENTHAL: We can stop.

24 [Whereupon, at 5:45 p.m., the meeting was
25 adjourned.]



REPORTER'S CERTIFICATE

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

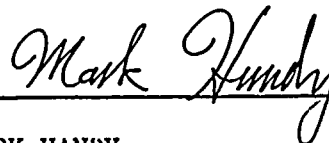
in the matter of:

NAME OF PROCEEDING: Ashok Thadani

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.



MARK HANDY
Official Reporter
Ann Riley & Associates, Ltd.



OFFICIAL TRANSCRIPT OF PROCEEDINGS

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

Title: Interview of: Ashok Thadani
(Closed)

Docket No.

LOCATION: Bethesda, Maryland

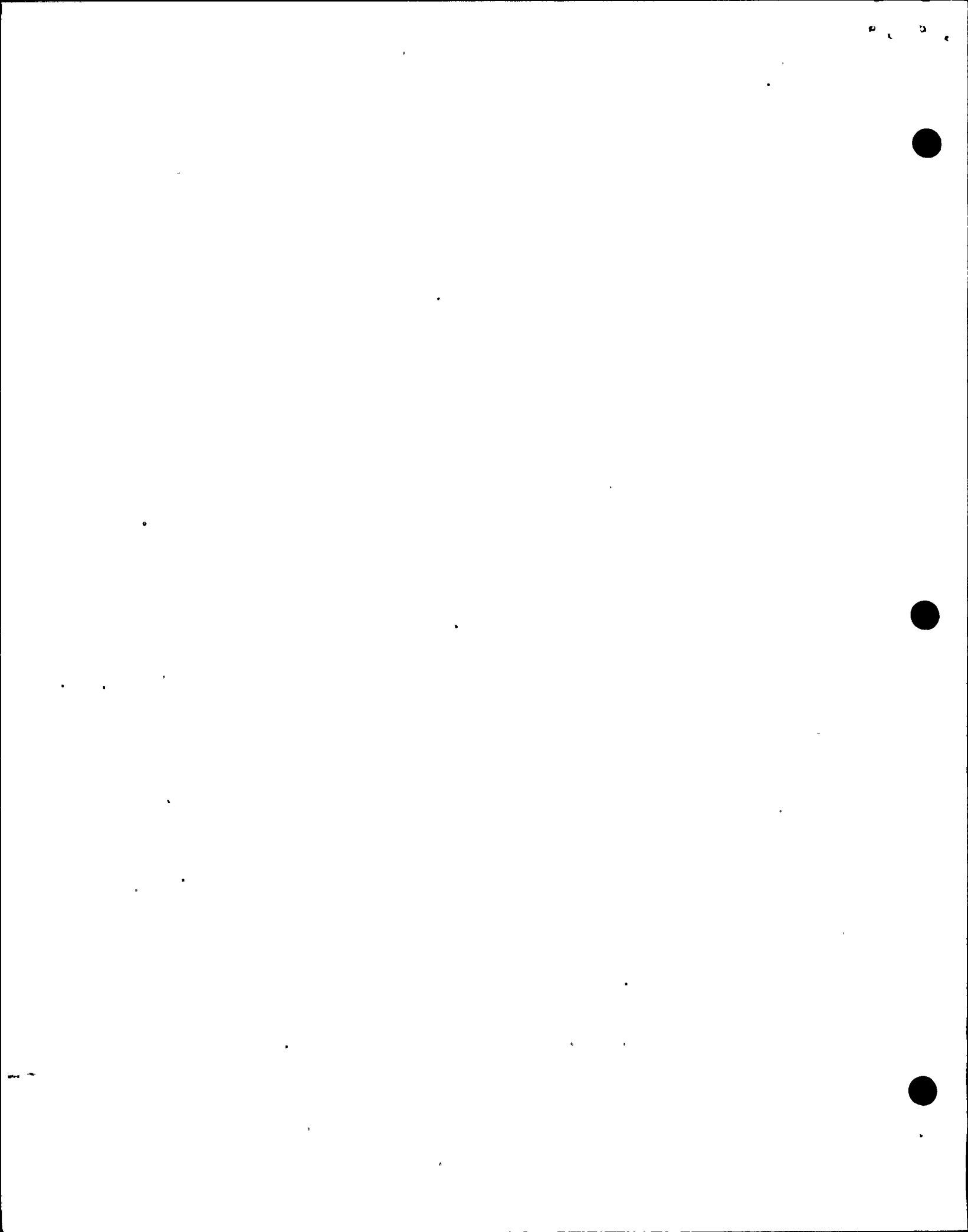
DATE: Wednesday, September 4, 1991 **PAGES:** 1 - 41

ANN RILEY & ASSOCIATES, LTD.

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

Dupe of

~~9305070245~~



ADDENDUM

<u>Page</u>	<u>Line</u>	<u>Correction and Reason for Correction</u>
3	18	1990 should be 1989 my error
3	25	Cold should be Core Typo
20	19	to should be ten Typo?
23	23	Queue should be "Q"
27	6	Revival should be Reliability
27	8	-- should be random failures

Date _____ Signature _____

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
INCIDENT INVESTIGATION TEAM

- 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

- - - - - - - - - - -X

In the Matter of: :

INTERVIEW OF: :

ASHOK THADANI :

(CLOSED) :

- - - - - - - - - - -X

Nuclear Regulatory Commission

Interview Room

Woodmont Building

8120 Woodmont Ave.

Bethesda, Maryland

Wednesday, September 4, 1991

The above-entitled matter commenced at 4:35
O'clock p.m., when were present:

On behalf of the Incident Investigation Team:

RICH CONTE, NRC, REGION I

JOSE IBARRA, NRC, NRR

JACK ROSENTHAL, NRC, AEOD, IIT Team Leader

3.26

2. 3.



P R O C E E D I N G S

[4:35 p.m.]

1
2
3 MR. CONTE: Good afternoon. It's about 4:30 on
4 the 4th of September. We're in the Woodmont Building in
5 Bethesda, Maryland, conducting an interview of a Mr. Ashok
6 Thadani, concerning the event at Nine Mile II on August 13,
7 1991.

8 My name is Richard Conte. I'm from Region I.

9 MR. IBARRA: I'm Jose Ibarra. I'm a member of the
10 IIT, and I'm from NRR.

11 MR. CONTE: For the record, let it be known that
12 Jack Rosenthal, Team Leader, is joining the interview.

13 MR. THADANI: I'm Ashok Thadani. I'm Director of
14 Division of Systems Technology at NRR.

15 MR. CONTE: Let's get your name.

16 MR. ROSENTHAL: Jack Rosenthal. I'm the IIT Team
17 Leader.

18 MR. CONTE: Ashok, could you give a little bit of
19 your background with the NRC?

20 MR. THADANI: I came to NRC in 1974, in the
21 Reactor Systems Branch. I worked in Reactor Systems Branch
22 until 1978. And we became a different division working on
23 various unresolved safety issues and generic issues.

24 At that time, I was in the last stages of my
25 involvement in an unresolved safety issue called



1 "Anticipated Transients Without Scram," and I was a task
2 manager for that.

3 At the TMI, when the TMI accident occurred, I was
4 involved with the initial team, with Harold Denton. We went
5 out to the site, and were involved in the early analysis
6 aspects of the accident.

7 And after that, I was responsible for developing
8 NRC's views and requirements for Westinghouse and Combustion
9 Engineering designed plants as a result of the TMI accident
10 to see what, if anything, needed to be done.

11 Subsequently, I became Chief of Reliability and
12 Risk Assessment Branch in 1980.

13 And in 1985, I became Project Director,
14 responsible for Combustion Engineering plants.

15 In 1987, I was Assistant Director, responsible for
16 systems activities, both in terms of reviews, as well as
17 inspections.

18 And in 1990, I became Director of Division Systems
19 Technology.

20 MR. IBARRA: Ashok, can you tell us the groups
21 under you, the branches?

22 MR. THADANI: Yes. I have four branches reporting
23 to me.

24 First is Reactor Systems Branch. The range of
25 responsibilities of that branch include cold physics,



1 thermal hydraulics, accident analyses, ECCS, over-pressure
2 protection, and so on.

3 The second branch is Plant Systems Branch. Plant
4 Systems Branch has responsibilities of containment systems,
5 auxiliary systems, fire protection, equipment qualification,
6 and all activities related to containment and balance-of-
7 plant systems.

8 Next is Electrical Systems Branch. Electrical
9 Systems Branch was responsible for power-related issues.
10 This includes off-site and on-site AC power and DC power.

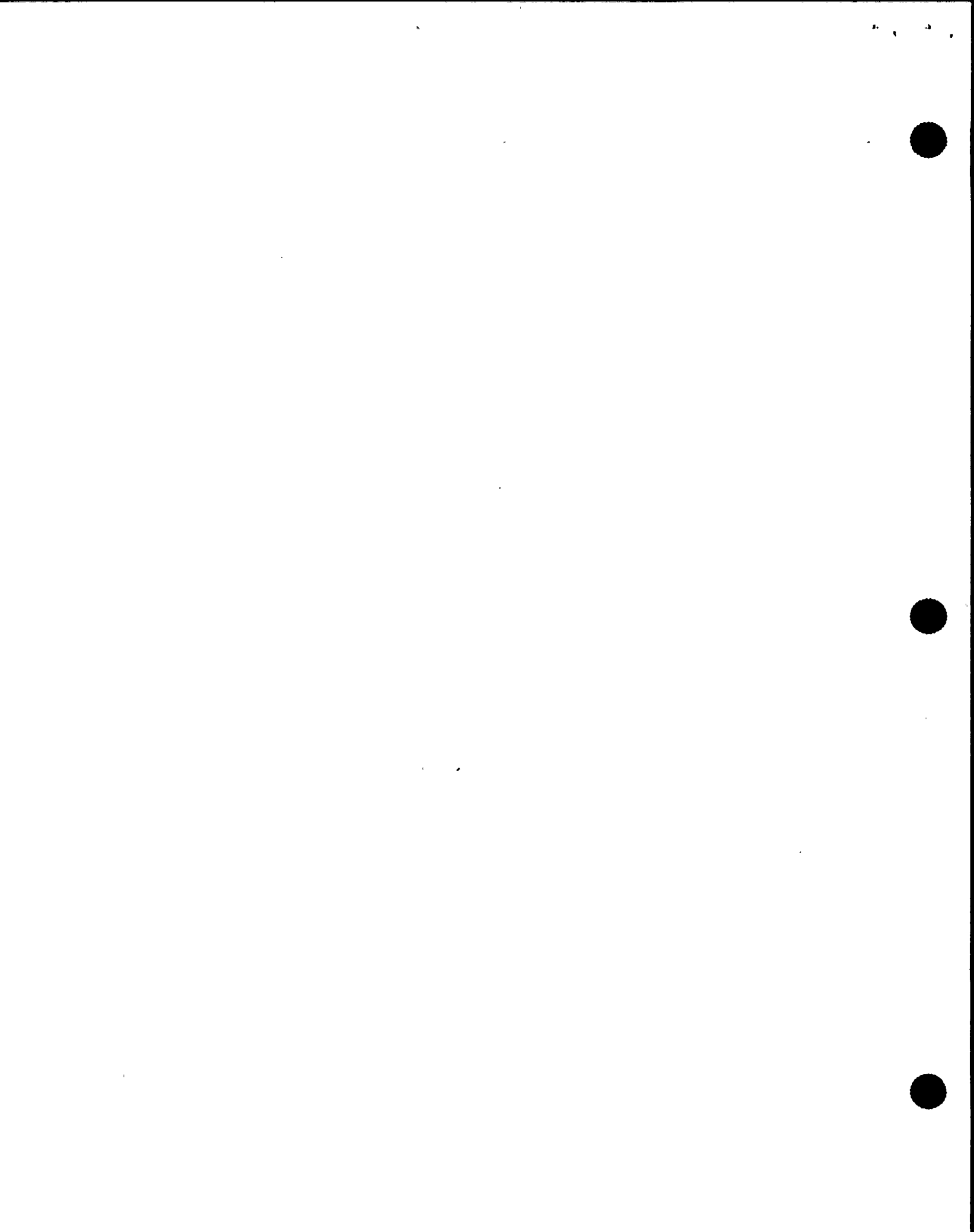
11 And there is the Instrumentation and Control
12 Systems Branch, which is responsible for all issues related
13 to instrumentation and controls, as well as a variety of
14 generic activities.

15 Now, a significant portion of that branch nowadays
16 seems to be involved in the advanced technology, digital
17 technology issues, and so on.

18 I might let you know that all these branches, I
19 described the functions, but we have a separate set of
20 groups within each branch responsible for activities in
21 advanced light water reactors.

22 MR. ROSENTHAL: The review of emergency operator
23 procedures is over under Jack Roe, I understand.

24 MR. THADANI: Yes. The way it works is, if you
25 recall after TMI, there is an action item on symptom-based



1 procedures and the emergency procedure guidelines. The
2 guidelines are developed, technical guidelines are
3 developed; responsibility is with Reactor Systems Branch.
4 But they go to other branches, where needed.

5 Once the guidelines are developed, then basically
6 the activity is turned over to Jack Roe, and they ultimately
7 transfer the guidelines into emergency operating procedures,
8 becomes his responsibility, and he's the one who follows up
9 on that. EOPs. We support him as needed, subsequent, if
10 needed.

11 MR. IBARRA: In your development of the EOPs, do
12 all of your branches contribute to that technically?

13 MR. THADANI: Several branches do. The bulk of
14 the work really comes from Reactor Systems Branch, because,
15 as I said, they do the transient and accident analysis. And
16 as you know, since TMI, we have been more and more concerned
17 about multiple failures.

18 In the old days we used to only worry about single
19 failures, and a non-mechanistic kind of look at designs.
20 But TMI taught us a lesson, that multiple failures can
21 occur, and that you ought to really do these analyses
22 realistically, and make sure you understand what the real
23 progression of events might be. So the bulk of that work is
24 Reactor Systems Branch.

25 Next level of involvement, I would say, comes from



1 Containment Group within Plant Systems Branch, because we're
2 into, substantially into severe accident considerations, in
3 some cases, more so for boilers than for pressurized water
4 reactors. So there's been a lot of involvement from the
5 Containment Section in Plant Systems Branch.

6 And then, as far as the instruments are needed and
7 so on, that level of activity would come from I&C Branch.

8 There's not much -- I'd say that's probably the
9 bulk of the activity.

10 MR. CONTE: I would imagine. You talked about
11 these other branches, like ICSB. For example, the Reg Guide
12 197 instrumentation. What is the connection between the Reg
13 Guide 197 instrumentation the EOPs? Should all the -- for
14 example, all the parameters associated with EOP
15 implementation be in the Type A, Category 1 classification?

16 MR. THADANI: It's hard for me to answer that to
17 say whether all of them should be Type A. I think clearly
18 the intention -- now, I don't know if you know, there have
19 been some appeals on some of the parameters in Reg Guide
20 197. I think we have had appeal on neutron flux monitoring
21 system. The history on that is we -- initially, the appeal
22 was rejected.

23 Subsequently, the Owners Group went to Tom Murley
24 and Tom Murley has indicated that because of what appears to
25 be the importance of neutron flux monitoring system and its



1 pedigree in the context of severe accidents, core melt
2 scenarios, that it may be appropriate to look at it as part
3 of accident management and not push for it under Reg Guide
4 197.

5 Now, I don't know how that issue is going to end
6 up because we have to go to CRGR and go through the process
7 to see how it ends up.

8 MR. ROSENTHAL: Did he rely on control rod
9 indication in his decision process?

10 MR. THADANI: Well, I think clearly that was a
11 consideration. And whether you have a situation where the
12 rods didn't go in and you -- or a situation where you might
13 go critical again and not know, the sense he had was that
14 the likelihood of those things is low enough that we don't
15 need to push.

16 As a result of Nine Mile Point, I said, well,
17 maybe this is something we didn't appreciate before. That's
18 a curve, so to speak, because I know we didn't think about
19 stuff like that. When you talked about getting into a loop
20 or do a loop on ATWS procedures and not knowing for sure if
21 the rods are in or not, to me, that's a very serious issue.

22 MR. CONTE: That's why we're asking the question.

23 MR. THADANI: Now I'm having second thoughts, in
24 my mind, whether we -- did we really consider events like
25 this, and now what would I say today, I don't know the



1 answer. I think as a minimum -- as a matter of fact, a
2 package came to me yesterday for my concurrence and I sent
3 it back. I said it needs a little more work and
4 particularly I have two questions.

5 First of all, it needs more work, I think, but
6 second of all, more importantly, is how much do we really
7 know now about Nine Mile Point and what should its role be
8 in that decision. I'm not ready to answer that. I don't
9 know. We're going to wait for your report.

10 MR. ROSENTHAL: Well, as I understand it, since
11 they had APRMs low and LPRMs low, they knew that under that
12 condition they would shut down without knowing the rods.
13 And they end up in this little tight ATWS loop where they're
14 afraid to cool down, depressurize cool down the plant
15 because without knowing the rod positions, you don't know if
16 you might be re-critical.

17 MR. THADANI: Right.

18 MR. ROSENTHAL: I believe that there is folklore
19 on the emergency procedures where we told licensees, hey,
20 write realistic procedures, use all the real instruments
21 that you really will have in the plant, and that we will
22 make you make every one of them safety-grade.

23 And what we wanted to avoid was the set of real
24 procedures and then another set of stylized procedures that
25 would only have 1-E stuff, etcetera, for the regulators, but



1 they weren't the real -- we wanted the real procedures to be
2 one and the same.

3 MR. THADANI: That's right.

4 MR. ROSENTHAL: Okay. I don't know where that's
5 ever -- is that written down anyplace or was that espoused
6 anyplace or is that just folklore?

7 MR. THADANI: Well, let me see. I'm not sure it's
8 written down anywhere, but I think what we have said, and if
9 you look at -- well, let's use an example and maybe that
10 would help us. I remember when we did BWR Emergency
11 Procedure Guidelines Revision 4, and I'm using that because
12 --

13 MR. ROSENTHAL: That's what this plant works to.

14 MR. THADANI: That happened during my period of
15 responsibility.

16 MR. ROSENTHAL: That's good. These plants.

17 MR. THADANI: So I said -- I guess what we said,
18 if I remember correctly, was the following. I think we have
19 said that use whatever is available, and I don't know if we
20 said reliable. We said you should do these things with
21 these analyses and decisions should be based on realistic
22 considerations.

23 But we had a hooker in there someplace, if I
24 remember correctly, in our evaluation. The hooker we put in
25 there was that if, by choosing to go forward with EPG Rev.



1 4, you are going to find yourself outside the design basis,
2 you have to systematically evaluate that and decide what's
3 the right thing to do.

4 Now, you can kind of infer things from that, but
5 I'm not sure how one would -- whether there would be
6 systematic inference drawn by each licensee. I guess what
7 it tells me is that I went through a set of analyses in the
8 FSAR, made a set of assumptions, available information and
9 so on, everything, and I took certain actions.

10 Now comes EPG Rev. 4 and in the initial analysis I
11 assumed the containment integrity would be maintained for a
12 design base accident, let's say, and here comes EPG Rev. 4
13 that says when certain things happen, vent the containment.
14 I scratched my head, said wait a minute. If I vent the
15 containment, could I be -- could I possibly be within my
16 design base set of conditions.

17 If I am and I vent the containment, have I now
18 violated what I said in the FSAR. So that was really the
19 intent. But you could stretch it, you could push it further
20 and say, well, that means rely only on a certain set of
21 instruments and so on.

22 But that's about -- I mean, we have some more
23 information, but that's the way I remember the extent of it.

24 MR. CONTE: Let me see if I can rephrase what I
25 thought I heard: that the Staff's position -- and it may



1 not be very clearly written down -- that all of the
2 parameters and associated instrumentation in the EOPs do not
3 necessary have to be pedigree Category 1 safety grade.

4 MR. THADANI: Okay. That's right. The neutron
5 flux monitoring system is an example.

6 MR. CONTE: And we don't know what document that's
7 stated it, but it's the way we've been operating perhaps.

8 Now the next question is: How about an integrated
9 review by the NRC Staff to look at what the Reg Guide 197 is
10 saying, what licensees are doing in response to 197, and the
11 EOPs and maybe coming to an independent conclusion that,
12 hey, maybe one of these parameters that is perhaps powered
13 by non-safety sources ought to be safety grade?

14 MR. THADANI: Well, I guess I can't give you
15 details, but Reg Guide 197 splits them up into Category A,
16 B, and so on types of parameters, and they have to meet
17 certain pedigree requirements. And whether we go back and
18 check the EOPs, I can't answer that, against those
19 parameters.

20 I don't know if Jack can. I know I can't.

21 MR. ROSENTHAL: Well, apparently for the -- and
22 surely I was a contributor on 197, so I'm going to one day
23 interview myself.

24 MR. THADANI: You've have been a contributor to a
25 lot of things.



1 MR. ROSENTHAL: I'm going to sit on both sides of
2 this table one of these sessions.

3 MR. IBARRA: And I'd like to question you.

4 [Laughter.]

5 MR. ROSENTHAL: We clearly know that ICSB -- and I
6 don't know to what extent power systems -- reviewed
7 equipment against 197, and there were systematic 197
8 inspections, et cetera.

9 MR. THADANI: Right.

10 MR. ROSENTHAL: Okay. For type BC variables. But
11 this is a broad thing that says: Hey, Type A variables, if
12 it's a pre-planned manual action, then it ought to be
13 pedigreed. And apparently that was left up to the licensee
14 to identify those Type As.

15 MR. THADANI: That's correct.

16 MR. ROSENTHAL: Okay. So where did RSB, based on
17 their review of the thermal hydraulic adequacy of the EPGs
18 or human factors over -- not in your division -- feed back
19 what should be these Type A variables, or how did they worry
20 about this?

21 MR. THADANI: Well, maybe we need to make sure and
22 confirm with both Scott Newberry and perhaps Jerry Wermeil
23 over on the human factors side.

24 But I don't think we went back -- as far as I
25 know, we haven't gone back and checked. I think we have



1 accepted what the licensees have said, and to the extent the
2 check is there is that you see that there are significant
3 variations in what people are telling you.

