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NUCLEAR REGULATORY COMMISSION

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IN THE MATTER OF:

INTERVIEW OF DAN STERNBERG

Place - Bethesda, Maryland

Date - Friday, August 3, 1979

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

INTERVIEW OF DAN STERNBERG

1825 Arlington Road
Bethesda, Maryland

Friday, August 3, 1979

An interview of Dan Sternberg was conducted
by Fred Hebdon, and William C. Parler, Esq., U.S. Nuclear
Regulatory Commission, commencing at 12:55 p.m.

P R O C E E D I N G S

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Whereupon,

DAN STERNBERG

was sworn by Fred Hebdon and was examined and responded as follows:

BY MR. HEBDON:

Q Have you read and do you understand the witness notification I have just given you?

A Yes, I have; and yes, I do understand.

Q Would you please state your name?

A Daniel Myer Sternberg.

Q What is your current occupation?

A Section Chief of the Reactor Projects Section No. 1, Reactor Operations and Nuclear Support Branch, U.S. Nuclear Regulatory Commission's Region-5 Office of Inspection & Enforcement.

Q What was your position in March of 1978?

A My official position was that of reactor inspector; however, for a period of about five months, from sometime in January through sometime in July, I was acting as a section chief of the Pressurized Water Reactor Section in Region-1.

Q How many people reported to you in your acting capacity?

A Approximately seven.

Q To whom did you report?

1 A Officially I reported to Eldon Brunner, who was
2 the Reactor Operations Branch Chief during the period of March
3 '78 until Eldon was assigned temporary duty in Bethesda,
4 and Ebe McCabe was Acting Branch Chief.

5 Q What was the temporary duty to which he was
6 assigned in Bethesda?

7 A Executive Officer for support in the Zeus job.

8 Q Would you describe your employment history, including
9 positions held at the NRC?

10 A I came with the NRC in April 1st, 1974, and I was
11 reactor inspector in Nuclear Support Section, covering
12 reactor start-ups and initial criticalities, incident
13 analysis.

14 I was assigned to the boiling water reactor section
15 in 1975, and served in that capacity until I left Region-1
16 in August 1978.

17 I was assigned as project inspector at Vermont
18 Yankee, and Pilgrim, and, subsequently, at Nine Mile Point,
19 and Oyster Creek.

20 Q So your experience was primarily with boiling water
21 reactors?

22 A Yes, with the NRC; yes.

23 Q And prior to coming to the NRC?

24 A Well, let me go back to college and work forward?

1 Q All right.

2 A I graduated with a degree in electrical engineering
3 from the University of Pennsylvania in 1964; entered the
4 Navy Nuclear Power Program in 1964; attended Nuclear Power
5 School; was assigned to a nuclear submarine. I left the
6 Navy in 1969.

7 I spent the next five years in General Electric in
8 the aerospace industry, electrical systems engineer,
9 instrumentation, telemetry, subsystem engineer.

10 And I joined the Commission, as I said, in 1974.

11 Q What is your educational background?

12 A Degree in electrical engineering, University of
13 Pennsylvania, and Navy Nuclear Power School.

14 Q Prior to March 28, 1979 what knowledge did you have
15 concerning the incident that occurred at Three Mile Island
16 on March 29, 1978?

17 A While acting section chief I became aware of a
18 safety injection in a reactor blowdown event, probably on
19 the 29th or the 30th of March, '78.

20 I became very familiar at that time with the details
21 of the various aspects. Don Haverkamp was the inspector,
22 and Don was involved directly in the inspection at the site;
23 and I was basically providing the management review of his
24 actions as well as the licensee's action relative to determin-
25 ing the cause and corrective action, and the action taken by

1 the licensee prior to restarting.

2 As I recall, they had just gone critical for the
3 first time the day before. The primary concern that I had at
4 that time dealt with the injection of sodium hydroxide in
5 the reactor coolant system.

6 It has occurred previously, prior to initial
7 criticality and we were very concerned now that the reactor
8 had been critical that the possibility for sodium activation
9 problems, and additional stress and corrosion problems from
10 the sodium hydroxide; and I was basically very concerned with
11 the design that was producing this sodium hydroxide injection,
12 which was not supposed to get into the reactor coolant system,
13 but was there for containment building spray.