4 And I also don't think there's a check to go back
5 and look at the EOPs and check each of the variable out to
6 see under what set of conditions, which variable is being
7 relied upon. And so as far as I know, we don't -- we have
8 not done that .

9 But since I have part of the responsibility, I
10 could be wrong, and maybe Jack is, you know -- or Jerry
11 Wermeil's folks have actually done that. But I don't think
12 so. I don't think so.

13 MR. CONTE: They're saying they haven't.

14 MR. THADANI: No. And I don't think it's been
15 done either.

16 You know, it's kind of a strange thing we do. We
17 have never historically -- historically, we have not got
18 into EOPs. It's only since the Three Mile Island accident,
19 I think, that we've got into it to some depth, I think, and
20 even then I guess what we do on EOPs largely is, you know --
21 I guess we look at PGPs, right, procedure generation
22 packages, and if they're good enough -- in other words,
23 we're looking at a lot of paper and process and so on.

24 But in terms of EOPs, the only -- again, as far as
25 I know -- the only real substantive look we give is through



1 inspections and examinations that we just do, for example.

2 Outside of that, at least at Headquarters, I don't
3 think we do any more.

4 MR. IBARRA: Ashok, there was a program under CRDR
5 called the functional task analysis, which basically did --
6 I think what we're getting at, an integrated approach where
7 you took the PGPs and broke it down to the instrumentation
8 level, what kind of ranges they needed for the qualification
9 of instruments and so forth.

10 What part did your Branches play in that, or did
11 they play any?

12 MR. THADANI: Yes. I believe the ranges and so on
13 were -- you know, this is going back to history, and I
14 wasn't involved -- but I believe that part came from the
15 Reactor Systems Branch, as well as, I would think, at that
16 time, I think, was Containment Systems Branch, wasn't it,
17 about that time?

18 MR. ROSENTHAL: Well, on the original Reg Guide
19 197, Rev 2, actually it was put together by me when I was in
20 ICSB, and I ran off to Containment Systems and Reactor
21 Systems.

22 MR. THADANI: Okay, right. That's what I mean,
23 that the ranges and so on would have to come from those
24 groups supposedly who have that function.

25 MR. ROSENTHAL: Unfortunately, that was before Rev



1 0 left the NRC, the emergency operating procedure
2 guidelines. You know, the generic owners group guidelines
3 and 197, these were all parallel activities in the early
4 '80s.

5 MR. CONTE: So what was driving the development of
6 the Reg Guide? Not the EOPs.

7 MR. THADANI: No.

8 MR. CONTE: The development of the Reg Guide was
9 post-accident monitoring?

10 MR. THADANI: That's right.

11 MR. ROSENTHAL: Safety-related stuff?

12 MR. THADANI: Yes.

13 MR. CONTE: Versus non-safety.

14 MR. THADANI: That's right; that's right. And
15 again, you know, there must be someplace where we say you
16 can rely on all this instrumentation. Somewhere we must
17 have said that. I think we have, but I can't pinpoint it.

18 MR. ROSENTHAL: Of course, it was well folklore,
19 and in fact it makes sense, that we didn't want stylized
20 procedures that satisfied a regulator and then the real
21 procedures at the plant. But I can't find a piece of paper.

22 MR. THADANI: Yes, you know, it's an issue even
23 now. It has nothing to do with Nine Mile Point, I don't
24 think. But somewhere along the road, is the FSAR consistent
25 with the figures, because you see you make certain



1 assumptions there in the FSAR?

2 And you go through hearings and you tell everybody
3 these sets of assumptions and conditions. We know the plant
4 is safe; it meets all our regulations.

5 Now suppose we turn around and tell them: Now
6 ignore what we said there. Your procedures should be based
7 on realistic response. Could there be a disconnect between
8 the two?

9 And I think that's an issue where I don't know how
10 the utilities are -- they can do this under 50.59 or some
11 other mechanism. I don't know how many such issues are
12 there. There could be some.

13 MR. CONTE: Well, haven't we put that burden on
14 the licensees?

15 MR. THADANI: Yes.

16 MR. CONTE: From the statement that you made --

17 MR. THADANI: Yes, we have.

18 MR. CONTE: -- they need to make sure that they're
19 consistent with their FSAR.

20 MR. THADANI: Right.

21 MR. CONTE: Not use the 50.59 process.

22 MR. THADANI: We didn't say it that way. But they
23 can under 50.59, those procedures and so on.

24 The other point I am making is there might be some
25 deviations out there. I suspect there are, but they



1 hopefully have been all analyzed and looked at
2 systematically by licensees.

3 MR. CONTE: Is that an active issue with the Staff
4 right now? Has someone got the action to look at that --

5 MR. THADANI: Yes, it's an issue that the owners
6 group has raised, BWR owners group has raised, because
7 apparently there is disagreement amongst the BWR owners on
8 some elements of the guidelines.

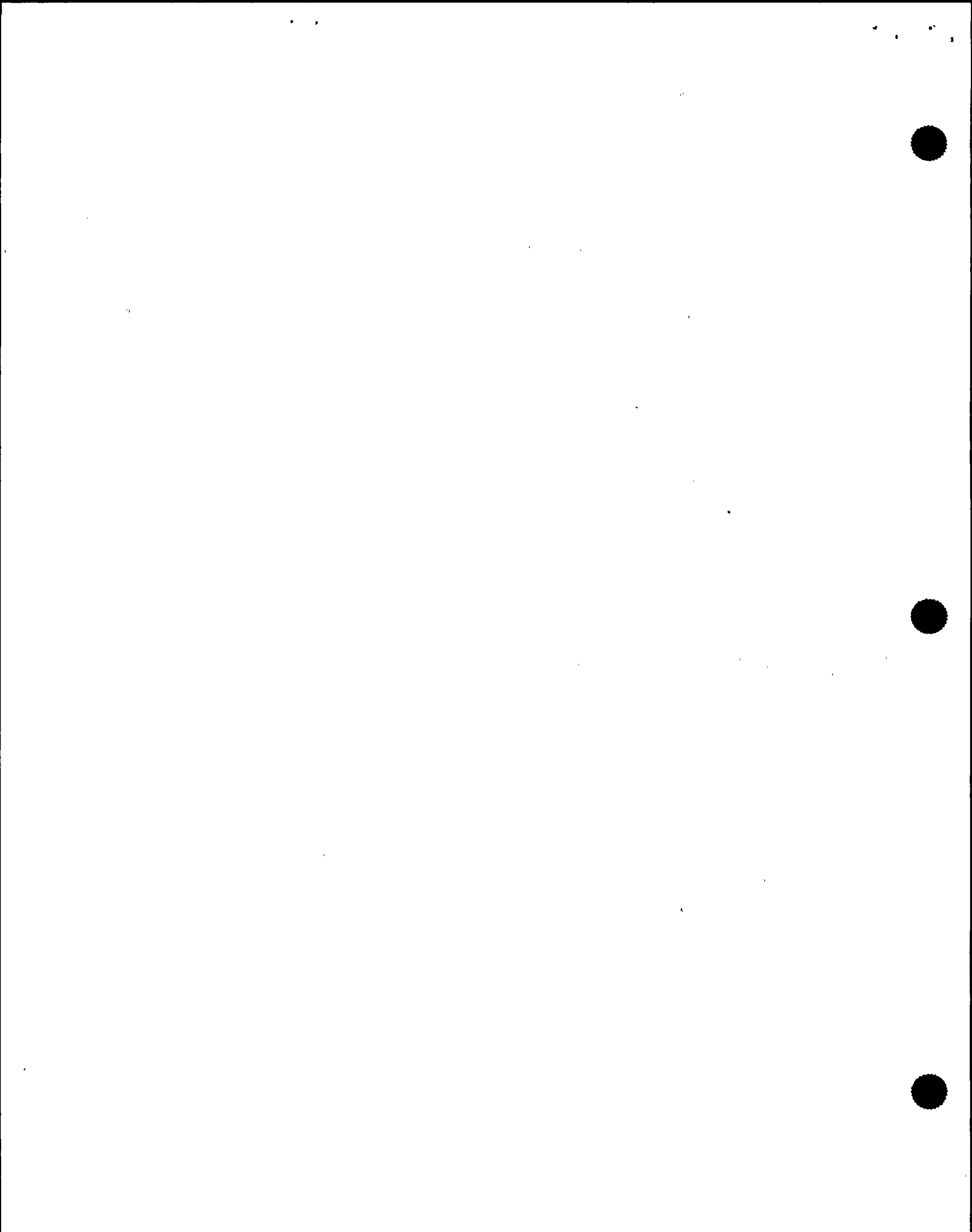
9 In some cases they don't want to do that because
10 they think that puts them outside their design basis. Other
11 licensees say no, we don't think so, so there is a little
12 bit of disagreement amongst the owners.

13 MR. CONTE: Like the lowering of level on an ATWS
14 mitigating --

15 MR. THADANI: That's an example. Lowering the
16 level is an example. Containment flooding is an example,
17 because it depends on what signal you are using for
18 containment flooding.

19 For example, it could be that you're initiating
20 containment flooding looking at information that might be
21 just that you had a design basis accident, just a LOCA, and
22 if you're initiating flooding of the containment, at some
23 point you are going to have to vent the containment too.

24 Now is that inconsistent is what you said in the
25 FSAR, but you have to look at it -- level, ATWS level.



1 MR. CONTE: So the owners group was raising this
2 question, but what is the Staff doing about the question? I
3 mean is there a tackle in this thing? What's the Staff
4 doing about it?

5 MR. THADANI: The only issue the Staff has had a
6 meeting with the BWR owners group and they are probably come
7 back and right now the action is with the owners group, not
8 with the Staff.

9 They raised the issue; we told them they need to
10 go back and systematically tell us what are the issues. I
11 mean, you know, general discussion is fine, but what are the
12 specifics, and what is the right think to do from an overall
13 safety point of view, and let's discuss it then. Until then
14 we'll just -- we're just having kind of general discussions.

15 MR. CONTE: One more little detail about the reg
16 guide 197 equipment that relates to the power supplies and
17 the quality of the power supplies to the instrumentation.

18 I guess what I am hearing you say and in light of
19 that we kind of left it to the utilities to make the
20 determinations of what the Type A variables were, I got the
21 impression we've also left it to them to do a review on the
22 adequacy of the power supplies for that instrumentation?

23 MR. THADANI: No, I mean I must admit I'm not as
24 close to it as I probably should be, but I thought that -- I
25 think in Type A variables the power supply had to be 1E.



1 MR. CONTE: Sure, but rod position for example is
2 not a Type A?

3 MR. THADANI: That's right.

4 MR. CONTE: But it's an uninterruptable power
5 supply.

6 MR. THADANI: That's right. I tell you, it's an
7 interesting issue here because it's almost uncanny I think.

8 When was it, a couple months ago Millstone Unit
9 Two had an event and when Millstone Unit Two had the event,
10 Tom Murley asked me, he called me.

11 He said what do you think, how significant is this
12 issue?

13 I said, well, I think it's important but, boy, it
14 would be very serious if that happened along with a
15 transient at the same time. I said, boy, that would be bad
16 news because you're running blind and things are happening.

17 So he said, well, why don't you think about it and
18 let me know what we should do. Well, this is interesting
19 because I asked, I called Scott Newberry. I said, hey,
20 Scott, what do you think about this Nine Mile Point -- I
21 mean Millstone Unit Two event, and why don't you take a
22 look? I said how many of these have occurred?

23 Matt Chiramel, whom you know very well, Matt comes
24 back -- he was the one I talked to actually I think it was
25 -- Matt came back and said, hey, I remember in 1977 Zion had



1 an event and I said, look, not to do a big search but let's
2 at least see what we know and we found three events in '88 I
3 think it was -- Beaver Valley, Rancho Seco -- I forget the
4 third plant.

5 But they had to do with problems in remote control
6 cabinets and fire. Apparently it was one vendor stuff.
7 There were four plants if I remember correctly that had this
8 stuff.

9 MR. CONTE: Well, there is also a statement in
10 that information notice that Scott provided to us that there
11 was a lack of specific emergency procedures to address the
12 loss of annunciators.

13 MR. THADANI: That's a good point, good point.
14 You actually reminded me about that because, yes, that was
15 the other thing and so when we looked at this information, I
16 remember sitting down and talking to Tom and saying, well,
17 you know, there's not even a thorough search and we already
18 know about four or five events that have happened, frequency
19 five times to the minus three or ten to the minus two.

20 I said it's probably higher because there are
21 probably other events if we were to really search we might
22 find so let's just for the sake of argument say it's ten to
23 the minus two kind of an event -- it may not be so bad if
24 nothing else is going on, but if something else is going on,
25 now you don't know what the -- how to deal with the operator



1 response. You really don't know.

2 So I said the procedures are very important and
3 that information notice went out and apparently said some
4 words about the importance of procedures and Millstone Two
5 apparently did have procedures -- apparently, okay?

6 The upshot of all this is that my recommendation
7 to Tom was that it will take four to six weeks to take a
8 look at this issue a little more carefully and in the
9 meantime --

10 MR. CONTE: Nine Mile Two happens!

11 MR. THADANI: -- in the meantime we'll probably go
12 out and make sure the advanced reactors fix this problem,
13 and there is Nine Mile Point! Absolutely incredible --
14 having this event with a trip.

15 Clearly we need to do something about it.

16 MR. ROSENTHAL: When we issue an IN, what's your
17 opinion on the regulatory requirements and our expectations,
18 and they may not be the same, with respect to the licensee's
19 actions?

20 MR. THADANI: I think an information notice -- you
21 cannot have any new regulatory requirements on an
22 information notice. But there has to be some purpose for an
23 information notice, it seems to me.

24 When we issue some information notice, that is
25 what it is, is useful, important information that I think a



1 responsible licensee should take a look at and make a
2 conscious decision whether there is something that they
3 ought to be doing with it or not.

4 Otherwise, you -- well, I'm not sure what we
5 achieve through issuance of information notices other than
6 saying, "Well, you know, we informed everybody else." But I
7 think it's, in my view, licensee responsibility to carefully
8 assess the information notices and make conscious decisions,
9 whatever actions they take. But nevertheless, they ought to
10 have some way.

11 MR. ROSENTHAL: Does that take us off the hook?

12 MR. THADANI: Does it take us off the hook in what
13 sense, though?

14 MR. ROSENTHAL: Well, "Okay. We told them."

15 MR. THADANI: Well, I think that the things we do,
16 we issue information notice if we believe it's a useful
17 thing for the industry to know, but our level of concern is
18 not so high as to say we ought to develop some new
19 requirements as a result of that. If we -- our sensitivity
20 is high enough, then we have to go through the generic
21 letters, bulletins, orders, or some other vehicle.

22 MR. ROSENTHAL: Let me switch to the area of
23 safety related and important to safety. The agency had
24 deliberations for years on the issue of important to safety.

25 MR. THADANI: Is it resolved?



1 MR. ROSENTHAL: And it is not resolved. Were you
2 involved in this, and maybe you could share your personal
3 views.

4 MR. THADANI: I was only involved in a very
5 peripheral kind of way because -- well, let me see. If I
6 remember correctly, back in '82, I think Jim Conran used to
7 work in my branch, Reliability and Risk Assessment Branch,
8 and Jim Conran had -- I think it was on Shoreham, if I
9 remember correctly -- had a DPO, and I think one of his
10 issues of concern was the particular aspect of safety
11 related and important to safety and so on. So that's almost
12 -- that's the peripheral involvement I had. But I --

13 MR. CONTE: You mentioned a -- oh, I'm sorry. Go
14 ahead.

15 MR. THADANI: Let me give you my own view. I find
16 it very -- I get uncomfortable at just saying, safety
17 related, you got all these things to do. I'm not going to
18 pay attention to the rest of the equipment. I think it
19 would be helpful if there were a way to develop some sort of
20 -- I hate to use this word "graded," but some kind of
21 mechanism so that we have maybe, I don't know, maybe three
22 categories or four categories, or some way.

23 There is safety related, our queue list, and this
24 has to go with Appendix B. The rest don't have to deal with
25 Appendix B, or whatever. It seems to me too much of a black



1 and white kind of a demarcation because I think a hell of a
2 lot of stuff that's non safety related is very important to
3 safety, and all we have to do is look at a lot of studies.

4 So in a way, it would be desirable to have
5 something beyond what we have today. To be honest with you,
6 I'm not sure where we stand on it.

7 MR. ROSENTHAL: After the Salem event in the early
8 '80s, the NRC sent out a generic letter, 83-28, which speaks
9 to safety related equipment.

10 MR. THADANI: Yes.

11 MR. ROSENTHAL: Okay. And we expected -- for
12 safety related equipment, we make it very clear we want
13 owners -- interfaces with the manufacturers and more
14 maintenance, et cetera, et cetera, et cetera.

15 MR. THADANI: Well, it wasn't all safety -- as you
16 know, that got -- at least in terms of vendor interfaces
17 that had to be established, the level of interface and -- so
18 it was if I remember correctly ultimately this limited set
19 of hardware for which they have to have that interface.

20 MR. ROSENTHAL: For instance, there's a section on
21 trip breakers, and then there's another section on safety
22 related --

23 MR. THADANI: There was safety related and then
24 the other --

25 MR. ROSENTHAL: Yes. But there's no requirements



1 for stuff that isn't safety related in that letter, if you
2 go back and read it. Nevertheless, people may have had
3 expectations of licensees that went beyond the letter of the
4 generic letter, okay?

5 MR. THADANI: Uh-huh.

6 MR. ROSENTHAL: Do you have a perception of what
7 those expectations were?

8 MR. THADANI: Well, post-Salem, 83-20,
9 expectations beyond what was in the generic letter? Are you
10 saying -- I suppose you have to go to what? 0660? Was it
11 0660? Well, I can't -- I tell you, I can't answer that. I
12 was not involved to be able to tell you.

13 MR. ROSENTHAL: Okay. In the Salem event, there
14 is the issue of potential common mode failure of reactor
15 trip breakers due to inadequate maintenance.

16 MR. THADANI: Correct.

17 MR. ROSENTHAL: In --

18 MR. THADANI: And aging.

19 MR. ROSENTHAL: Excuse me?

20 MR. THADANI: And aging effects.

21 MR. ROSENTHAL: And aging.

22 MR. THADANI: The next piece of that requirement
23 was on aging concerns.

24 MR. ROSENTHAL: In Nine Mile Point, we see common
25 mode again, we see a maintenance theme, and we see an aging



1 theme.

2 MR. THADANI: Yes.

3 MR. ROSENTHAL: Go on. I don't want to cut you
4 off.

5 MR. THADANI: No, no, no. I think I was going to
6 say that you're exactly right on reactor trip breakers. I
7 guess it was the -- having the automatic shunt over and
8 above on the voltage trip breaker trip assembly, and
9 preventive maintenance, and life cycle testing. I think, if
10 I remember, those were the key things.

11 MR. ROSENTHAL: Well, we have a lot of redundancy
12 of equipment but little diversity except in selected areas
13 like ATWS.

14 MR. THADANI: That's correct.

15 MR. ROSENTHAL: And that came back to haunt us at
16 Salem and it came back to haunt us in this event. We're
17 down to, you know, what wire goes to what phase. It's a
18 three-phase. It's all the same.

19 MR. THADANI: Yes.

20 MR. ROSENTHAL: So it's all subject to the same
21 unanticipated common mode.

22 MR. THADANI: Yes. We need to get --

23 MR. ROSENTHAL: Does that say that we should
24 rethink common mode, and is there an implication for future
25 designs?



1 MR. THADANI: Good question. First of all, we
2 need to get to your level of understanding with this event,
3 so I'm not going to be able to speak intelligently.

4 MR. ROSENTHAL: Okay.

5 MR. THADANI: But in principle, I think our goal
6 is to improve overall revival of equipment, and wherever you
7 have multiple trains, then I think that you have taken care
8 of -- it's my opinion that you have -- if you do it right.
9 I mean, you know, we're assuming that it's engineered right
10 and so on, that you've probably dealt with all reasonable
11 kinds of random failures, and then if you're going to have a
12 problem, it's probably going to be some common cause or
13 common mode, one way or another.

14 Then you have to ask yourself a question: How
15 reliable does this equipment have to be? Which then goes
16 back to an earlier question: How important is it? What's
17 its role in the overall safety, scheme of safety?

18 If it turns out that it's very important in terms
19 of that level of safety we're looking for, such as the
20 protection system, and protection system already has a lot
21 of redundancy, then it's my view that the best way to
22 achieve improvement in overall reliability is to go for
23 diversity.

24 Now, on the other hand, let me take another
25 example. I have a plant with two diesel generators, and if



1 you ask me, say, "Now I want to add another source of, let's
2 say, on-site AC power. What's the best thing to do? Should
3 I add another diesel generator, for example, of the same
4 manufacture, or should I add a gas turbine or something?"
5 It would be tough to answer that.

6 I mean, you know, you get diversity, but is it as
7 reliable to random failures? Now, two or three diesels
8 actually can fail. One may be out for maintenance, two can
9 fail from random failures, and so on. So it's a tougher
10 call then, I think. So there is some level where I think
11 it's easier to say you should have diversity.

12 It's sa tough call in other cases. But I,
13 personally, am a believer that if two things or three things
14 are equally reliable to random failures, diversity is a good
15 thing to go for if that's not going to cause problems with
16 reliability through different maintenance procedures and
17 greater complexity, more parts and this and that. So, you
18 have to be careful.

19 But I, myself, am of the opinion that you should
20 look for diversity where you can.

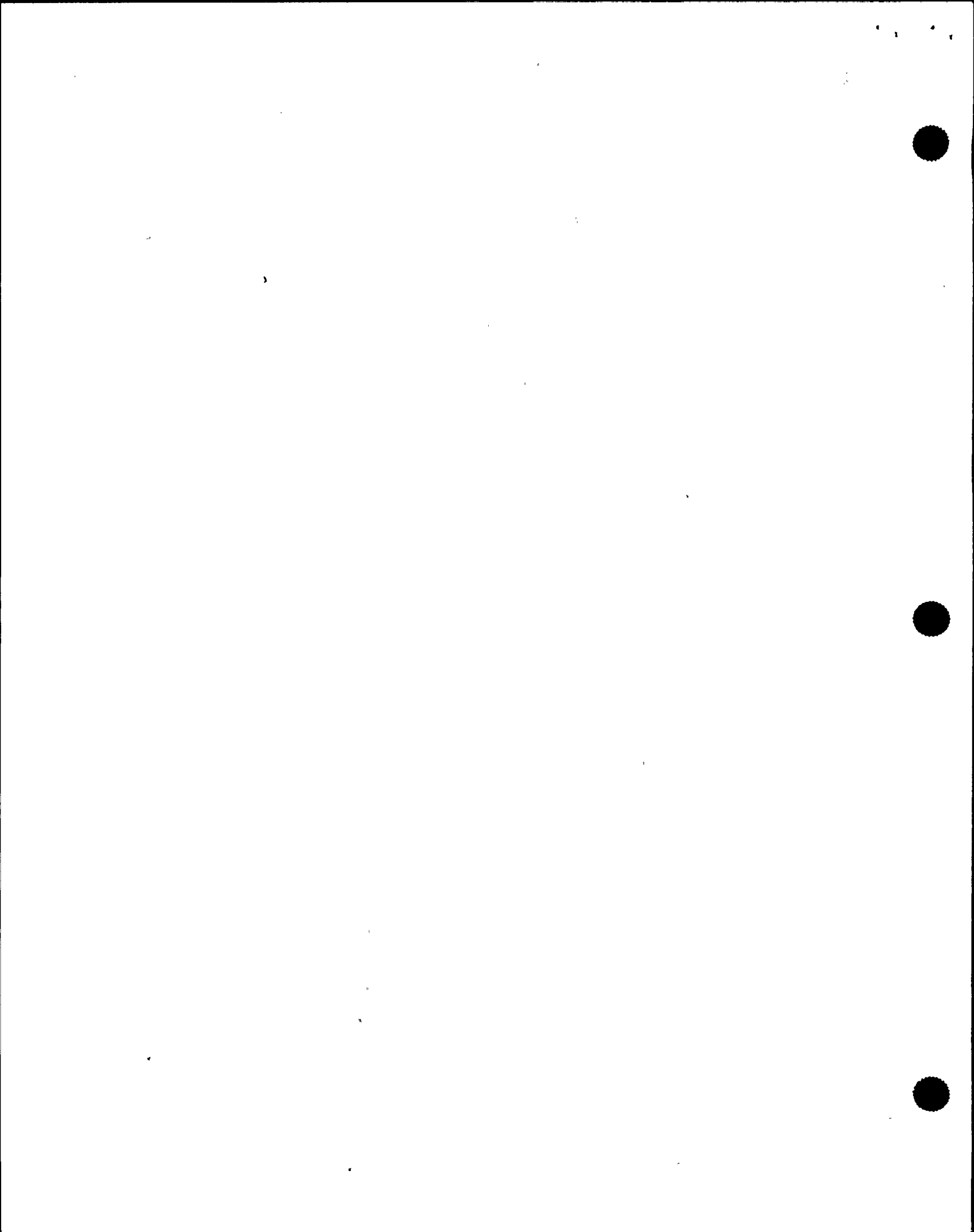
21 MR. ROSENTHAL: Let's go off.

22 [Recess.]

23 MR. ROSENTHAL: Let's go back on the record.

24 MR. CONTE: What was your question?

25 MR. IBARRA: Within your practice -- within the



1 instrumentation electrical reactor systems and plant
2 systems, the way I understand it is that the reactor systems
3 people are the ones that do locate the EOPs?

4 MR. THADANI: They don't really look at EOPs.
5 They develop technical guidelines.

6 MR. ROSENTHAL: They look at the owner group
7 guidelines --

8 MR. THADANI: Guidelines.

9 MR. ROSENTHAL: -- for technical adequacy, based
10 on their knowledge of system response --

11 MR. THADANI: And analysis. Accident analysis and
12 et cetera. That's correct.

13 MR. IBARRA: But within your own division, how are
14 this reactor systems people know enough about accident
15 monitoring and balance of plant and EQ and so forth to be
16 able to, within their own division, be able to ask for
17 specialized help?

18 MR. THADANI: I believe the answer is yes. The
19 Reactor Systems Branch has lead responsibility. That means
20 more than what they normally review. They have the
21 responsibility for assessing technical adequacy of the
22 guidelines. They have the responsibility of -- which means
23 that they have the responsibility of coordination --
24 coordination with several branches. Generally, I mean, they
25 are probably other branches involved, and I might not even



1 know all the branches that are involved. But, generally,
2 the bulk of the involvement is from Reactor Systems Branch,
3 Plant Systems Branch.

4 Plant Systems Branch brings the expertise on
5 containment and auxiliary systems, that includes emergency
6 feedwater system and the auxiliary systems, safety related
7 and others, balance-of-plant, includes service water system,
8 component cooling water system and so on.

9 In terms of the instrumentation and the monitoring
10 is the I&C Branch. But it is the responsibility of reactor
11 systems branch to coordinate the technical assessment. They
12 get people from Scott Newberry's branch to help look at
13 stuff. When it comes to equipment qualification, for
14 example, EQ per se is under Plant Systems Branch. But when
15 it comes to uncertainties in instrumentation and so on, in
16 the different environment is Newberry's branch, because it's
17 related to instruments. But if its penetrations and even if
18 it's low-voltage stuff -- penetrations -- containment
19 penetrations, it would be the lead responsibility is Plant
20 Systems Branch, but that doesn't mean that they -- they have
21 to sometimes there are issues where they have to go to
22 different branches for specific technical expertise. But
23 that's generally how it's set up.

24 MR. CONTE: Does ORSB have the responsibility to
25 issue the SER for the --



1 MR. THADANI: Yes.

2 MR. CONTE: -- owners group analysts?

3 MR. THADANI: That's correct.

4 MR. CONTE: They're the lead for that?

5 MR. THADANI: They're the lead. They get input
6 and they get concurrences from the right people, but they're
7 responsible for getting it done.

8 MR. CONTE: Does that include HFB?

9 MR. ROSENTHAL: The Human Factors Branch?

10 MR. THADANI: I'm trying to think of how much
11 involvement they had. My belief is they were involved.
12 That's my belief. I would want to confirm that.

13 MR. CONTE: Earlier you described it as a
14 different flow path coming out your division and going over
15 to Jack Roe's.

16 MR. THADANI: Typically, that's how it works. But
17 the question is -- let me -- let me tell you why I'm
18 hesitating a little bit. It may be that we weren't --
19 venting is an example or containment flooding, or pick
20 issues that are kind of tough issues. You want to --
21 venting you can't do purely, I think, on just simple
22 technical considerations. There's a lot involved. If a
23 real situation develops, who's going to make the decision to
24 vent? Governor of the state where this plant may be
25 involved might want to know. And there are factors above



1 and beyond just standard technical analysis, I think, that
2 you have to be sensitive to.

3 And I'm trying to remember to what extent human
4 factors people would have been involved; to what extent
5 emergency planning people would have been involved in that.
6 So, there are probably some issues where even in the
7 development of guidelines, we may have had other people help
8 us; in this case, Reactor Systems Branch may have had other
9 people help them.

10 MR. ROSENTHAL: Or should have.

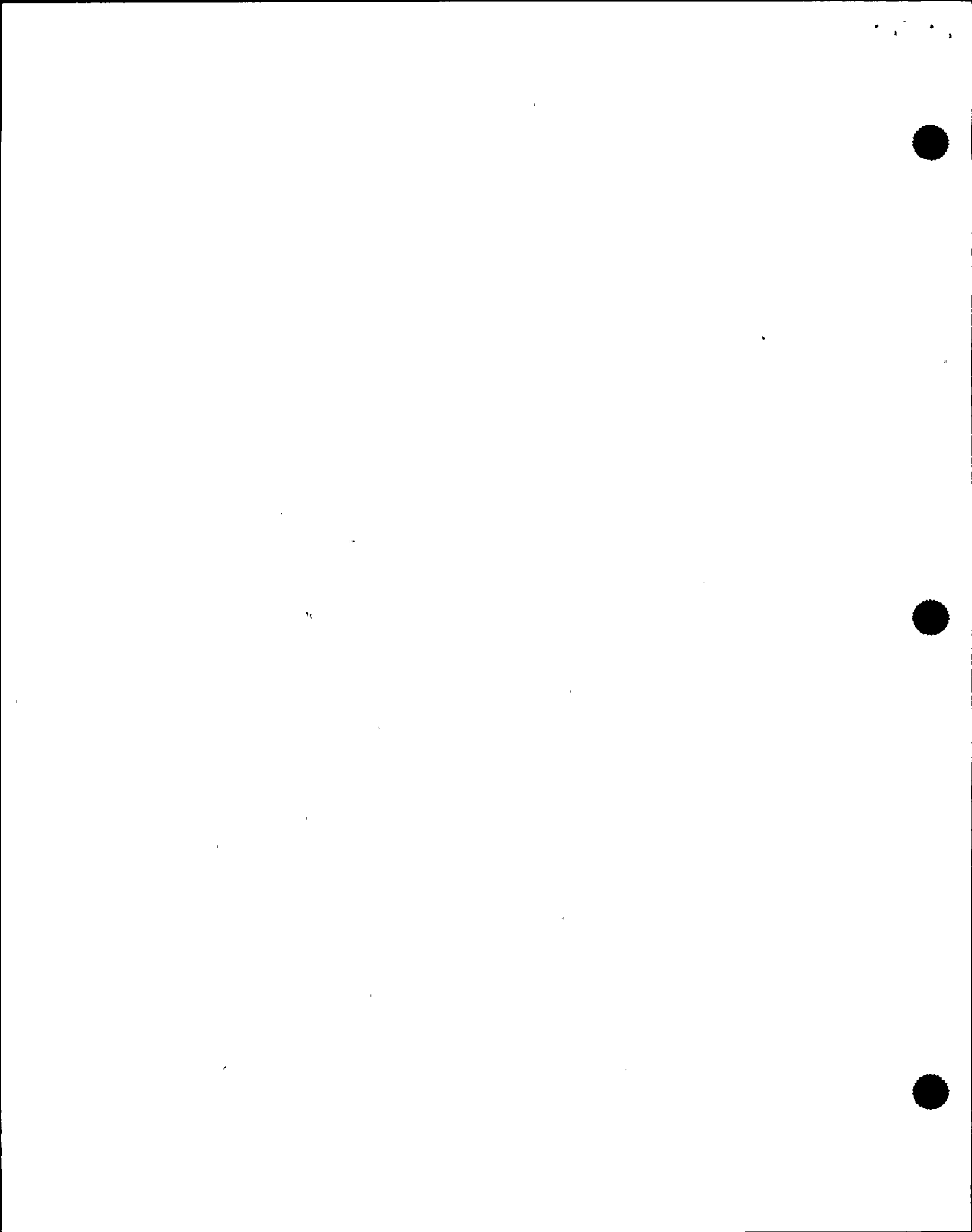
11 MR. THADANI: It depends on the issues, yes.

12 But the typical approach is you do the technical
13 guidelines. Once you are satisfied with the guidelines,
14 then the human factors aspects get picked up into this
15 procedure generation package I think is what it's called.
16 And that's Jack Roe's. You'd get much more information from
17 him than me.

18 MR. ROSENTHAL: He'll be talking to us also. On
19 the SPDS, I don't know how much involvement you had, and
20 okay, it was decided that it didn't have to be let's say
21 seismically qualified.

22 MR. THADANI: Uh-huh.

23 MR. ROSENTHAL: In this event, they lose the SPDS
24 and they lose, in turn, the numerical display of information
25 in both the TSC and the EOF. So, they're back down to a



1 phone system.

2 MR. THADANI: Right.

3 MR. ROSENTHAL: Now, I'm thinking of you as one of
4 the NRC's division directors, rather than in that detail.
5 Was this -- what were the expectations with respect to this
6 system? You know, we knew that it wouldn't be available
7 maybe if there was a seismic event. How crucial do you see
8 this that you lost the SPDS in the control room and in the
9 TSC and in the EOF?

10 MR. THADANI: Again, let me just give you an
11 opinion. I thought the objective of having SPDS was to say,
12 okay, there's some important things we'd like to have
13 available; not only the control room, but other places.

14 I am a little biased. I don't really think that
15 we need, on the east coast, at least, seismic events are a
16 big issue and on the other hand I think information
17 availability to operators and those who are assisting the
18 operators, particularly if things are not going well, is
19 critical.

20 Thus, I'd like to think that the reliability of
21 SPDS should be high. It doesn't matter it doesn't meet
22 seismic or anything. It's just a red herring. But the
23 reliability of the system should be high. That, to me, I
24 would think it would be an important issue, and that's just
25 a --



1 MR. CONTE: In terms of power supplies to the
2 SPDS.

3 MR. THADANI: No. In terms of just -- not
4 necessarily -- let's not try to limit ourselves to power
5 supplies. I think it's the end function that's important.
6 And no matter what it takes to get there, and if it's the
7 power supplies that might be the weak link and one needs to
8 pay attention to that. But I do think the availability of
9 SPDS should be high because if it is not, then I think the
10 real objective is kind of lost, that we didn't achieve what
11 we were going to try to achieve through SPDS for a set of
12 parameters.

13 MR. IBARRA: SPDS does have regulatory parameters
14 for availability and, in this case, it was not met. That's
15 a concern of ours.

16 MR. ROSENTHAL: The SPDS comes off redundant rad,
17 the rad monitor, the radiation computers, rad waste
18 computers. There's two rad waste computers.

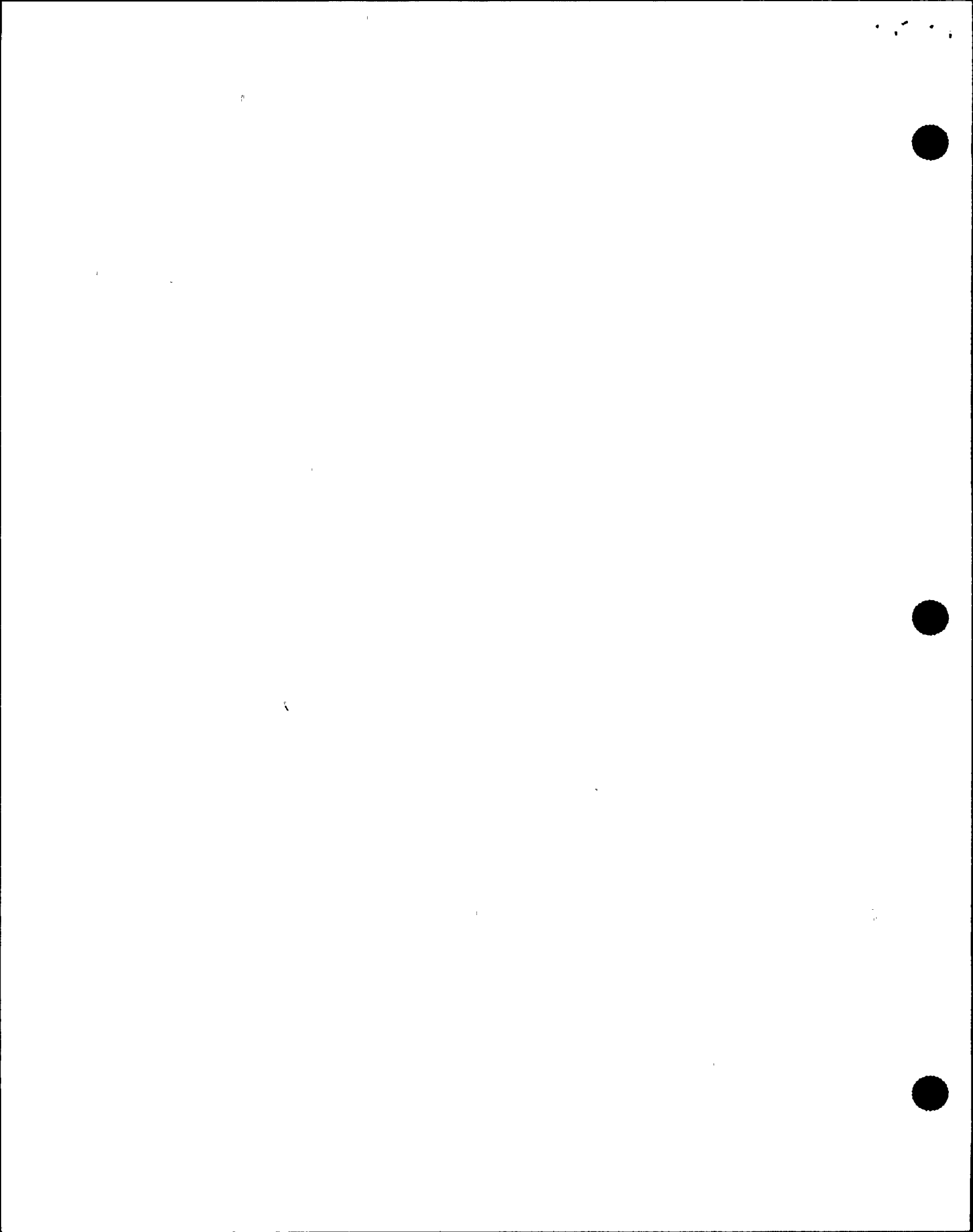
19 MR. IBARRA: The RMS.

20 MR. THADANI: I see. I see.

21 MR. ROSENTHAL: And the SPDS software sits on
22 those redundant computers which comes off the same --

23 MR. THADANI: I knew you were going to say that.
24 That's why --

25 MR. ROSENTHAL: I thought I tickled you. You



1 needed a little smile.

2 MR. THADANI: I'll tell you. I honestly think
3 that today, I'm very surprised at the number of events where
4 so much of the information is lost to the operators, just
5 surprised, because I think that's so important.

6 We're going to have to deal -- I think we're
7 looking for your report and, to me, it's an important
8 generic activity that we have to --

9 MR. ROSENTHAL: It was IB 79-27 speaks to loss of
10 an instrument bus and required people, that if you lose an
11 instrument bus, you lose half the instruments in the control
12 room. If it's an older plant --

13 MR. THADANI: That was on the BW plants, wasn't
14 it?

15 MR. ROSENTHAL: Yes. It came out of Crystal River
16 event or --

17 MR. THADANI: Rancho Seco.

18 MR. CONTE: Rancho Seco.

19 MR. ROSENTHAL: This plant was licensed in mid-
20 1986. Actually, it's before you had that responsibility.
21 But the branches involved are under you.

22 MR. THADANI: Yes.

23 MR. ROSENTHAL: Is there a slip?

24 MR. THADANI: I don't know the answer. I don't
25 think so, because I don't -- see, I don't think we reviewed



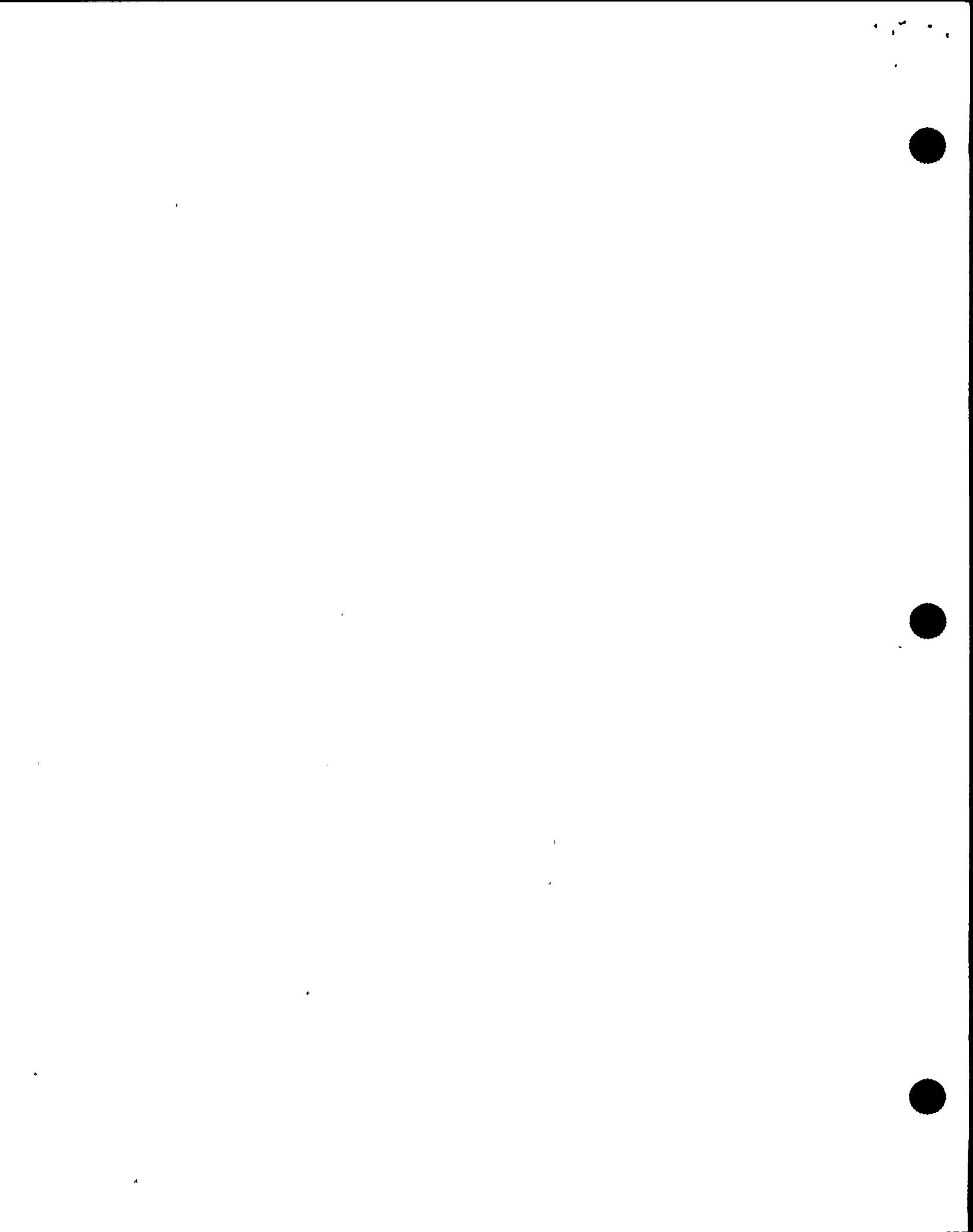
1 this kind of stuff. I'm trying to remember back to 79-27,
2 which was Rancho, because Crystal was in 1980, I think.