14 But, because of the alignment of the high pressure
15 injection system, and the containment spray system, they
16 shared a common suction header; and whenever there was a safety
17 injection with the then existing design, the sodium hydroxide
18 tank opened up on the same suction header; and, although the
19 stuff was not intended to go into the reactor, that's where it
20 went, because there wasn't a containment spray initiation
21 signal.

22 So the main thrust of our concern at that point was
23 the B&W analysis into the chemical clean-up of the reactor
24 coolant system; and there was a rapid cooldown, we were
25 concerned about the analysis associated with that, as sort of

1 a peripheral issue, though.

2 When I determined that the safety injection was
3 initiated and unannounced by the fact that the whole event
4 had been caused by an inverter failure, and, as a result of
5 the loss of power, the power operated relief valve failed in
6 the open position, depressurizing the primary; I felt that
7 that was also worthy of some attention.

8 And I guess, judging by the date of the memo, the
9 same day that I informed headquarters of the event by the
10 PN mechanism, Preliminary Notification mechanism, I wrote a
11 memo requesting a review of the design adequacy of the PORV
12 circuit that would let it fail open on a single loss of
13 electrical power, and a loss of power to one buss.

14 And I pointed out that it was not safe to me, and
15 I still felt it should be reviewed by TMI-2 and other B&W
16 plants.

17 Q Okay, let me go back through some of the things
18 you have said and try and fill in a couple of spots.

19 Why specifically did the information about TMI
20 come to your attention?--

21 A Well, it was a pressurized water reactor in Region-1
22 and, therefore, in the section in which I was acting section
23 chief I had responsibility for the assigned project inspectors.
24 Don Haverkamp was in that section, and I was just acting
25 supervisor.

1 Q Haverkamp was in the section you were acting section
2 leader for?

3 A Um-huh.

4 Q Now, if I recall your description of your qualifica-
5 tions, you mentioned your experience had previously been in
6 BWRs; how did it come that you were in charge of a section
7 that involved at least one PWR?

8 Was there any attempt to divide that?

9 A It was all PWRs.

10 For one thing, my Navy experience was pressurized
11 water reactors. I had attended I&E Pressurized Water Reactor
12 School in 1974.

13 Q Um-huh?

14 A Approximately the same time I attended BWR School.

15 Throughout the time I was there, because I have a
16 strong background in electrical and electronic instrumentation
17 things, I had periodically been involved in reviewing events
18 and problems that -- pressurized water reactors -- it was an
19 area, you know, where I had some particular capability.

20 The arbitrary break-up of boiling water and
21 pressurized water reactor sections in Region-1 was not
22 uniform across the country in terms of the regions. It
23 happened to be the way, at that time in Region-1 was organized.
24 It subsequently changed with the advent of the resident
25 program; they no longer maintain that deep distinction.

1 And, again, the section chief job is not one
2 that requires a detailed in-depth knowledge of a particular
3 reactor or type of reactor to serve the function of, you know,
4 assuring from an overview point of view that the inspection
5 program is being conducted correctly and that identified
6 problems are surfaced and acted upon.

7 Well, the fact that I was assigned to the PWR Section,
8 I think, had to do with the people who were available and
9 you know, management's opinions of, you know, who could handle
10 that particular job and other activities at the same time.

11 Q Okay.

12 Was it normal for you in your capacity as section
13 leader to receive the information that you did receive
14 concerning that particular incident?

15 A Well, I think since I had been heavily involved
16 in some of the previous events at Three Mile Island, we had
17 just gone through the final throes of licensing recommendations,
18 the final close-out of the open items list, and the work of
19 me getting letters drafted directing the licensing to NRR;
20 that I had been in, you know, probably daily contact with
21 the plant.

22 It may be that Don Haverkamp wasn't in the office
23 -- I don't recall; in fact, I'm not even sure that I got the
24 first notification.

25 I certainly became aware of it shortly if not

1 immediately after the office became aware of it. And I had
2 some questions, generated some phone calls; and it wouldn't
3 surprise me that if an event occurred and the assigned project
4 inspector wasn't there, I might have very well in any plant
5 told the operator, "give me the call," and I would, you know,
6 take whatever action in terms of, you know, making a determina-
7 tion of what else should be done, myself.