3 There was a concern with the non-nuclear
4 instrumentation, single failure, not only tell you blind,
5 but do you recall the ICS screw-ups. And then I guess, if I
6 remember correctly, what we wanted to do is to say you
7 should not -- let me think -- single failures should not
8 cause events like that, like that meaning Rancho Seco -- and
9 I think this was the light bulb event that led to this.

10 You're running blind and you're over-cooling for
11 several minutes and concerns of almost shock on the vessel,
12 and that led to all kinds of improvements in ICS to the
13 extent now it's really completely different than the way it
14 was.

15 Now, what this -- I have to -- as I said, I have
16 to make sure we get to your level of understanding of Nine
17 Mile Point to really give you reasonable responses. We need
18 to know, make sure and understand with a single failure,
19 which seems to be the situation at Nine Mile, not only
20 caused you to lose a lot of instruments, but caused a
21 transient, as well.

22 To me, that's a very serious event and one that --
23 I'll be honest with you, I just don't care what the
24 requirements are, we ought to go forward and do the right
25 analysis and make sure we fix that kind of a problem,



1 because that doesn't make sense that we should tolerate
2 that.

3 Now, but in the same vein, we just don't -- as far
4 as I know, we don't review that aspect. So that's why I
5 said generic implications.

6 MR. CONTE: You were very focused on the
7 availability of SPDS being highly reliable or very
8 available, a high degree of availability. Let's focus our
9 attention on another particular parameter, rod position
10 indication.

11 I believe it is at the design here -- it's either
12 the 1-A or the 1-B, the loss of the 1-A wipes out the power
13 supply to the read switches when we run a position
14 indication. How does that strike you?

15 We're not talking the common mode failure portion.
16 We're talking the 1A, in all likelihood will wipe out rod
17 position indication and cause a reactor trip because of its
18 influence on feedwater.

19 Unbelievable?

20 MR. THADANI: It's hard to fathom. That's all I
21 can say.

22 MR. ROSENTHAL: However, we didn't review it
23 because it's non-1E.

24 MR. THADANI: That's right. And you see this is -
25 - now I see some method to your madness and safety versus



1 non-safety. And what we review and what we don't. You're
2 right. I think that is a problem. Somehow -- it's a shame
3 in a way, because that's really what has maybe let some of
4 these unusual situations. Because we sort of don't really
5 review non-safety stuff.

6 MR. CONTE: One last question.

7 MR. ROSENTHAL: Then I'm going to switch the
8 topic.

9 MR. CONTE: Okay. Safety functions, clearly we
10 all recognize, have to have full pedigree category one,
11 hardware, or what have you, for the verification of safety
12 functions, do you have an opinion?

13 For example an instrumentation string not needed
14 for the safety function, but to verify a safety function has
15 been completed.

16 To a certain extent rod position indication. Do
17 you have an opinion on that type of instrumentation?
18 Whether it should be safety related, important to safety or
19 non-safety related?

20 MR. THADANI: Well, I'll tell you again, I will
21 give you an answer in part, because if -- if the function is
22 really critical -- very critical -- then the verification of
23 that function is actually taking place should be through
24 reliable instrumentation. Again, to me, that does not
25 necessarily mean the full pedigree of safety-grade.



1 I mean, I'll go back and use -- maybe it doesn't
2 have to be seismic. But what's important is that the things
3 you rely on are, in fact, highly reliable. And the degree
4 of how important a function is, is what should really drive
5 things. It was a complicated thing to do.

6 It's not been easy for us to sit in this room and
7 talk about it. But, maybe that's a better way to deal with
8 issues than to say we just want to look at something.

9 MR. ROSENTHAL: Well, apparently there's a
10 folklore among some, and I'm getting back, like the earlier
11 folk were, that if you needed an instrument to know when to
12 take action it ought to have a full pedigree. But if you
13 needed that instrument to confirm that an automatic action
14 had taken place, then you accepted a different pedigree and
15 that sounds a rational discussion, but I don't know where
16 it's written down.

17 Have you heard this sort of exposition or
18 folklore?

19 MR. THADANI: If I have, I guess I don't know in
20 what context, though.

21 MR. ROSENTHAL: That's okay. Can I change the
22 subject now?

23 MR. IBARRA: Just one question.

24 MR. ROSENTHAL: Okay.

25 MR. IBARRA: We had five UPS's that went down.



1 Does it concern you that the distribution wasn't quite what
2 it should have been? They didn't really need to loose all
3 these things.

4 MR. THADANI: We'll wait for your report, but
5 based on what I've heard, very much so. But we'll have to
6 wait until -- you know -- all the details are in.

7 MR. ROSENTHAL: Were you involved with the
8 maintenance rule, the development of the maintenance rule?

9 MR. THADANI: No.

10 MR. ROSENTHAL: Okay. We just saved ten minutes.

11 [Laughter.]

12 MR. CONTE: I think we covered most of the planned
13 -- these are reminders here --

14 MR. THADANI: Yeah. Sure. I understand.

15 MR. ROSENTHAL: Let me flip it the other way.
16 Okay? Before we let you go.

17 MR. THADANI: Okay.

18 MR. ROSENTHAL: And that is that, you know, we
19 have a bunch of questions and we wanted to get your views as
20 the division director. You know, somebody senior in the
21 NRC. It's conceivable to us that we're not asking the right
22 questions. Are you -- is there something, based on what you
23 know, questions that we haven't posed? Or areas that you
24 think you'd like to tell us about?

25 MR. THADANI: That's interest. I think you asked



1 and pursued areas far beyond than I had thought about.

2 No. I can't really think of anything because when
3 -- as I told you, it's almost uncanny when Tom had asked me
4 this question, which is specifically what you're asking, I
5 think, the same sort of question; what's the importance of
6 this?

7 And I think you're saying exactly what my own
8 reaction was, that while it's extremely unpleasant for
9 operators to loose a fair amount of instrumentation, it is
10 extremely critical if that happens along with a transient.
11 To me that's the issue at hand. And I think what you're
12 doing is the right kind of inquiry.

13 How serious? How reliable should systems be? How
14 redundant they should be? What kind of procedures they have
15 in place and what's the role of diversity in this?
16 Instrumentation, their -- I think, it seems to me you're
17 asking almost exactly the kinds of things I would probably
18 ask, if I gave it a lot of thought.

19 MR. ROSENTHAL: Well, I think that you're more
20 creative than us and we just have three weeks to worry about
21 it, that you haven't yet. I'd like to thank you for coming.

22 MR. THADANI: You're welcome.

23 MR. ROSENTHAL: We can stop.

24 [Whereupon, at 5:45 p.m., the meeting was
25 adjourned.]



REPORTER'S CERTIFICATE

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

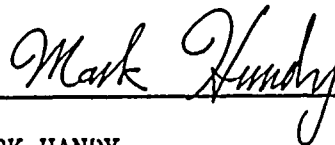
in the matter of:

NAME OF PROCEEDING: Ashok Thadani

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.



MARK HANDY
Official Reporter
Ann Riley & Associates, Ltd.



OFFICIAL TRANSCRIPT OF PROCEEDINGS

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

Title: Interview of Charles E. Rossi
(Closed)

Docket No.

LOCATION: Bethesda, Maryland

DATE: Wednesday, September 4, 1991 **PAGES:** 1 - 48

ANN RILEY & ASSOCIATES, LTD.

1612 K St. N.W., Suite 300

Washington, D.C. 20006

(202) 293-3950

9305070251 911031
PDR ADDCK 05000410
S PDR



ERRATA SHEET

ADDENDUM

| Page | Line | Correction and Reason for Correction |
|------|-----------|--|
| 4 | 11 | "PM" should be "PN" - spelling correction |
| 7 | 15 | Replace "--" with "meeting had Bill Russell"
- this provides missing words |
| 9 | 3 | "Madsen" should be "Mutton" - spelling correction |
| 10 | 20 and 21 | delete "the end of my involvement was that
the reclassified stuff was safely reclassified
and the" - change made for clarity |
| 11 | 16 | change "penny spees" to "Thermis spees" |
| 27 | 17 | Replace "--" with "Vern Hodge" |
| 27 | 27 | Replace "m" with "for" - corrects typographical error |
| 41 | 19 | Change "cove" to "cold" - corrects typographical error |
| 45 | 5 | Change "Are" to "Our" - corrects typographical error |
| 47 | 9 | Change "go" to "to" " |
| 47 | 12 | Change "fo" to "or" " |

Date 10/3/91 Signature Charles S. Rosen

2 2

[The following text is extremely faint and largely illegible. It appears to be a list or a series of entries, possibly containing names and dates. Some faint words are visible, such as "1862", "1863", "1864", "1865", "1866", "1867", "1868", "1869", "1870", "1871", "1872", "1873", "1874", "1875", "1876", "1877", "1878", "1879", "1880", "1881", "1882", "1883", "1884", "1885", "1886", "1887", "1888", "1889", "1890", "1891", "1892", "1893", "1894", "1895", "1896", "1897", "1898", "1899", "1900".]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
INCIDENT INVESTIGATION TEAM

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

- - - - -X

In the Matter of: :

INTERVIEW OF: :

Charles E. Rossi :

(CLOSED) :

- - - - -X

Nuclear Regulatory Commission
Interview Room
Woodmont Building
8120 Woodmont Ave.
Bethesda, Maryland
Wednesday, September 4, 1991

The above-entitled matter commenced at 11:05
o'clock a.m., when were present:

On behalf of the Incident Investigation Team:

- WILLIAM VATTER, INPO
- JOHN KAUFFMAN, NRC, AEOD
- RICH CONTE, NRC, REGION I

1 2 3 4

1

1 2 3 4

1



P R O C E E D I N G S

[11:05 a.m.]

1
2
3 MR. KAUFFMAN: Good morning. It's September 4,
4 1991 at about 11:00 a.m. We're in Bethesda, Maryland at
5 the Woodmont Building, conducting an interview of Ernie
6 Rossi for the Nine Mile Point, Unit II Incident
7 Investigation Team. My name is John Kauffman out of NRC
8 Headquarters.

9 MR. CONTE: I'm Rich Conte, Region I.

10 MR. VATTER: Bill Vatter, from INPO.

11 MR. ROSSI: Okay, I'm Ernie Rossi. I'm the
12 Director of the Division of Operational events assessment.
13 Just for the record, Ernie is my nickname. My full name is
14 Charles E. Rossi. I've been Director of the Division of
15 Operational Events Assessment for, I guess, a little over
16 four years since the NRC reorganization in 1987.

17 Prior to that, for about a year, I worked in the
18 Office of Nuclear Reactor Regulation in the Division that
19 was responsible for Westinghouse plants. And from, I guess
20 it was about December of '83 to January of 1986, I worked in
21 the Office of I&E, and I was Chief of the Events -- I think
22 it was called Events Analysis Branch in I&E.

23 Prior to that time, I worked in the Office of
24 Nuclear Reactor Regulation in the Instrumentation and
25 Controls Systems Branch. I must have worked there from



1 about October of 1980 up until the end of 1983 when I went
2 to I&E.

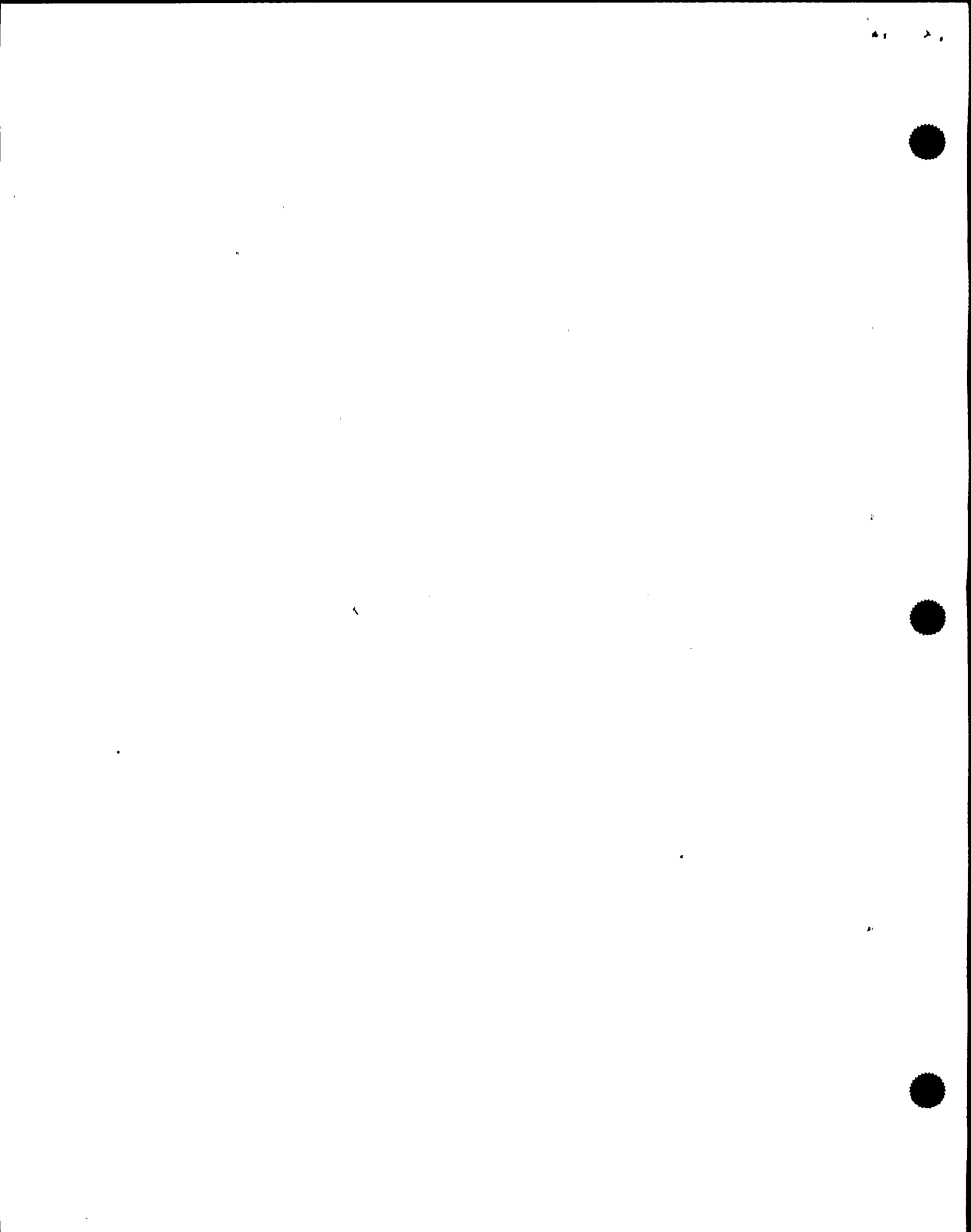
3 In the Instrumentation and Controls Systems
4 Branch, I started as a Senior Reviewer, and I was then a
5 Section Leader for most of the time that I was there. Prior
6 to coming to the NRC, I worked at the Department of Energy
7 for about three years on laser fusion and prior to that, I
8 worked at Westinghouse Electric in their commercial reactor
9 organizations and I was at Westinghouse from 1966 to 1977.

10 I was in the Navy from 1958 to 1962, and I worked
11 with Admiral Rickover's group in Washington, D.C. during
12 that time. So, do you have any other questions?

13 MR. KAUFFMAN: I think that's enough. Okay. I'm
14 going to give you a listing of some topics, and I'm going to
15 ask you for your involvement. Probably the latter two,
16 there will be a little more detail on, but let me just give
17 them to you. One is the event from August 13th on Nine Mile
18 Two where they declared the site emergency of which we're
19 investigating.

20 MR. ROSSI: Okay, do you want me to tell you now,
21 what I can remember. I mean, I'll have to tell you what I
22 can remember, which --

23 MR. KAUFFMAN: The other topic is licensing of
24 Nine Mile II. The other one is Bulletin 79-27 on the loss
25 of non-nuclear instrumentation and power supplies. The



1 other one is Generic Letter 83-28 on the Salem ATWS.

2 Okay, so let's start off with your involvement
3 with the event of August 13th.

4 MR. ROSSI: My best remembrance of this was that I
5 was -- I am the Emergency Officer, but only during the
6 daytime, at least during that time period. Right now, I'm
7 Emergency Officer day and night, because this is my week to
8 be the nighttime Emergency Officer. But at that time, I was
9 Emergency Officer only during the day.

10 The event was first called into the NRC at -- and
11 I'm referring now to the PM issued on August 22nd, which
12 says that the first call to the NRC would have been about --
13 let's see if I can find this -- about 6:12 in the morning.
14 So, I was not contacted as Emergency Officer. The nighttime
15 Emergency Officer was contacted.

16 I found out about the site area emergency probably
17 around 8:00, I think. My involvement then was, I did not go
18 to the Operations Center. By that time, I guess, they were
19 in the site area emergency. I think there were some people
20 in the Operations Center, and I listened to the -- there
21 must have been a Commissioner's Assistants' briefing at some
22 point that morning, which I believe I listened to.

23 Then I had periodic but not too frequent contact
24 throughout the day to just follow the event until I went
25 home that night. So, that was pretty much my involvement.



1 The decision on sending people to the Operations Center, I
2 guess, had been made before I got involved. Now, I may have
3 been involved in deciding some people that went in there. I
4 don't really remember. I get a lot of telephone calls on
5 events, so this one was a --

6 MR. KAUFFMAN: For the record, who was the
7 Emergency Officer?

8 MR. ROSSI: I think it was Cecil Thomas. I think
9 so, but I would not be absolutely sure of even that, but I
10 believe it was.

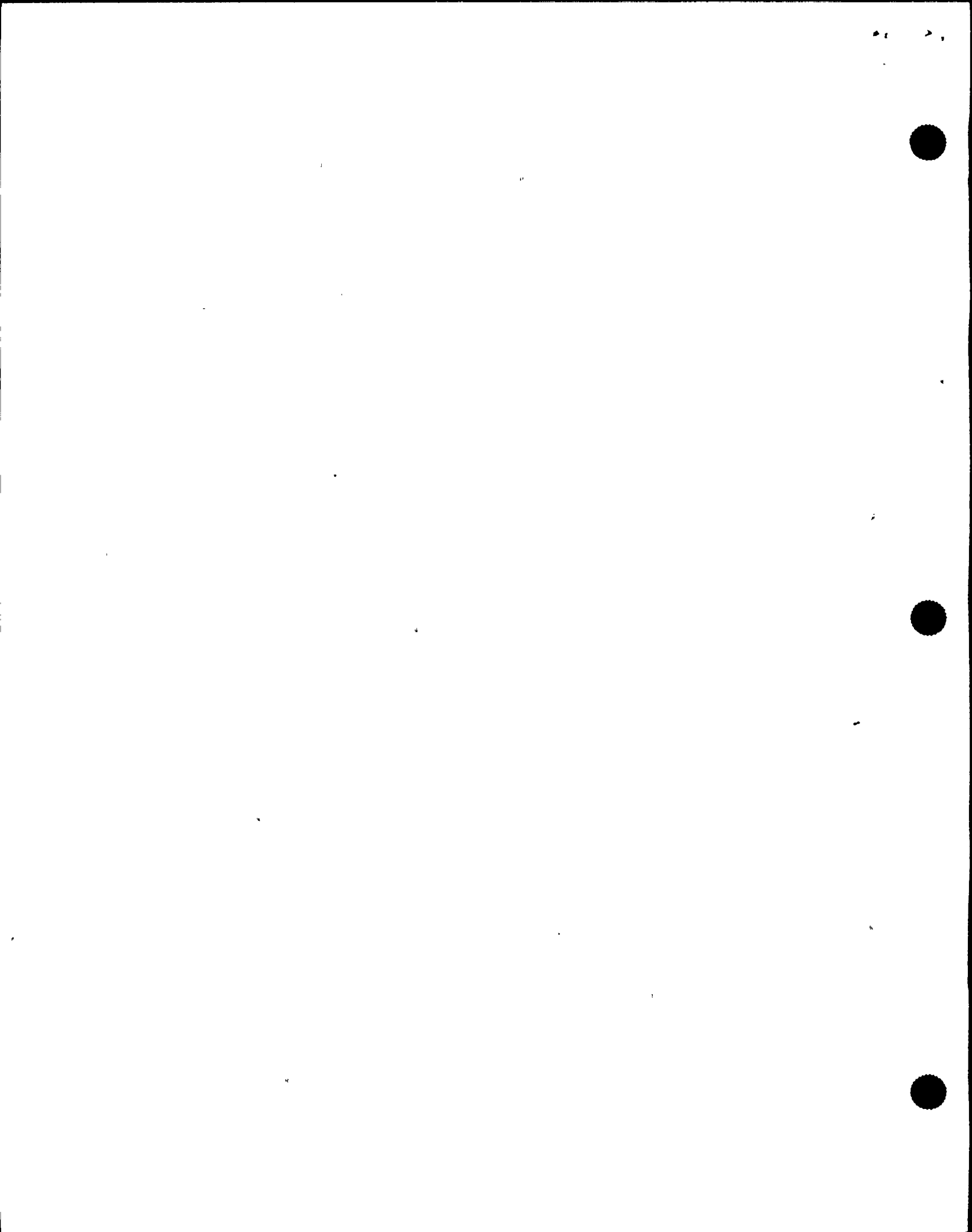
11 MR. KAUFFMAN: Okay.

12 MR. ROSSI: Now, I was also involved afterwards.
13 There were discussions about having an augmented inspection
14 team which I would have been a part of, and there were some
15 discussions on the need for an IIT, which I would have had
16 some involvement in.

17 MR. KAUFFMAN: Did you have any specific
18 recommendations on AIT versus and IIT?

19 MR. ROSSI: Well, I certainly agreed with both
20 decisions. Originally, I guess I thought that an AIT was
21 probably sufficient, and I was not too involved in the IIT,
22 and probably, had I been asked for a recommendation at the
23 time, I would have felt that the AIT, for this particular
24 event, would be sufficient.

25 However, because of the possible generic aspects



1 of it, I think an IIT was fully appropriate, but I was not
2 very involved in the decision to go from an AIT to an IIT.
3 And the decision to go to an AIT, I think I was somewhat
4 involved in, but these kinds of decisions, there are a lot
5 of people that are involved, and they eventually get made by
6 Regional Administrator and so forth, so I had some
7 involvement in discussions, but not -- I would not have said
8 I was a key player in the decision to go to an IIT.

9 I probably played a greater role in the AIT
10 portion, but it's a little hard for me to remember at this
11 point in time, exactly how involved I was.

12 MR. KAUFFMAN: Is it fair to say that you really
13 weren't an active responder -- you were an Emergency Officer
14 during the day, but you -- other people were handling the
15 Nine Mile II event?

16 MR. ROSSI: I had, yes, kind of peripheral
17 involvement. I had to know what was going on throughout the
18 day, and I would have had some discussions about whether
19 people needed to stay in the Operations Center at the end of
20 the work day and that kind of thing, but that's kind of it.

21 MR. KAUFFMAN: What's the direction of your office
22 right now with respect to the review of this event? Any,
23 or are you waiting for the IIT results?

24 MR. ROSSI: As far as I know, we're waiting for
25 the IIT results, however, between 8:00 and 10:00 this



1 morning, I attended the meeting with the licensee and your
2 team director, Jack Rosenthal, was there, and it was a very
3 large meeting and the licensee was making a presentation on
4 what they thought the cause of the loss of the
5 uninterrupted power supplies were, the fixes they had made
6 and why they believed they were basically ready to start up.

7 So, I was involved in that meeting this morning.
8 Other than that, I've had, I guess, not too much involvement
9 at all.

10 MR. KAUFFMAN: Okay.

11 MR. ROSSI: I probably was more involved this
12 morning because I'm acting for my boss, Bill Russell, who's
13 out of town, so I went to the meeting primarily for that
14 reason. There were a number of people that worked for me at
15 the meeting, so I may or may not have gone to the -- been in
16 town.

17 MR. KAUFFMAN: Okay. The licensing of Nine Mile
18 II, any involvement?

19 MR. ROSSI: I can't remember any.

20 MR. KAUFFMAN: This would have been around 1986 or
21 '87.

22 MR. ROSSI: Okay, it's unlikely that I would have
23 been involved in that timeframe, because if it was '86 and
24 '87, I was working on -- primarily on Westinghouse plants in
25 '86. This is a BWR, and in '87, I would have gone to my



1 current position and that would not have had too much to do
2 with Nine Mile or licensing of anything. Tech specs, maybe;
3 the tech specs for Nine Mile might have been done when I was
4 in my current position, but I don't remember any significant
5 involvement in the licensing of Nine Mile.

6 That doesn't mean that I might not have some that
7 I've forgotten.

8 MR. CONTE: Okay.

9 Real briefly, your involvement in the Bulletin 79-
10 27 and the Generic Letter 83-28, we have some specific
11 questions on that.

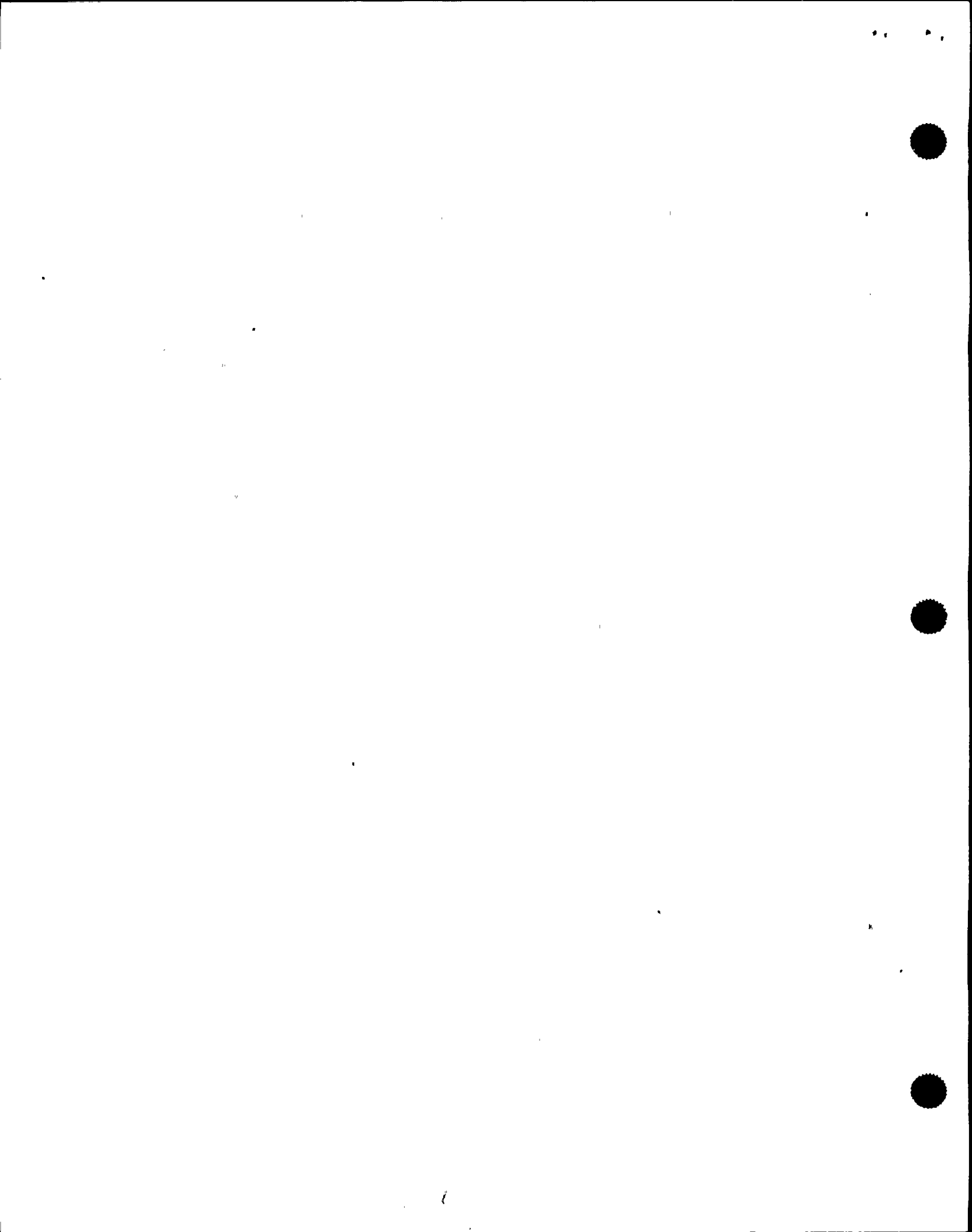
12 MR. ROSSI: 79-27, just from the date of it, must
13 have been issued before I came to the NRC. I came in like -
14 - I believe it was October of 1980, and I don't think I was
15 involved in the writing of it.

16 I think, when I came, as I recall, I worked in the
17 Instrumentation and Control Systems Branch. I may have
18 supervised some of the reviews of responses to it, although
19 I can't remember. I can't really remember anything
20 specific.

21 I do remember having discussions of bulletin
22 responses and how to close it out and that kind of stuff,
23 but the specifics, that was a long time ago.

24 MR. CONTE: Okay.

25 How about the Generic Letter, Salem ATWS, 83-28?



1 MR. ROSSI: Generic Letter 83-28, I was pretty
2 involved in that, because that event occurred, and they had
3 a task team that was, as I recall, directed by Roger Madsen,
4 and I was a member of that task team, and so, we went
5 through and looked at all of the problems with circuit
6 breakers, and I think there was a -- I think there was a
7 NUREG probably written on that whole thing, and I would have
8 been a significant participant in all of that.

9 MR. CONTE: Okay.

10 MR. ROSSI: Writing of the NUREG -- I think it was
11 a NUREG. I can't remember. I'd have to look. And I
12 believe the generic letter, then, was written as a result of
13 the NUREG, and I would have been a significant participant
14 in all of that.

15 MR. CONTE: Okay.

16 We have some specific questions on that. We'll
17 deal with them a little later.

18 MR. ROSSI: Do you have the letter here? Because
19 you know, I'm going to have great difficulty remembering
20 what's in either the bulletin or the letter. I don't know
21 whether you have it. I'll do my best to answer your
22 questions.

23 MR. CONTE: I don't have it specifically here.
24 Maybe we can break and get it if we need it.

25 MR. ROSSI: Okay. We may not need it.



1 MR. CONTE: I'll try to summarize for you what the
2 issue is, and then I'll ask the question.

3 MR. ROSSI: Okay. Fine.

4 MR. CONTE: Okay. Shortly after the accident at
5 TMI 2, the staff started to encourage licensees to classify
6 equipment in this broader sense of important to safety
7 versus safety-related and versus non-safety-related.

8 What has been your involvement in that area?

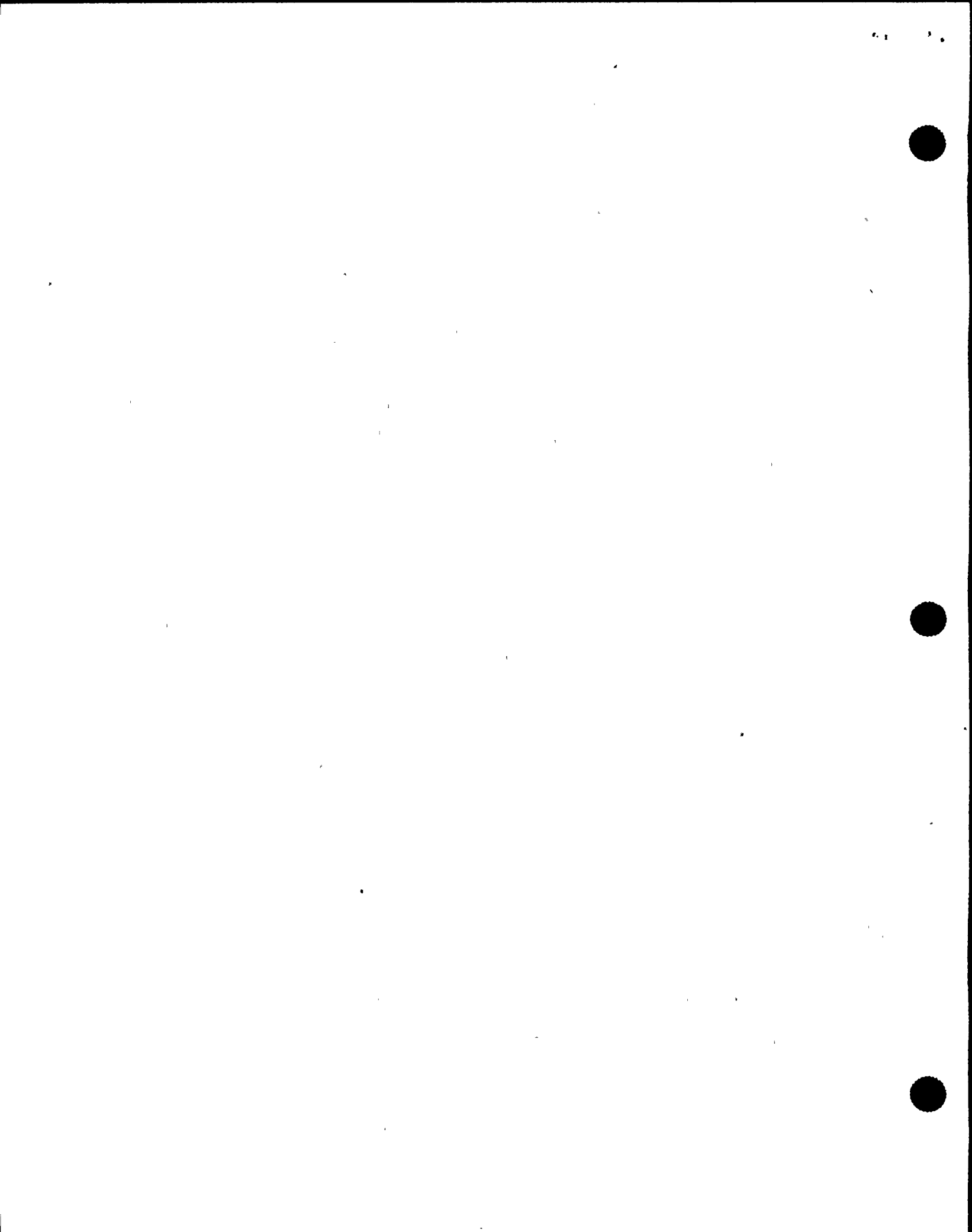
9 MR. ROSSI: Okay. I was pretty involved in some
10 of that during the licensing of Shoreham.

11 There was a hearing at Shoreham that dwelled for
12 one summer, pretty much, on that issue, and I was one of the
13 people from the NRC staff that testified during the Shoreham
14 hearing on that issue, and I'm sure the transcripts of those
15 hearings are available.

16 MR. CONTE: Do you know what the bottom line from
17 the Shoreham hearing was with regard to safety?

18 MR. ROSSI: Well, it may have changed after the
19 hearing.

20 As I recall, the crux of my involvement was that
21 the reclassified stuff was safety-related, and the safety-
22 related stuff was that equipment that was essential for
23 following the events in Chapter 15 and accidents, keeping
24 the plant safe, and that was the equipment that got the most
25 attention from design and quality assurance standpoint, and



1 it was basically that -- that equipment that was needed to
2 mitigate an accident, and there was a very specific
3 definition of the functions that that equipment had to
4 perform, which I think was taken from one of the
5 regulations, probably Part 100, and generally, that
6 equipment had to be seismically qualified, and then, at that
7 time, as I recall, at least my position was that there was
8 other stuff that was important to safety, and its importance
9 to safety varied depending on what its functions were and
10 that, although it wasn't safety-related, that it did have to
11 have appropriate QA, but it was not the same as what you'd
12 have for safety-related stuff, and let's see, as I recall,
13 the Shoreham hearing dwelled for a whole summer on that, and
14 I probably testified as part of a panel, with -- let's see,
15 Jim Conran, I believe, was a member, and Ashok Thadani was
16 there for a while, and Denny Spees was there.

17 I don't remember the others, but I, you know --

18 MR. CONTE: So, would you characterize that the
19 staff was behind the licensee --

20 MR. ROSSI: Yes.

21 MR. CONTE: -- as a proponent of this concept of
22 having the --

23 MR. ROSSI: As I recall, the Intervenor's felt that
24 the QA should apply to a much broader set of equipment than
25 what the staff did.



1 So, in that sense, the staff was behind the
2 licensee, but my recollection is that the licensee -- I
3 think we had a lot of difficulty getting the licensee to
4 agree that there was a set of equipment that was important
5 to safety that the NRC had an involvement in and that they
6 ought to be doing something with.

7 So, my recollection -- and again, this was quite
8 some time ago; this would have been in probably 1982 or '3,
9 I guess -- that we were sort of between the licensee and the
10 intervenors, that we had arguments with the licensee over
11 whether this stuff -- what they should be doing with it and
12 what they should know about it and --

13 MR. CONTE: Did a definition for "important to
14 safety" come out of that hearing, from the staff's point of
15 view?

16 MR. ROSSI: I can't remember that, you know,
17 without checking the transcript. I'm sure the transcripts
18 are available, and you can look and see.

19 MR. CONTE: Okay.

20 MR. ROSSI: I would have classed annunciators as
21 important to safety, but there is another problem.

22 In going back eight years and trying to remember
23 what my opinions were then -- they probably may have changed
24 between now and then.

25 Today, I would class it -- I would say



1 annunciators are important to safety, but I don't know -- as
2 far as I know, we don't have any definitive requirements for
3 how they ought to be designed, but I don't know whether that
4 answers your question or not.

5 MR. CONTE: While we're on the topic of the
6 annunciators, how about their power supplies? Should they
7 be safety-grade?

8 MR. ROSSI: Well, if the annunciators are
9 important to safety, the power supplies wouldn't be required
10 to be safety-related either.

11 My understanding of our consistent position with
12 respect to annunciators is that they aren't required to be
13 safety-related, and if they are not required to be safety-
14 related, they are not required to be redundant, they are not
15 required to be seismically qualified, and they are not
16 required to be on safety-related power supplies.

17 I mean that's my understanding of our current
18 position, and I think that's pretty much been the position
19 that I remember over the years, including the time when I
20 worked at Westinghouse.

21 MR. CONTE: We have a list of parameters and
22 instrumentation that we'd like to get your opinion on, that
23 very thing, but let me just talk about the broader issue of
24 "important to safety."

25 What is your understanding of the staff's current



1 view of "important to safety," in distinction to "safety
2 related," at this point in time?

3 MR. ROSSI: Well, my understanding is that we have
4 safety-related equipment. It's pretty much the same as what
5 it was at the time of the Shoreham licensing.

6 We have safety-related equipment that gets special
7 consideration and design requirements and QA and that kind
8 of thing in our reviews.

9 There's other equipment that we do require plants
10 to have, like the safety parameter display system.

11 I don't believe all of the Reg. Guide 1.97 stuff is
12 safety-related. My recollection is that it's not.

13 And we do have certain design requirements for a
14 lot of this kind of stuff, but it falls short of safety-
15 related, and I don't know whether we're currently calling
16 that stuff or classing it as important to safety.

17 It's being treated as important to safety because,
18 you know, we have written down things that people are
19 supposed to do with respect to that stuff, I believe, in
20 reg. guides and standard review plans, and so, by my -- in
21 my mind, it would be treated as important to safety but not
22 safety-related.

23 MR. CONTE: So, there is a lot of equipment out
24 there that is getting some additional controls, although
25 they are not safety-related.



1 MR. ROSSI: Right.

2 MR. CONTE: They're getting some additional
3 controls.

4 MR. ROSSI: That's right.

5 MR. CONTE: But is it our understanding that, at
6 this point, you can't locate a staff definition of
7 "important to safety" which to give licensees to say this is
8 equipment that is supposed to be in that gray area
9 classification, if you will?

10 MR. ROSSI: I think that is correct, but I'm
11 probably not a good person to ask what our current situation
12 is.

13 MR. CONTE: Who do you think in the NRC would be a
14 good person to ask?

15 MR. ROSSI: I think what you need to do is --
16 you're talking to the right people and see if any of them
17 believe that they are sure of what our current position is.

18 You might want to talk with people in the Quality
19 Assurance Branch that work with Jack Roe. They may be able
20 to shed some light on it.

21 As I recall on "important to safety," it wasn't
22 that we were going to have a list.

23 It was more that there were varying degrees of
24 "important to safety," and there were many, many things in
25 the plant -- almost everything in the plant has some



1 importance to safety, and it was, as I recall, left not too
2 well-defined on purpose, because what you wanted to do was
3 to have it graded, so that the more important stuff you had
4 more requirements for than the less-important stuff, and
5 it's been a long while since I picked up Reg. Guide 197 and
6 looked at it, but I think Reg. Guide 197 was kind of written
7 that way.

8 I think there were varying degrees, levels of
9 importance of the stuff, and I believe there were written
10 down things about what you did, depending on how important
11 it was.

12 MR. CONTE: A couple of years ago apparently the
13 staff -- I know I got the word in the region -- that we were
14 discouraged from using the term "important to safety" and
15 applying it to --

16 MR. ROSSI: I think you are correct. I think
17 that's the case because I believe there were some efforts
18 with the Commission at one point in time to sort of more
19 formally recognize this stuff and I am not sure the
20 Commission agreed with the Staff and because of that I think
21 what you say is correct.

22 That's why I am not sure what our position is
23 today, but the fact of the matter is that we do look at many
24 things in the plant, like almost everything, and we do look
25 at it in more detail depending on how important we feel it



1 is to safety, so inspectors I think look at almost
2 everything in the plant.

3 They look at some things that more carefully and
4 more prescriptively than they do others and so we're
5 generally following the concept of important to safety as I
6 understood it at the time of the Shoreham hearing.

7 It's just -- and it may be that we have sort of
8 specifically decided to leave it graded because we didn't
9 want to have a set of requirements for it. The set of
10 requirements depends on how important it is to safety and
11 there was judgment involved in that.

12 MR. CONTE: So you would characterize the accounts
13 of importance to safety being alive and well and being
14 handled on a case by case basis?

15 MR. ROSSI: That's probably it, yes.

16 MR. CONTE: Agency-wide.

17 MR. ROSSI: Alive and well, at least -- I don't
18 know. Alive and well might be too strong. It probably
19 could be better handled perhaps in terms of written down,
20 but again I am not -- it is not an area that I am very much
21 involved in right now.

22 You may want to talk to the QA people or the
23 maintenance rule people also because I think they may have
24 gotten involved in this with the maintenance rule in what's
25 done for the balance of plant, and again I am not an expert



1 on the maintenance rule but I think it covers a lot more
2 than just safety-related stuff, so that's another
3 application of the concept even though we may not call it
4 important to safety.

5 I would have to say that if it is covered by the
6 maintenance rule in the way I think it probably is, then
7 it's probably alive and well.

8 MR. CONTE: I'm going to go into generic
9 communications.

10 Let me ask my colleagues here if they have any
11 questions about important to safety, safety-related?

12 MR. ROSSI: Generic letter 83-28 -- I know the
13 definition of safety-related I believe was given in there
14 and some things were limited to safety-related.

15 You have probably looked at that generic letter
16 much more recently than I have but am I not correct that
17 that is the way it was --

18 MR. CONTE: Yes. Safety-related was given and
19 it's fair to say that licensees were encouraged but not
20 required, if you call a generic letter a requirement -- the
21 word "should" was used for them to incorporate the broader
22 classification "important to safety."

23 MR. ROSSI: We may have even used the definition
24 in there or written some words in there, didn't we?

25 MR. CONTE: No.



1 MR. ROSSI: Not a definition but it was --

2 MR. CONTE: The reference is to the GDC-1, the
3 General Design Criteria.

4 MR. ROSSI: I think at that time that that letter
5 was probably written more along the lines of the thinking at
6 the time of the Shoreham hearing.

7 I think the other thing you have to recognize,
8 which I'm sure you have already recognized by now, is that
9 there is probably a moderate amount of disagreement amongst
10 people on the staff of what should be done with important to
11 safety and there may even be some disagreements on how we
12 have done it in the past and how we are supposed to be doing
13 it today.