8 Q What was your responsibility or function with
9 respect to the information once you received it?

10 A An initial screening to determine whether or not
11 for example we should dispatch an inspection team right
12 away; whether or not --

13 Q Did you decide whether you should?

14 A No, we -- it may very well be, and I think Don
15 Haverkamp was probably on site at this time; and so I knew
16 we had inspectors either in Unit 1 or Unit 2.

17 There was nothing particular about the transient
18 that was in any way endangering. There was no decay heat in
19 the core, you know, essentially the plant had not even gotten
20 up to one percent; it had gone critical the day before.

21 My immediate concern was that no restart be
22 attempted until, you know, we had had a good chance to look
23 at it, and Metropolitan Edison had a good chance to evaluate
24 all the aspects of it.

25 And, you know, I determined right away that

1 you know, they weren't planning to start up again that
2 afternoon; and that they were getting in touch with B&W to
3 get analyses performed.

4 I made the decision that we notify Headquarters
5 right away through the preliminary notification mechanism,
6 and decided the morning report should be completed so that the
7 next morning it would automatically show up in the morning
8 report, I&E's field input to Headquarters.

9 In terms of overview, it was really to make sure that
10 it was of a routine enough nature not to require anything
11 extraordinary.

12 I think basically I had concluded that, too.

13 And, again, getting back, you know, the concern was
14 the sodium hydroxide issue; and, you know, trying to see that
15 people were aware that this was happening.

16 In that regard I did and frequently stay in touch
17 with the licensing project manager, Harvey Silver, to let
18 him know -- sometimes he knew about things at the same time
19 I did through another mechanism; but, you know, I expressed
20 my concerns about the design adequacy of the safety injection
21 system and the sodium hydroxide emissions system.

22 So it was really just to make sure that people who
23 had to be aware of this were made aware of the event, that
24 the design or the incident review was taking place.

25 Q Now, as to the sodium hydroxide matter, was the

1 problem that worried you, the result of a design deficiency of
2 some kind?

3 A Well, I don't know quite how to define the
4 "design deficiency" -- in my mind, it wasn't a good design.
5 Whether it met some definition, "this is sufficient, this is
6 acceptable," I don't know.

7 And throughout my time with the NRC I have tended
8 to review things in terms of a practical engineering acceptance
9 "Is it a good idea? Or a bad idea?" not so much, "does it
10 meet the design?"

11 And I felt it was not a good idea, and whether or
12 not it met any specific design criteria, I didn't know - and
13 I didn't particularly care.

14 I just wanted people to really understand that this
15 is what was happening, and that people who were responsible
16 for, you know, licensing, reviewing the design of the plant,
17 were aware that this condition existed.

18 Q When was that condition corrected?

19 A I think following that injection the initiation
20 signal to open the sodium hydroxide valve was changed from a
21 regular safety injection signal to probably a containment
22 type pressure signal.

23 Q Is that a change that the licensee carried out
24 under the licensing authority that it had? Was any regulatory
25 review and approval required?

1 A I don't recall.

2 Q How did you bring to someone's attention your
3 concerns about the sodium hydroxide injection?

4 A Primarily through the phone calls with NRR and back
5 to the licensee. Again, you know, my feeling is that this
6 was nothing the licensee wanted; and, you know, I just wanted
7 to make sure that they shared my concerns and that they were
8 going to do something.

9 You know, sometimes it became convoluted because
10 what I was telling the licensee sometimes, I said, you know,
11 "go back to licensing, get this worked out to get it changed,"
12 you know, "is there a reason you can't change this? Do your
13 tech specs require this?" -- because, you know, then I would
14 try and know the mechanism to get tech specs changed, or
15 whatever was necessary to get a condition like that corrected.

16 And again it was my engineering judgment that it
17 was not a good idea. It is not that it was an unanalyzed
18 condition; I mean, the fact that it happened a few days or a
19 week before, and that the world didn't collapse: B&W knew
20 about it, Licensing knew about it, you know; nobody said any-
21 thing specifically at that point, that we were going to change
22 before we continue, that gave me confidence, you know, that
23 I should pursue it again; but not, you know, make it a Federal
24 case.

25 BY MR. PARLER:

1 Q How do you know B&W knew about it?

2 A Because B&W performed a. analysis, a chemical
3 analysis, and stress cooldown analysis.

4 Q Who was your contact at NRR on this matter?

5 A I believe it was Harley Silver, the licensing
6 project manager.

7 Q With regard to the open items prior to the issuance
8 of the operating license that you referred to earlier, in your
9 judgment were there an unusually large number of open items?