14 MR. CONTE: That everybody's got their own
15 opinions.

16 MR. ROSSI: There may be a number of opinions on
17 that.

18 MR. CONTE: I'm going to revisit that generic
19 letter but let me talk generally about in the licensing of
20 the NTOLs -- I guess Nine Mile Two was an NTOL in the mid-
21 '80s, post-TMI plant that was getting its license. How is
22 the handling of generic communications such as like this
23 Bulletin 79-27 or for example 83-28, all predated that
24 licensing.

25 How was that done?



1 MR. ROSSI: I think in some cases and again, you
2 know, I am not absolutely sure of this, but I believe that
3 there were probably questions back to the licensee as to
4 whether they had looked at these bulletins and generic
5 letters and whether they had addressed the issues in them.

6 Some of them they may have looked at in much more
7 detail, like generic letter 83-28 might have been looked at
8 in more detail but I think in some cases that there were
9 probably RAIs, requests for additional information, that may
10 have asked them to address bulletins and generic letters.

11 MR. CONTE: So you think there was some generic --
12 general correspondence from these --

13 MR. ROSSI: Probably.

14 MR. CONTE: -- from NRC?

15 MR. ROSSI: But again, you know, this was a long
16 time ago.

17 MR. CONTE: Okay. With respect to 79-27, and I am
18 going to have to test your memory here because you said you
19 were not that familiar with it, that bulletin addressed this
20 loss of non-nuclear instrumentation and basically asked for
21 kind of a failure mode's effects analysis on various pieces
22 of equipment, power supplies and what have you.

23 MR. ROSSI: I think it said something like be sure
24 that you could bring the plant to a safe shutdown condition
25 if you lost certain power supplies.



1 MR. CONTE: It was cold shutdown specifically?

2 MR. ROSSI: Cold shutdown, if you lost certain --

3 MR. CONTE: Certain instruments --

4 MR. ROSSI: -- certain power supplies.

5 MR. CONTE: No one counted on the loss of five
6 uninterruptable power supplies?

7 MR. ROSSI: Well, it was probably worded in terms
8 of one instrument bus or something like that so it might
9 have been a little fuzzy even on what that meant.

10 MR. CONTE: There was also an item there to check
11 and to also consider the emergency procedures in that review
12 and what emergency procedure was used, what kind of
13 equipment, instrumentation, in order to achieve the cold
14 shutdown and we're still looking at that, okay?

15 It's my understanding that the B&W plants, this
16 event resulted from -- by the way, that bulletin resulted
17 from Oconee and an incident at TMI-2 that was documented in
18 the accident investigation with the loss of instrumentation
19 in the control room.

20 Because of my personal involvement in TMI, I
21 remember I believe it was an order or confirmatory action
22 letters were issued to the B&W plants to do training on that
23 bulletin, to train the operators on such things as loss of
24 annunciators, loss of indicators.

25 Do you have any recollection as to why the B&W



1 plants were singled out versus any of the other plants?

2 MR. ROSSI: I can give you a hypothesis.

3 I think in that time frame because of the TMI
4 event, B&W generally got a lot more attention than other
5 plants and there has always been a staff feeling that
6 because of the way the B&W control system is designed, the
7 integrated control system, that it is much more important to
8 running a B&W plant than the control systems on the other
9 plants, and so B&W plants have generally gotten more careful
10 scrutiny in these areas than the others.

11 The reason I guess that B&W plants are that way is
12 that they have once-through steam generators and they tend
13 to respond much more quickly to transients. They have less
14 heat capacity in the steam generators, and for all these
15 reasons the control system is much more integrated and
16 interactive than the control systems on, say, Westinghouse
17 and CE plants and then also because of TMI they tended to
18 get more attention and then the next event that got them
19 more attention was Davis-Besse, which was again a B&W plant.

20 MR. CONTE: Is there a source that works for the
21 NRC -- you were speculating, at this point, as to why that
22 happened. But do you know of any sources that authored that
23 bulletin or was involved in that decision?

24 MR. ROSSI: The bulletin must give the names of
25 the authors.



1 MR. CONTE: That's true.

2 MR. ROSSI: I would think it would. I'm trying to
3 think who else was there. Jack Rosenthal, himself, may have
4 been around at that time. He was in the Instrumentation and
5 Control Systems Branch, as a matter of fact, he worked for
6 me for a while there. So, he was involved in some of these
7 same things.

8 MR. CONTE: Apparently --

9 MR. ROSSI: Other people that were there were
10 Faust Rosa, we haven't talked to him. Tom Dunning, I think
11 was there. He was a section leader in the I&C Branch.

12 MR. CONTE: Okay.

13 MR. ROSSI: Bill Morris was there at that time.
14 He's in research now, Rosenthal. Marty Virgilio was there.
15 Rick Kendall, who's out in DOE was there. All these people
16 would have had some involvement. Which one -- I don't know
17 exactly who wrote that bulletin.

18 MR. CONTE: All right. We have a general question
19 on the bulletin versus the information notice and the
20 decision process on what governs whether for any event it
21 becomes a bulletin versus an information notice.

22 MR. ROSSI: Okay.

23 MR. CONTE: And, in particular, Frank Ashe will
24 report on loss of uninterruptable power supplies.
25 Apparently, it became an information notice. And the



1 question -- the broader question is how does that decision
2 making process occur in your organization, versus AEOD's
3 organization. And the other question is what was the basis
4 for Frank's report on the loss of uninterruptable power
5 supplies being in the information that was --

6 MR. ROSSI: I don't remember why that was an
7 information notice, rather than a bulletin. Generally,
8 well, obviously, you must know that information notices go
9 out and the presumption is that if we provide the
10 information to the licensees in an information notice, that
11 they will then review them, as part of their overall review
12 of operating experience, which they're required to do an
13 overall review of operating experience, but an information
14 notice. They will review it, they will decide what things
15 in it are applicable to their plant, and they will take
16 appropriate action to fix the problems that they feel are
17 applicable to their plant. And, if we then go out and
18 they've had an event that should have been very specifically
19 prevented by addressing an information notice, that's
20 considered in the enforcement.

21 Now, in some cases, I mean you have to talk about
22 whether it's very specifically addressed in the information
23 notice. If it's an information notice that says we've had a
24 lot of problems with uninterruptable power supplies, and you
25 need to pay more attention to maintenance and quality



1 assurance and design requirements and all that, that's not
2 too specific in my mind. So, there you would raise --
3 heighten their level of concern about uninterruptable power
4 supplies or whatever else it is. But it's not a specific
5 thing.

6 If you go out with an information notice that
7 says, in vendor X's equipment model number 2380, they have a
8 defect in the washer, because this washer was made to the
9 wrong material, and therefore, most licensees are replacing
10 it, that's very specific. And if you find that a licensee
11 later has a problem because he didn't replace the washer, I
12 think you can come down pretty hard on them. But these more
13 general kinds of things, they heighten the licensee's
14 concern. But, you know, they're nonprescriptive by intent.

15 Now, usually we start out by considering that
16 something should be an information notice. And the decision
17 to go to a bulletin or a generic letter is made because we
18 feel that the problem is so safety-significant that we need
19 to request specific actions and we need a response back from
20 the licensee that he did indeed do something in response to
21 the bulletin. So, generally, we probably would start,
22 unless it's an obviously very significant issue, from the
23 start, we would start with the information notice route, and
24 then go to a bulletin or generic letter if it's decided that
25 it's very safety-significant. I don't --



1 MR. CONTE: For the record, which office issues
2 the bulletins?

3 MR. ROSSI: I -- I personally am responsible for
4 signing all bulletins and putting them together and making
5 decisions as to whether we have bulletins or information
6 notices. I sign all information notices. I can --
7 obviously all generic letters come through our division.
8 I'm somewhat less involved in generic letters because
9 they're prepared in a lot of different places. But any
10 information notice or bulletin, I'm very involved in.

11 MR. CONTE: For the record, could you distinguish
12 the bulletin from the generic letter? They both solicit
13 responses?

14 MR. ROSSI: Yes. There's not a lot of difference,
15 in practice. They both solicit responses and they both
16 request -- generally request actions, although sometimes we
17 can send out generic letters that just provide information.

18 Generic letters generally are used for more
19 programmatic types of things. Bulletins are generally used
20 for narrower things. But the division is pretty 'fuzzy and,
21 in actual fact, if it request actions that requires a
22 response, from the licensee's standpoint, there probably
23 isn't any difference.

24 And I think the reason that the two exist is more
25 from the past history of the NRC that -- prior to 1987



1 Inspection and Enforcement Office put out the bulletins, and
2 NRR put out the generic letters. And then when we had the
3 reorganization and everything came together, we kept the two
4 things. And now what we generally do is generic letters are
5 used for more programmatic kind of things, and bulletins for
6 narrower ones.

7 But, my personal opinion is that there is no
8 difference between a generic letter that requests actions of
9 a licensee and requires a response from a bulletin that
10 requests actions and requires a response. I think the
11 licensee has got to go the same thing, whether it's called a
12 generic letter or a bulletin.

13 MR. CONTE: What would be the process of getting
14 all generic communications associated with losses of
15 inverters or uninterruptable power supplies?

16 MR. ROSSI: We have a generic communications
17 index, and you can talk to -- which has some key-word search
18 capability. What you should do is contact Carl Berlinger in
19 my division, and he can put you on to somebody that can show
20 you how to use that. But it's got some search capability.
21 And you'll have to use the right key words. I have not
22 personally done searches because other people do them or me,
23 but I think you can talk to him. He can help you do that.

24 MR. CONTE: In the interest of time, I may ask him
25 to do that officially, as part of the IIT. Because we're



1 trying to get --

2 MR. ROSSI: Make sure that when you do it -- you
3 ought to talk with him --

4 MR. CONTE: Okay.

5 MR. ROSSI: -- before you do it so that you phrase
6 your request in the right way. Because you don't want to do
7 a key-word search that's -- you've either got too many key
8 words or not enough. I mean, you know, you've got to pick
9 the right key words or you won't get everything you want, or
10 you'll get too much to be of use.

11 MR. CONTE: And he'll be able to produce
12 information notices, circulars --

13 MR. ROSSI: I believe he can --

14 MR. CONTE: -- bulletins?

15 MR. ROSSI: I think he's got bulletins,
16 information notices, circulars and generic letters, I
17 believe, in that.

18 MR. CONTE: Okay. Good.

19 All right. Let's turn our --

20 MR. ROSSI: At least over some date span.

21 MR. CONTE: Let me turn to my colleagues again.
22 I'm getting ready to do on with the generic letter on the
23 same of ATWS. Questions on the bulletin and generic
24 communications in general?

25 [No response.]

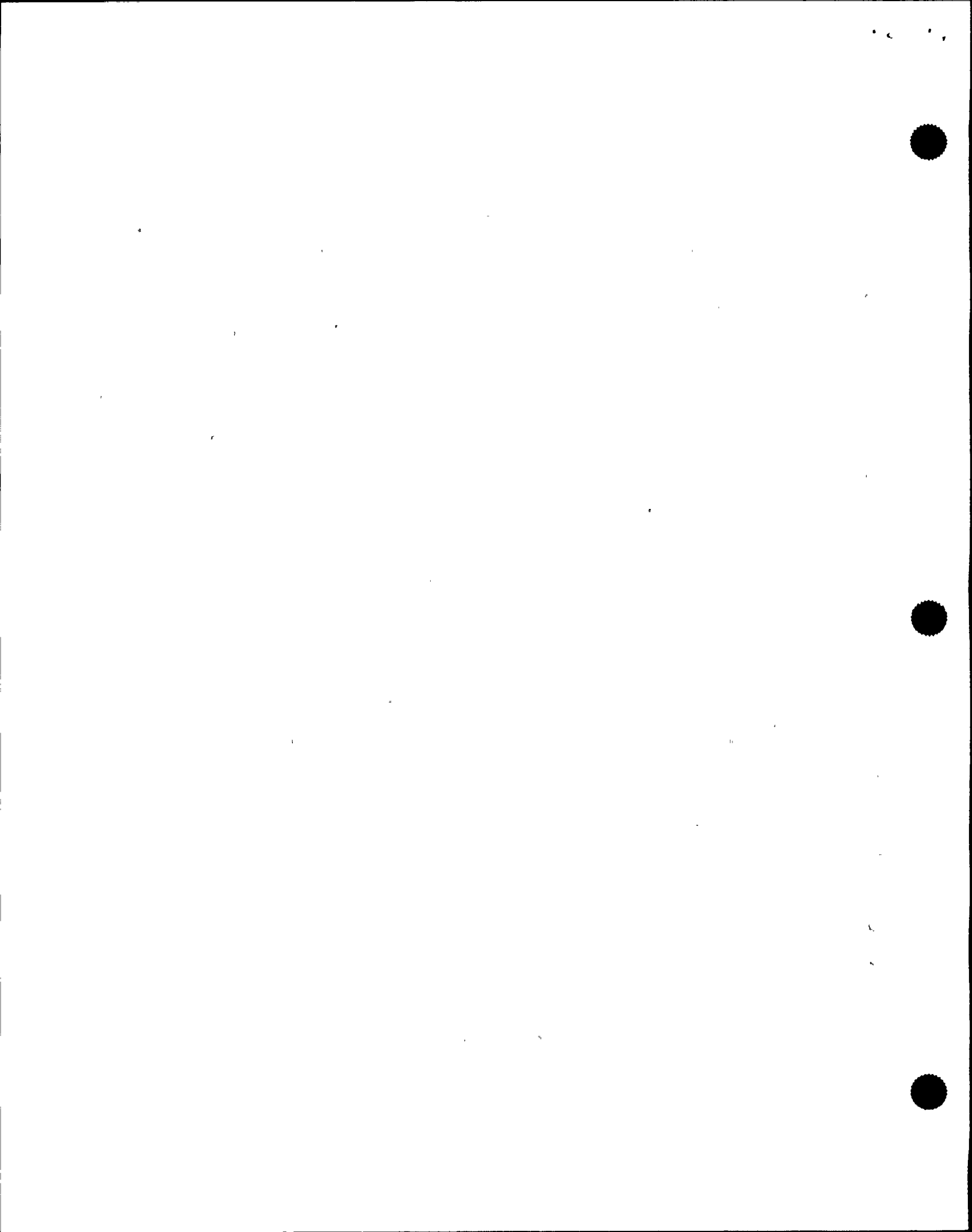


1 MR. CONTE: Okay. Hearing none, generic letter
2 8328. You said you were very involved. I guess the first
3 question is -- let me make a comment about the generic
4 letter. It seems very weak in asking licensees to address
5 this issue of importance of safety, back on that concept
6 again, because of the words I quoted to you, it said that
7 the three main -- the four main issues of the generic letter
8 was the post-trip review, equipment classification, the
9 post-maintenance testing and reactor trip reliability. And
10 this team is focusing in on the hardware aspects of the
11 post-trip review. As you must have heard right now, the
12 process computer went down. SPDS went down and a lot of
13 information could not be recovered on that trip.

14 The other thing that we're looking at is equipment
15 classification. Once again, the Generic Letter is very
16 heavy in the reactor trip breakers and any reactor trip
17 equipment, and also the vendor interface on safety-related
18 equipment.

19 Then there's a one-line item at the end of this
20 list of the ought to -- recommending to licensees that you
21 ought to consider the broader classification. My comment
22 is, it seems very weakish, and we really didn't believe in
23 it.

24 MR. ROSSI: Well, it's very weak in terms of
25 things that are not reasonably closely related to the Salem



1 ATWS. So, the Salem ATWS event occurred and there was this
2 task team that looked at all the generic implications and
3 I'm sure we could have had many, many more generic things
4 that we told licensees to do, but in the process of writing
5 the generic letter and its review by management and its
6 approval by the CRGR, the decision was made to make it
7 reasonably narrow, but not too narrow.

8 That was a judgment thing. I'm sure that there
9 was concern that staff members would use the Salem event to
10 bring in new requirements that could be related to it, but
11 that it would be very costly and maybe not cost effective
12 from the standpoint of how much safety you get for the
13 amount of money that's spent.

14 I'm sure that on the post-trip review, that there
15 would have been a conscious decision about whether that
16 equipment needed to be safety-related or not and it was the
17 -- the decision was made as, you know, what you see was what
18 was there, and I'm sure it was probably considered. The
19 view is that the most important stuff in the plant is the
20 stuff that has to be there to mitigate an event or an
21 accident. The post-trip review is not there to mitigate an
22 accident; it's there to find out afterwards what happened,
23 and finding out what happened is not as important as
24 controlling what happens.

25 I mean, that's probably the best way to put it. I



1 mean, mitigating the accident has the highest priority, and
2 after the fact, analysis of what happened is not as
3 important to public health and safety. And so, the way the
4 post-trip reviews are written reflect that.

5 MR. KAUFFMAN: What in the Salem event gave you
6 impetus to bring in this important to safety concept?
7 Wasn't it all that trip breakers were safety related?

8 MR. ROSSI: I think it was all brought in at the
9 time because it was an issue that we had controversy with
10 the industry on, and that we wanted to further state our
11 position officially in the Generic Letter on the existence
12 of this kind of equipment. That's my recollection of what
13 we did.

14 So, it was intended to express a philosophy rather
15 than any prescriptive requests or requirements. I'm at a
16 little bit of a handicap because I don't remember exactly
17 what we said about important to safety in there. I think
18 there were some words that recognized that it existed, and
19 it sort of gave the philosophy and it gave an official
20 status to the philosophy, but it didn't give anything
21 prescriptive.

22 MR. KAUFFMAN: Let me give you an example. I just
23 this morning got the series of responses on this Generic
24 Letter.

25 MR. ROSSI: 83-28?



1 MR. KAUFFMAN: Yes, for Nine Mile II. Case in
2 point, when you focus in on the trail on this particular
3 issue on the broader classification, the utility's initial
4 response was basically accepted by the staff with no further
5 action which was essentially, we're working with a utility,
6 a safety classification group on this issue and a very
7 strong statement from the utility that there really isn't
8 anything that's not classified. Anything that's important
9 is classified safety-related.

10 MR. ROSSI: That was the position of many
11 utilities at that time. So, they would have taken the
12 position that if it's not required to mitigate an accident,
13 it's not safety related, and if it's not required to
14 mitigate an accident, it's of less importance.

15 MR. KAUFFMAN: So what did the staff do with that
16 -- I mean, with these responses? How was the acceptance or
17 non-acceptance of this controlled?

18 MR. ROSSI: I think, since we did not have any
19 specific requirements in this area, but that whatever was
20 done on the non-safety related stuff was pretty much left to
21 the judgment of the licensees. However, the philosophy was
22 there that if you have problems caused by this important to
23 safety stuff that's not safety related, the NRC is going to
24 -- has every right and obligation to get involved and do
25 whatever inspections are necessary, and if we feel we need



1 to establish requirements in the area -- and pretty much
2 what's happening on Nine Mile now is that.

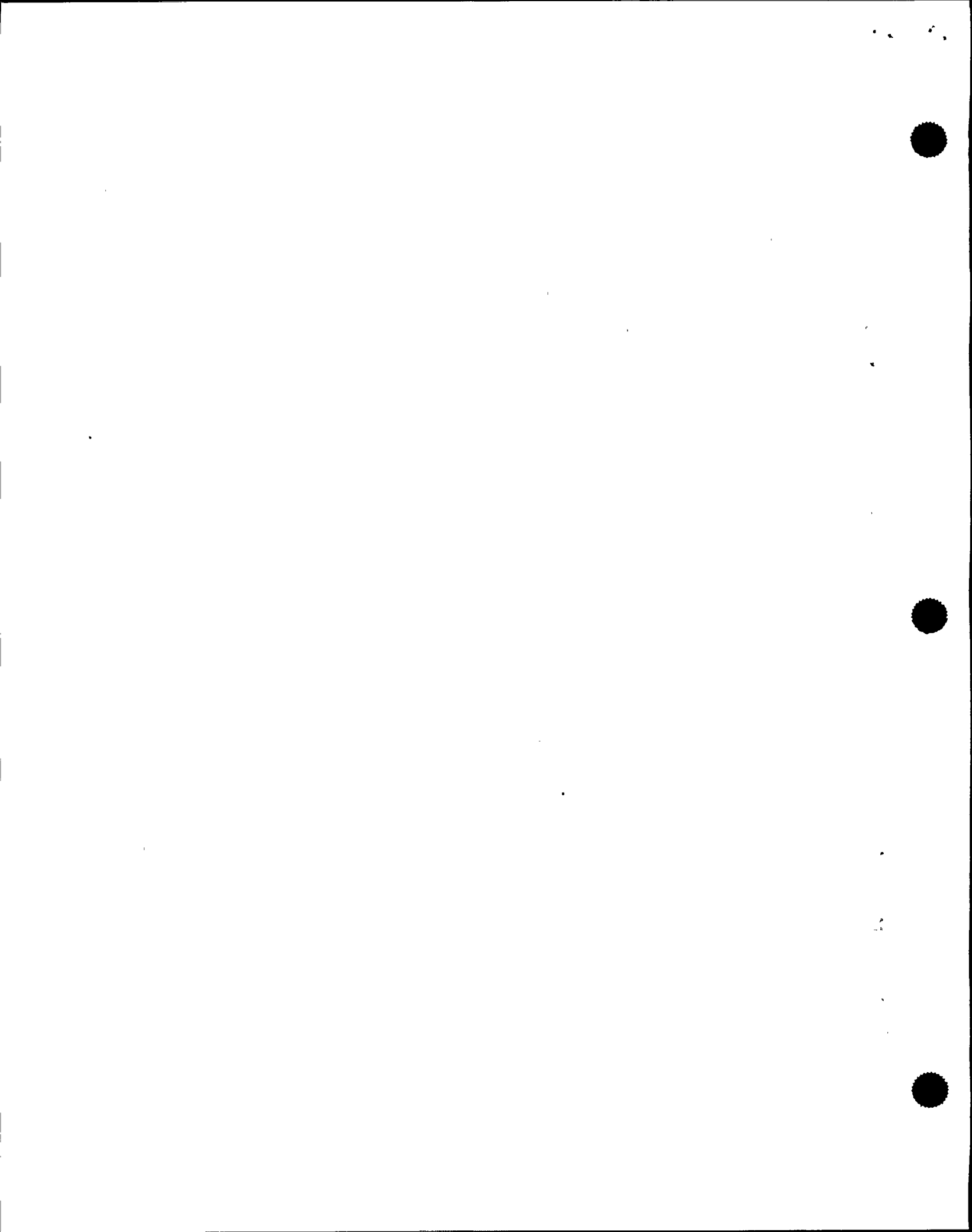
3 I mean, the basic problem that they had was in the
4 non-safety related stuff, and we're looking at it very, very
5 carefully because we recognize that even though it's non-
6 safety related, that it created a significant problem for
7 the plant and here we are to look at it.

8 MR. KAUFFMAN: One of the problems in this event
9 was that the operators, in using EOPs, were kind of in a do-
10 loop, if you will. They couldn't get out of the ATWS
11 procedure because of a condition on rod position indication.
12 And, low and behold, rod position indication is powered, not
13 only the displays in the control room, but the read switches
14 themselves, are powered from these uninterruptable power
15 supplies.

16 MR. ROSSI: Non-safety related. Position
17 indication is non-safety related.

18 MR. KAUFFMAN: Right, and that's kind of
19 consistent with the categorization in Reg Guide 197 on rod
20 position. It's not listed as a Cat-A or Type-A variable,
21 full pedigree importance. Any thoughts on that?

22 MR. ROSSI: Well, I mean, it comes back to the
23 fact that the rod control systems on all these plants are
24 designed where the safety function is to scram the rods, and
25 the design basis is that when you scram the rods, all the



1 rods with the exception of one, will go in, and you do all
2 of the analyses that way.

3 So, given the design bases that scrambling the
4 rods, you will assume the design of the plant, that all but
5 one of the rods goes in, and the worst rod sticks out. Then
6 you don't need rod position indication. Rod position
7 indication is not required to get the rods in. It's not
8 required to mitigate the accident; it's required to verify,
9 after the fact, that the rods went in.

10 So, rod position indication is of less importance
11 than the stuff that's required to get the rods in. I mean,
12 that's the philosophy.

13 MR. KAUFFMAN: I don't want to put words in your
14 mouth, but let me say -- let me ask you this: would you say
15 that there is -- is there a safety function for the operator
16 to verify the proper completion of the design for any --

17 MR. ROSSI: I would say there is a safety function
18 for him to do that, yes, but whether it's as important to
19 design the equipment to high standards for just verifying
20 that the rods are in, as for making sure they go in in the
21 first place, I have to say that the most important thing is
22 to make sure the rods go in.

23 That's the philosophy. Now, as to what is and
24 isn't used in the EOPs, I believe -- you know, I've not been
25 involved much in the EOPs, but I think the EOPs are sort of



1 written at various levels. They should draw the operator's
2 attention to all the equipment that might be there, and be
3 written in a way so that if a lot of that stuff has failed,
4 they can go to other levels to do whatever they have to do.

5 I think, on Nine Mile, that they were able to -- I
6 believe that they were able to verify that the power was
7 down, probably from a number of different ways. I mean,
8 they must have known that the turbine had tripped. They
9 must have known the power level, so they had other, diverse
10 ways of figuring out how to verify plant shutdown.

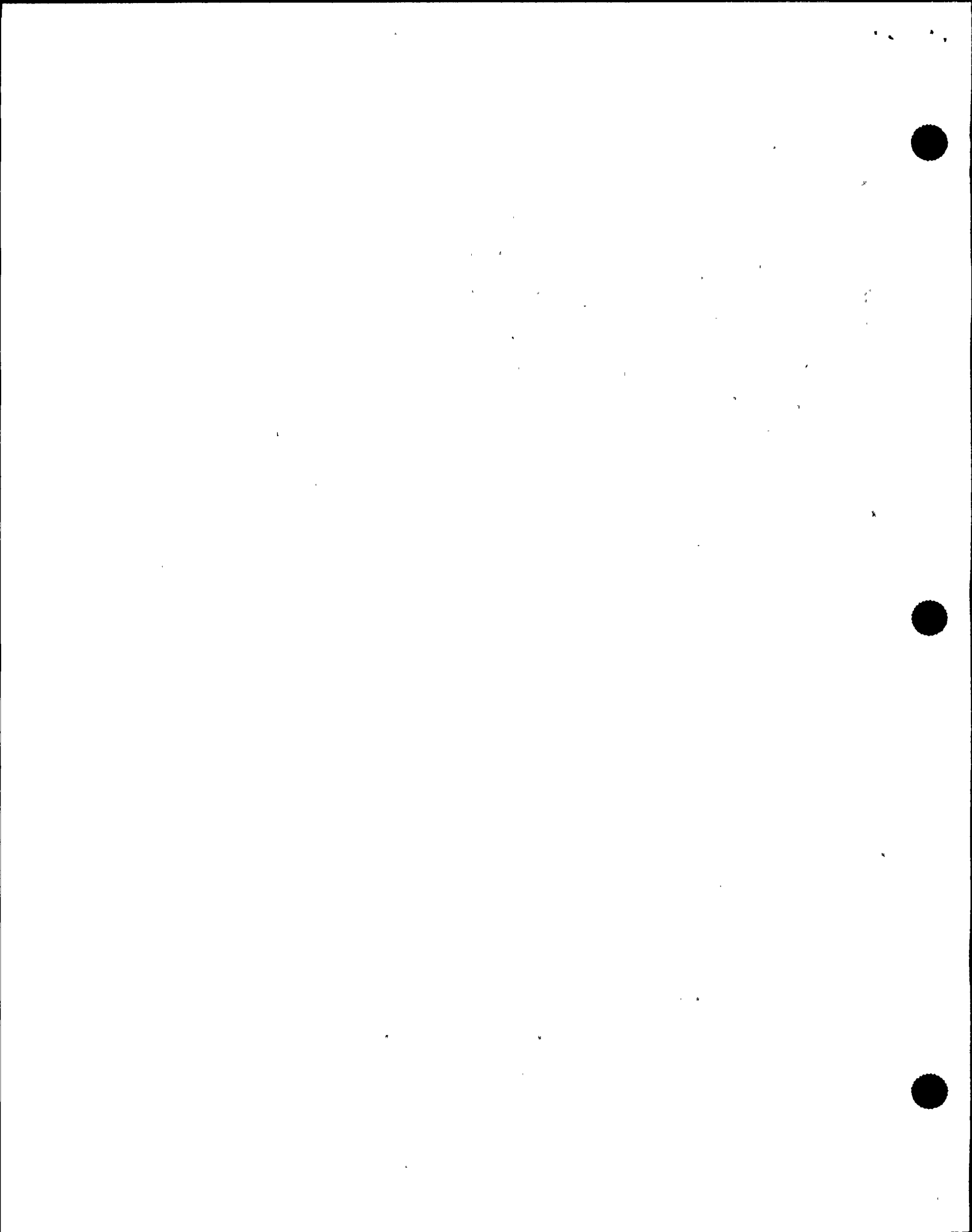
11 MR. CONTE: Okay. If these indicators -- once
12 again, I mentioned having a need to clarify that these
13 indicators and parameters are not needed for the safety
14 function; in other words, to initiate an ECCS or to initiate
15 a scram.

16 They are for verifying the completion of those
17 safety functions.

18 Would you say that it's fair game than any
19 instrumentation parameter that fits that definition would be
20 in this "important to safety" area?

21 MR. ROSSI: It's clearly in the -- by my
22 understanding of what I would mean by "important to safety,"
23 it's clearly important to safety but not safety-related.

24 MR. CONTE: When you say "not safety-related," you
25 don't have to have the full pedigree design.



1 MR. ROSSI: It doesn't have to be redundant,
2 doesn't have to be on Class 1E power, doesn't have to be
3 seismically qualified, that kind of stuff.

4 Now, the way things are today, the important to
5 safety things are not further subdivided. One could
6 conceivably have more specific requirements for things like
7 rod position.

8 I mean one could require some redundancy in the
9 rod position, some redundancy in the power supplies, and
10 that kind of thing, but to my knowledge, I don't think we do
11 that at all today.

12 MR. CONTE: Okay.

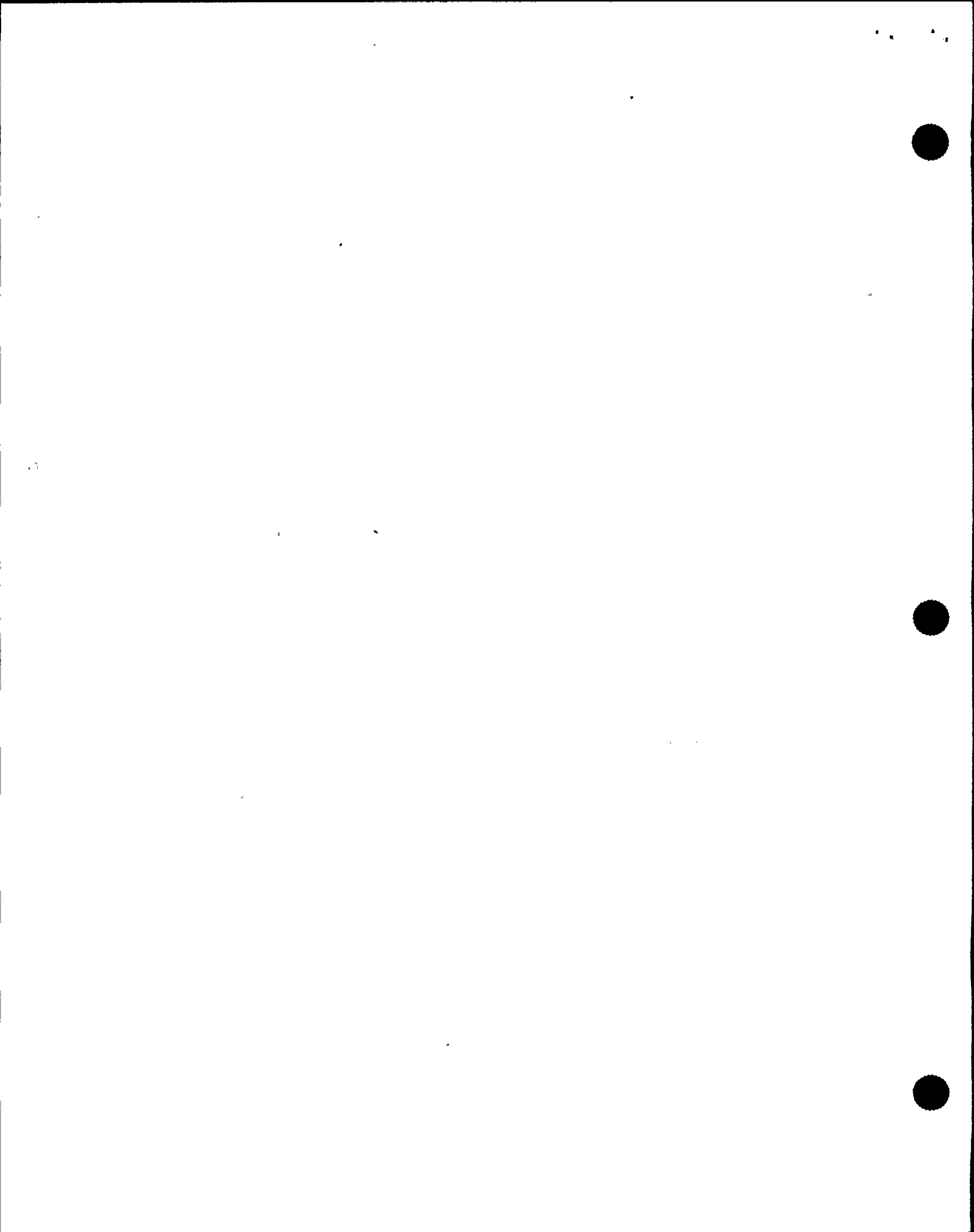
13 MR. ROSSI: Whether it's necessary or not, you
14 know, I suspect that it's not necessary.

15 MR. CONTE: You indicated you are not that
16 familiar with EOPs. Can you answer the question, does the
17 staff have a position on the relationship of the EOPs being
18 able to be implemented without safety-related equipment?

19 MR. ROSSI: I don't know the position on that. I
20 will give you my opinion on what the EOPs ought to do.

21 MR. CONTE: What is that?

22 MR. ROSSI: I think the EOPs ought to allow you to
23 use anything in the plant, but they ought to make sure that
24 you know what stuff is safety-related, because the safety-
25 related stuff is redundant and so forth, but you ought to



1 make use of anything that's there, whether it's safety-
2 related or not, and so, it would be appropriate, in my mind,
3 to use non-safety-related stuff, but you've got to use it in
4 a way so that it gives you reasonable guidance of what you
5 do if that stuff fails, and I think the EOPs, I believe, are
6 even written so that if the safety-related stuff fails, you
7 go to another level of looking at whether safety functions
8 are being accomplished or not.

9 And I would assume -- again, I'm not an expert on
10 EOP, so I'm giving you some mixtures of opinion and what I
11 really know -- that the EOPs would give you various
12 alternative things to look at to be sure the reactor is shut
13 down.

14 I mean you can look at rod positions to see that
15 the rods are in. You can look at the power level,
16 measurements in the core, from all the various ranges of
17 power measurements.

18 You can look at what's happening to pressure level
19 and temperature in the reactor vessel, whether the turbines
20 trip, whether you've got steam flow going out steam bypass
21 valves.

22 There are many ways that you can tell, even with a
23 lot of failures, whether the reactor is shut down. You've
24 got lots of different things to look at.

25 MR. CONTE: Once again, going back to your



1 philosophy that you espoused previously, if the parameter is
2 causing a trip, safety-grade, if it's used to verify the
3 reactor shutdown, it will have some additional measures on
4 it, as reflected in the "important to safety" concept.

5 MR. ROSSI: Yes. And some may be so important
6 that you need it for -- if it's absolutely required for
7 operator actions in the post-accident followup, if it's
8 required, there isn't any choice but to have it, then it
9 ought to be even safety-related.

10 MR. CONTE: Okay.

11 MR. ROSSI: And you know, you have to make
12 judgments on where you draw the line. It's a little fuzzy.

13 MR. CONTE: From your vantage point, are you aware
14 of an integrated review of the EOPs versus Reg. Guide 197,
15 the hardware versus --

16 MR. ROSSI: I would not have been involved in
17 that. You know, I'm just not involved enough to be able to
18 answer that question.

19 MR. CONTE: Okay.

20 Any questions on this topic of the EOPs and Reg.
21 Guide 197 and the Salem ATWS?

22 [No response.]

23 MR. CONTE: Yes. There's been a number -- in
24 fact, once again, this morning, I just got my hands on the
25 Information Notice 88-05, which talks about the loss of



1 annunciators at three plants in 1988.

2 MR. ROSSI: The fire problems?

3 MR. CONTE: The fire problems. And there again,
4 the Information Notice focuses on some of the commonalities,
5 the same manufacturer on the power supplies.

6 No EOP for loss of annunciators. That's a little
7 surprising in light of all these precursor events.

8 MR. ROSSI: They have no EOP?

9 MR. CONTE: Apparently, all those three plants
10 have that common problem, no emergency procedures.

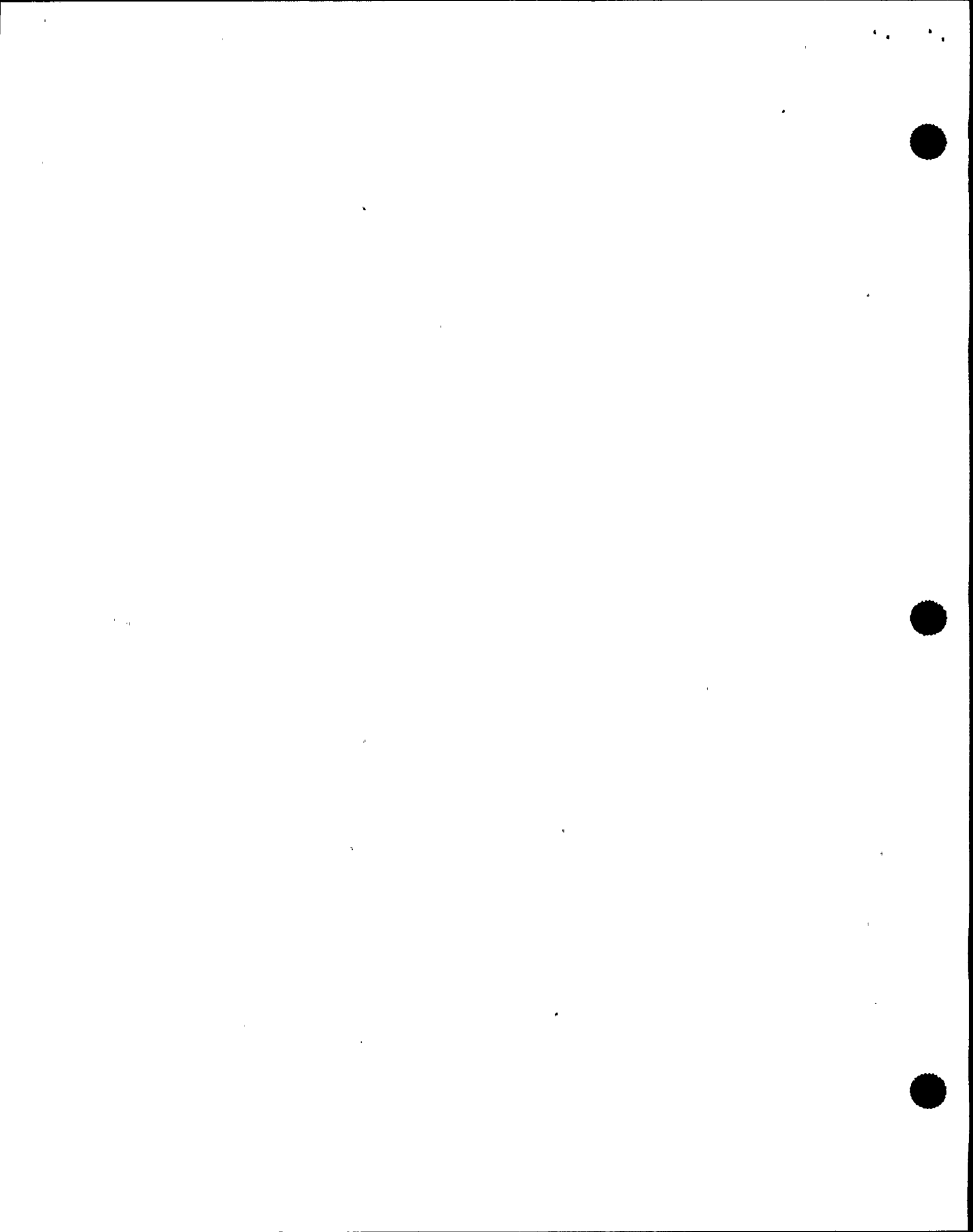
11 Now, they may -- I guess the question, in my mind,
12 you know, maybe there was an alarm response, maybe there was
13 an abnormal procedure, or maybe the procedure wasn't that
14 detailed enough.

15 You know, what's it mean in the Information Notice
16 when it says there is no emergency procedure? Is that
17 different from an abnormal?

18 MR. ROSSI: I don't know the answer to your
19 question, even though I'm sure I signed the Information
20 Notice. I just don't know.

21 MR. CONTE: Okay.

22 Is the staff -- in light of that event and, I
23 guess, the Millstone Two, take us back a month, before the
24 Nine Mile Two event. What were you doing, your division
25 doing, with respect to this issue on loss of annunciators,



1 in light of 88-05 and the recent Millstone?

2 MR. ROSSI: I believe Ashok Thadani was asked by
3 Murley after the Millstone loss of annunciators to go look
4 at whether we ought to be doing more with annunciators, but
5 he can --

6 MR. CONTE: He's coming at 4:30.

7 MR. ROSSI: Yes, he's coming in at 4:30. I know
8 I've talked with him.

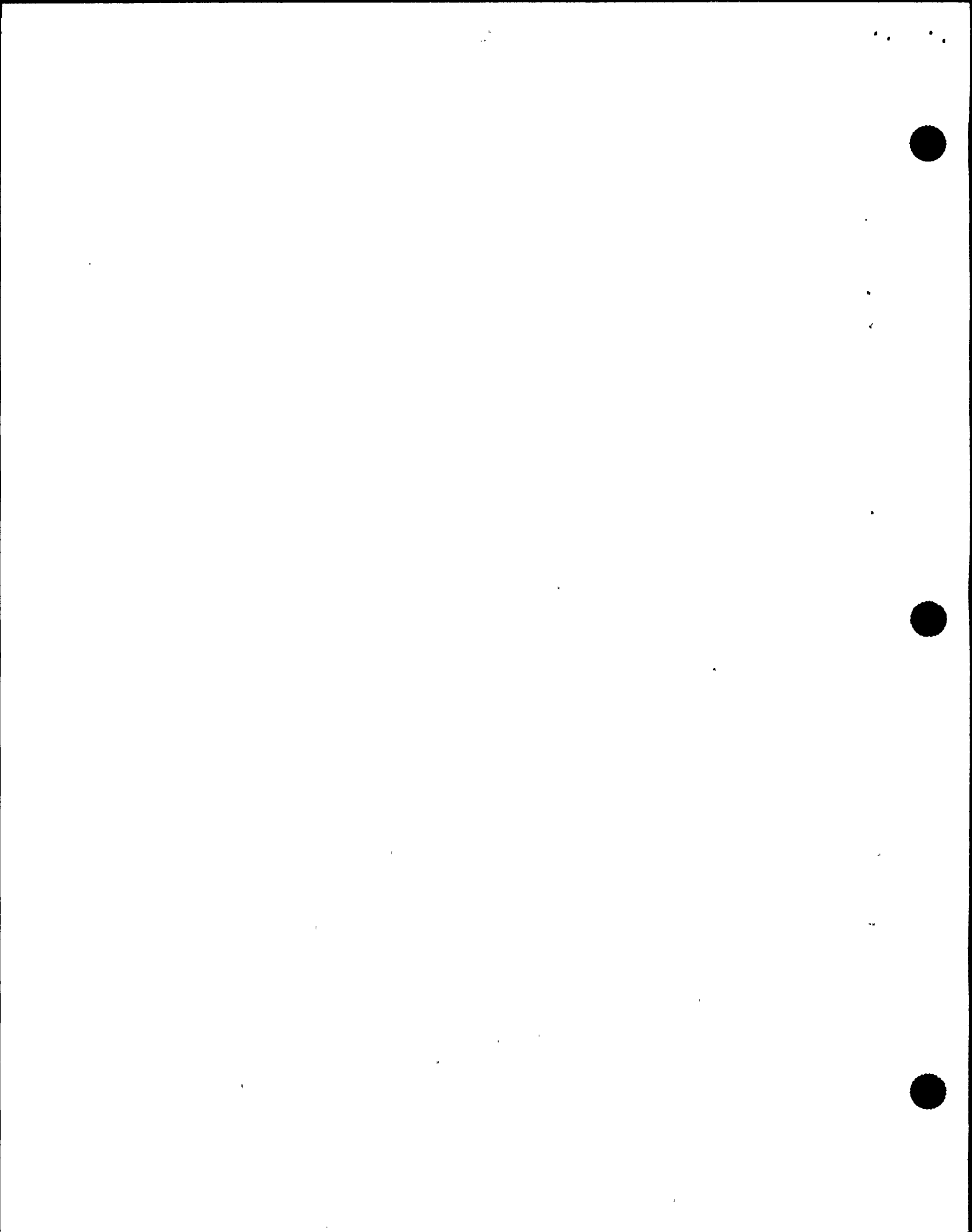
9 MR. CONTE: Okay.

10 MR. ROSSI: I don't know that we're doing anything
11 on -- on the Millstone one. Let's see. I don't remember
12 offhand what caused that, the Millstone loss.

13 MR. CONTE: I don't remember either. I've got a
14 question in my notes.

15 MR. ROSSI: I think it went on for a longer time,
16 as I recall. It was a much longer time. I think it was in
17 the power supplies. I think they were the ones that --
18 these events all get sort of mixed up.

19 I think they had some power supply failures, and
20 they replaced the power supplies, but my recollection is
21 that that one, that event lasted a lot longer than Nine
22 Mile, and as I recall -- again, I'm trying to think back on
23 Millstone -- I think they just continued to run the plant at
24 full power, and they put additional people in to watch the
25 meters and so forth, in case they had further problems, and



1 were careful not to do anything that might cause a
2 transient, and in fact, they had no -- they had no problem.

3 Even Nine Mile I don't think -- Nine Mile, in
4 spite of the fact that they lost all this stuff, had no big
5 safety problem that developed.

6 MR. CONTE: Well, we're still looking at that.
7 Obviously, the reactor was shut down.

8 MR. ROSSI: The reactor got shut down, and you
9 know, of course, they got them back in 30 minutes. Thirty
10 minutes after the loss of the annunciators, they basically
11 had everything working again.

12 MR. CONTE: We're looking at the safety
13 implications had that power supply been out, had all those
14 power supplies been out longer than just --

15 MR. ROSSI: Well, the hypothesis, as I'm sure
16 you're aware of, up until now, has been that, yes, the
17 annunciators are important, but they are not essential for
18 mitigating events and accidents and getting the plant to a
19 core safe shutdown situation, that whatever is in Reg. Guide
20 197 is sufficient.

21 The annunciators are not in Reg. Guide 197, and
22 presumably, at the time Reg. Guide 197 was -- was written,
23 that was thought through at the time.

24 MR. CONTE: Okay.

25 MR. ROSSI: We may change our opinion now, but it



4
2



1 was, I'm sure, considered.

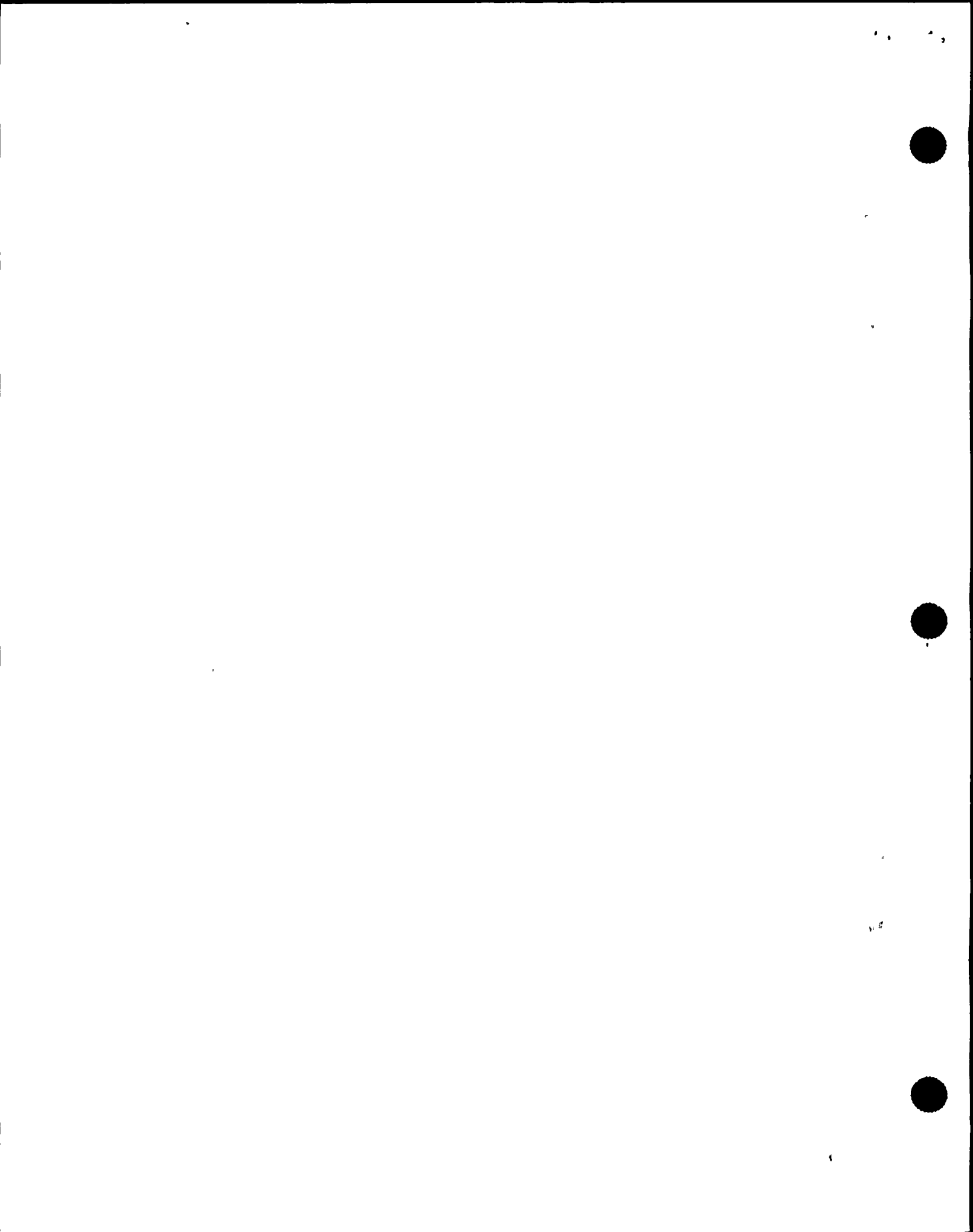
2 MR. CONTE: Did you have a question?

3 [No response.]

4 MR. CONTE: Okay. The next question deals with
5 the depth of your interface with the other NRR branches and
6 the review of all this. Let me try to focus all this. Your
7 generic organization issues a generic communication, I
8 guess, the bulletin and information notice.

9 The bulletins solicit a reponse. The staff does
10 something with that response. It could be a regional
11 effort, it could be an NRR effort. Could you describe that?

12 MR. ROSSI: Well, recently, we have written a
13 number of bulletins and maybe even generic letters that
14 require a response back from the licensee verifying that he
15 has taken the actions that have been requested or describing
16 alternatives. And there have been conscious decisions that
17 that's all we would do, that we would not review or inspect
18 to make sure they did it -- that they'd come back and say
19 under oath and affirmation that they had adopted all the
20 requests in the generic communication. Then we would audit,
21 if we wanted to or we would follow-up, if they had an event
22 that maybe looked like they hadn't done what they told us
23 they'd done. The premise is that they are unlikely to lie
24 to us because if they do, we'll find out about it, and
25 they're just not very likely to do it.

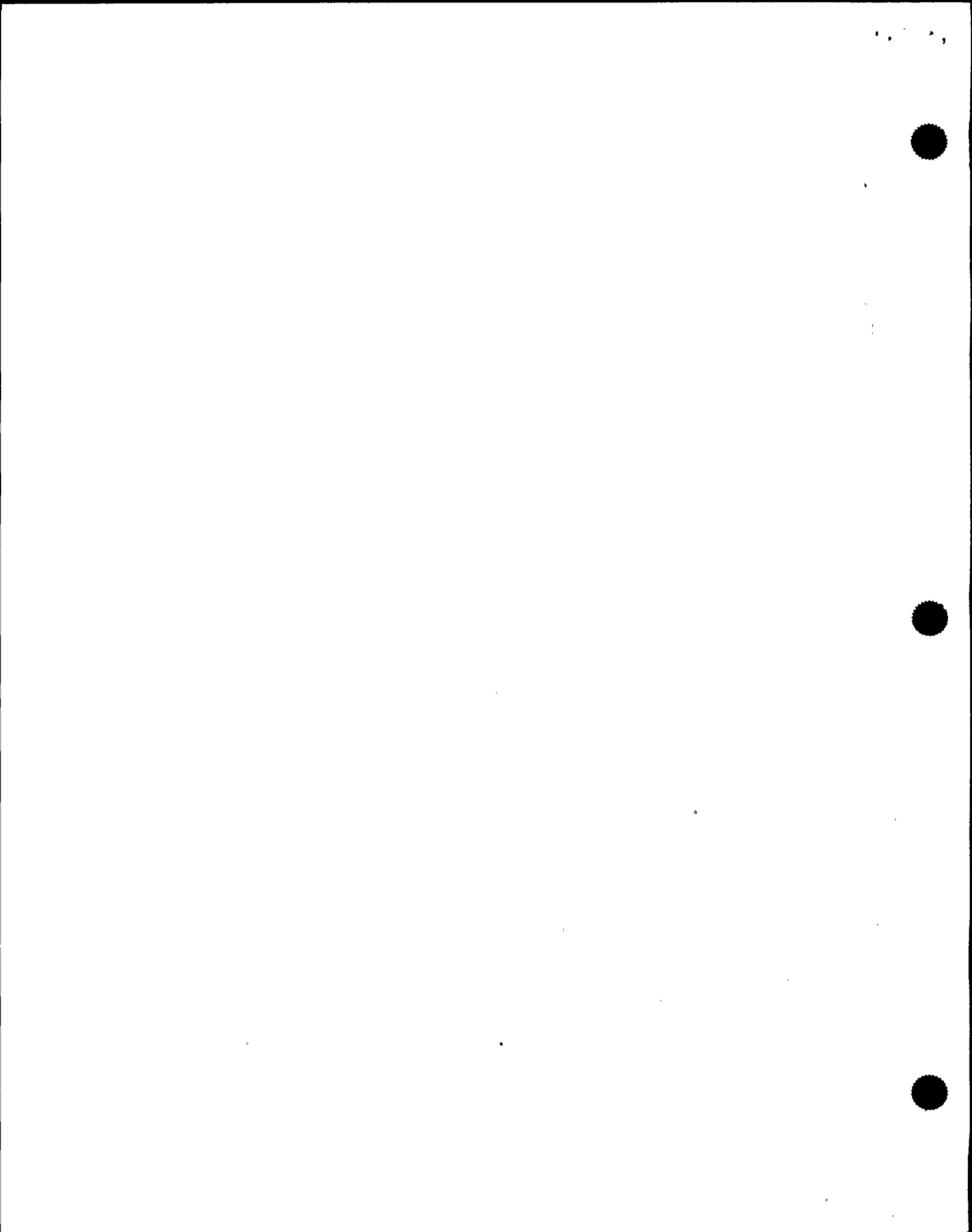


1 MR. CONTE: But, for a response that does come in,
2 how do you assure a consistency of review amongst the staff,
3 especially in the regions?

4 MR. ROSSI: There's a lead project manager who is
5 supposed to coordinate the determination of whether those
6 things are closed out.

7 The current situation is that if we want an
8 inspection, we write a temporary inspection document,
9 temporary inspection procedure, and we send it to the
10 regions, and that provides the consistency. Because if we
11 want the regions to inspect, then we prepare a temporary
12 inspection instruction and that provides the consistency for
13 the regions.

14 The reviews -- I'm usually not involved in reviews
15 done within NRR, but they're coordinated by a lead project
16 manager and they usually have technical reviewers that are
17 managed by section leaders and branch chiefs, and that's
18 part of their job, is to make sure things are done
19 consistently. And audits and questions raised by inspectors
20 -- I'm sure there is some inconsistency, as you must know,
21 having presumably been an inspector, that inspectors can do
22 a moderate amount of things without their management getting
23 involved. But, at some point, if they're inconsistent in
24 doing audits or doing their day-to-day inspections, it may
25 get raised to -- back to the regional management. And if



1 the regional management has questions, it will come back to
2 NRR. And that's, you know -- get answers to them. And
3 that's the mechanism for consistency. But for -- for
4 required inspections, there's supposed to be a procedure --
5 temporary inspection, TI's they're called, to tell the
6 regions what to do.

7 MR. CONTE: The acceptance criteria for either
8 review or an inspection is really generated by another
9 branch, or another division in NRR?

10 MR. ROSSI: Yes. That's pretty much the
11 situation, right.

12 MR. CONTE: Okay. For the inspection in the five
13 regions, it's controlled by the temporary inspection. And
14 for reviews, you say that you may or may not have written
15 criteria, but it's at least managed.

16 MR. ROSSI: There's a lead project manager that's
17 supposed to be responsible for making sure all the work gets
18 done. There will be branches that are involve in it. In
19 some cases, the lead project manager -- all he has to do is
20 make sure the licensee sends in a response that says you did
21 what we requested them to do, and they can close it.
22 Because, you know, that makes reasonably efficient use of
23 NRC resources.

24 MR. CONTE: Is there anything else you have to
25 offer about your interface with the divisions, branches and



1 NRR?

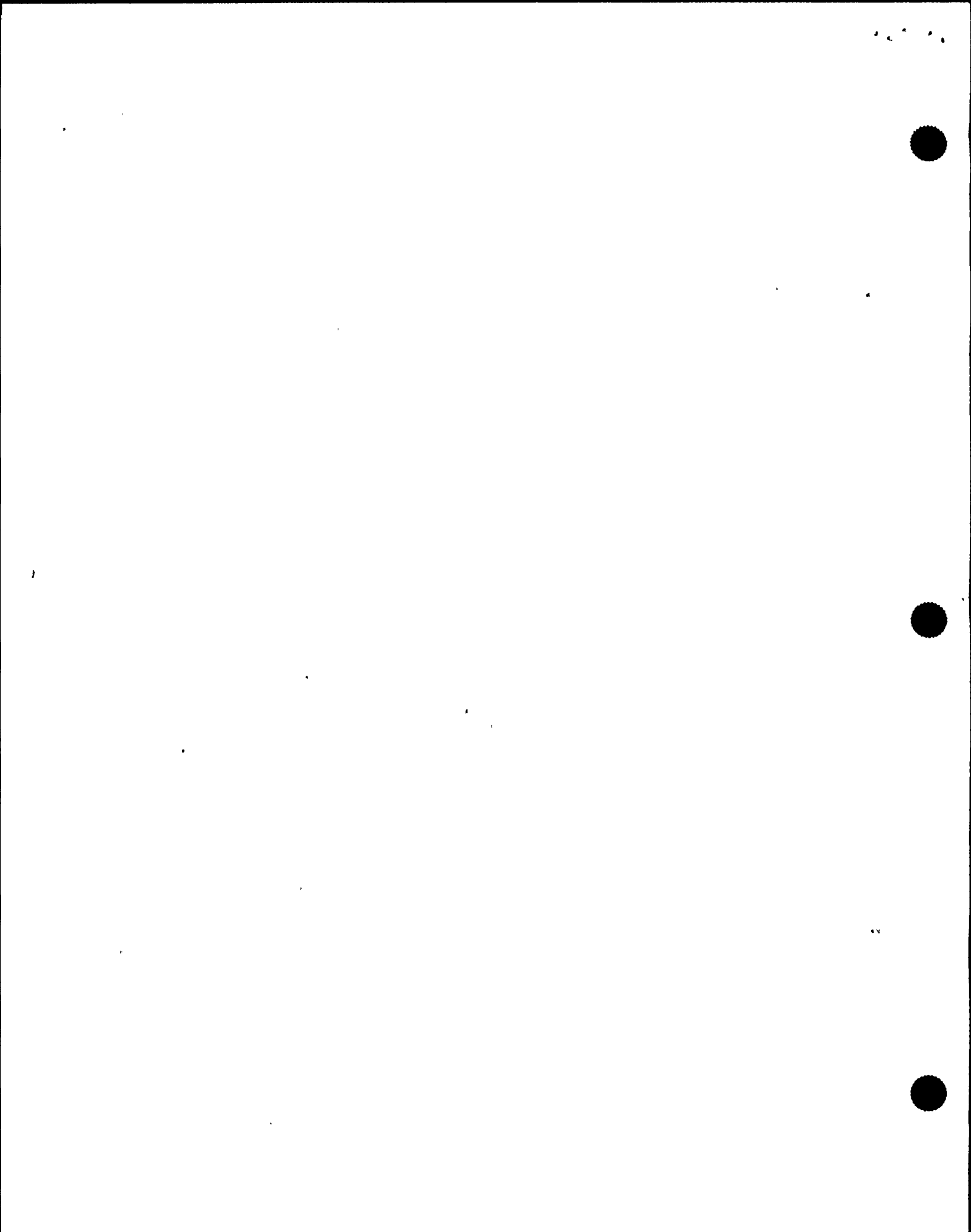
2 MR. ROSSI: Well, we -- it depends on the specific
3 case. I mean, if we get an AEOD report of any sort over to
4 NRR, we -- if it's got suggestions and recommendations in
5 it, we review the suggestions and recommendations. Are
6 division may, in some cases, make a decision on what to do.
7 The more complicated situations, we do indeed involve the
8 other branches in it. And, depending on how complicated it
9 is, we'll get other branches to concur.

10 Generally, what I do is if it's a fairly straight
11 forward, factual thing that AEOD is giving us, and they want
12 an information notice, and it just describes the facts that
13 would occur and the series of events, we would probably not
14 involve other branches in NRR. We would take that
15 information and, if it appears factually correct, we may put
16 it out as an information notice, and work with AEOD on it.

17 If it's something that has implications as to sort
18 of an overall philosophy of what should be done about
19 events, then we would normally go to the Technical Review
20 Branch, to make sure they don't disagree with the sort of
21 philosophy that's espoused by the AEOD report.

22 MR. CONTE: Okay. Anything else on the interface
23 -- this division with the other organizations?

24 MR. ROSSI: We have a lot of interfaces. You
25 know, bulletins can be originated in other divisions. They



1 frequently are. Like on steam generator tube problems,
2 other divisions may decide that a bulletin is needed. And
3 our division gets involved to -- sometimes we will -- we'll
4 disagree with that. So, we'll go back and tell them we
5 don't think it warrants a bulletin and an information notice
6 is enough. And if there continues to be disagreement, that
7 will get raised up to Bill Russell or Tom Murley or somebody
8 like that to make a decision.

9 If a decision is made that we believe a bulletin
10 is appropriate, then our division will help the initiating
11 division prepare the bulletin, prepare the CRGR package and
12 will go to the CRGR meeting with the division to help defend
13 the bulletin and will, you know, help write it so it's
14 clear. And we'll have input into how to request actions and
15 all that. So we do a lot of interfacing with other
16 divisions on both information notices and bulletins.

17 A lot of information notices are originated by
18 other divisions and then they have to come through our
19 division and we help them in some cases, and in other cases,
20 we will decide that we don't think an information notice is
21 necessary, and we many times tell them that.

22 MR. CONTE: Okay. Who has the final decision if
23 there's an argument between your division and the technical
24 divisions, as to whether an information notice goes out? Is
25 that escalated to Murley?



1 MR. ROSSI: Yes. Yes, I mean, it can get
2 escalated however far up somebody wants to take it. I mean,
3 the first level would be Bill Russell.

4 MR. CONTE: Bill Russell. Okay.

5 MR. ROSSI: I mean, sometimes it can get just
6 raised to the division director level. Because if a couple
7 of branch chiefs are arguing about whether a notice should
8 or should not go out and they can't agree, then they'll
9 bring it go the division directors and they'll talk about
10 it, and then it can go to Russell, and whatever.

11 Sometimes we are told by higher level management,
12 on certain issues, to put out an information notice for a
13 bulletin. I mean, that's happened.

14 MR. KAUFFMAN: Do you have anything else to offer
15 in any of thee areas that we've covered, either positive or
16 negative?

17 MR. ROSSI: No. Can't think of anything.

18 MR. KAUFFMAN: Any questions?

19 MR. ROSSI: I think one thing you ought to look
20 very carefully at, I guess, is the degree to which the
21 enunciators are or are not required to follow the course of
22 an accident. You know, I mean, the philosophy clearly has
23 been that the automatic stuff is enough to take care of the
24 immediate problems that occur when you have an event or an
25 accident.



1 I guess the philosophy is that the post-accident
2 monitoring equipment is sufficient to follow the course of
3 an accident until the plant's in safe shutdown, and since
4 the enunciators are not in either of those two categories,
5 the question is, should they be? I mean, based on, you
6 know, what happened on this event, were they important
7 enough to -- the post-accident or event situation, to
8 require that they either be safety related or have other
9 requirements on them.

10 MR. KAUFFMAN: Okay. Thank you for the
11 suggestion. I guess if that's all you have to say, then
12 we'll go off the record.

13 [Whereupon, at 12:10 p.m., the interview was
14 concluded.]

15

16

17

18

19

20

21

22

23

24

25



1
2
3
4
5



REPORTER'S CERTIFICATE

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

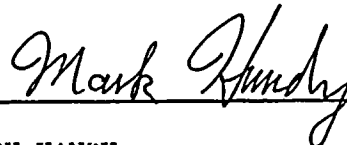
in the matter of:

NAME OF PROCEEDING: Charles E. Rossi

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.



MARK HANDY
Official Reporter
Ann Riley & Associates, Ltd.