10 A No, not from my experience.

11 As I recall, what happened there -- it had happened
12 before -- is we generated a list that basically set forth
13 different plateaus.

14 The list of things to be completed was longer than
15 it needed to be for initial criticality. So we said, these
16 things had to be completed before criticality; then prior to
17 going to one-percent power the next things had to be completed.

18 And I believe it was a graduated list of open
19 items. Again, those were recommendations to NRR who ultimately
20 is the licensing authority.

21 BY MR. HEBDON:

22 Q You say the list was longer than it needed to be
23 for initial criticality; what do you mean by that?

24 A Well, there were certain -- and I don't recall any
25 of the specifics -- but, for example, let us say something, well,

1 relative to the steam generator or feed system was open for
2 a low power physics testing, where you would not be generating
3 any heat and requiring any secondary heat sink capability,
4 it would be something that said: that feed system is not
5 complete, and it must be complete prior to going above one
6 percent or something like that.

7 Again, that is not an example, but --

8 Q Yes.

9 Well, was your concern with the physical size of the
10 list, or with the content of the items that were on the list?

11 A Well, I didn't have any concerns.

12 Bill asked me was it extraordinarily long? I think
13 it was longer than it needed to be for just initial criticality.
14 It was a complete list of things, if you will, that had to be
15 completed before going commercial.

16 Q What I am getting at, though, is I think your choice
17 of the term "longer than it needs to be." I am trying to get
18 at whether you mean there was some sort of a perception that
19 the list was too long, so let's see if we can move some of the
20 things to another list.

21 Or was it just a matter of, you went through and
22 looked at it and realized some of the things did not need to be
23 done at certain milestones?

24 A The latter is the point; yes, that there were things
25 on the list that would not prevent going critical or fuel-

1 loading.

2 However, there were things -- again, fuel-loading
3 is a good example: there were things that were on the list
4 that had to be done prior to fuel loading, that you could not
5 go critical until you did several more things on the list.

6 Q Yes?

7 A It was a matter of upgrading that list and each time
8 it was time to remove one of the license conditions, and that
9 is how our functional concerns are translated into regulation
10 effectively. It was that the license had conditions on it,
11 and effectively what would happen is we would review the
12 results of, what would you say, the fuel-loading, and the
13 low power testing, and make a recommendation to
14 licensing that certain conditions be removed based on our
15 inspection of the completion of certain outstanding items.

16 So it was basically a condition of removal process.

17 Q What significance did you attribute to the incident
18 that occurred on the 29th? Was that a particularly serious
19 event compared to the other types of incidents that occur
20 from time to time in plants? Or is this a routine -- where
21 would you put it in that sort of a spectrum?

22 A I would make it routine; inadvertent safety injections
23 were not uncommon, from my experience.

24 And, again, my inspection or enforcement philosophy
25 -- I accept the fact there are going to be safety injections;

1 they are going to occur. I am curious how they got there,
2 what prompted them, but, you know, the fact that there was a
3 safety injection doesn't really surprise me. That happened
4 in plants before.

5 So I then tend to look backwards, and say, okay,
6 people you've handled safety injections before, let's go back
7 and see why they had them.

8 My feeling is all along when you identify a cause,
9 correct that cause, realizing that you may not prevent the next
10 one which will be from a different unsuspected cause; but at
11 least you will have eliminated the possibility or reduced the
12 possibility of a recurrence of the one which occurred this
13 time.

14 So, you know, my philosophy was, well, they had
15 another safety injection; let us see what we can do, what can
16 we learn from that one to prevent the next one from occurring
17 from the same cause.

18 For example, a previous safety injection had occurred
19 from a totally separate cause; and, in fact, a few days later
20 they had another one, or in some period of time there, I don't
21 know if it was a week or a month later.

22 But again, it came from another cause; so the
23 significance I placed on it was it simply had to be reviewed
24 A) to make sure it was safe to resume operation; B) that
25 whatever we could get out of it, whatever cures we could get

1 in place would be done.

2 Q With whom did you discuss the incident?

3 A Well, the licensee, I think primarily it was
4 Jim Seelinger I worked with, Ebe McCabe, Don Haverkamp,
5 Harley Silver; that may well be it as near as I can remember --
6 not that I can recollect specifically, you know, talking to
7 Ebe about it. But that's functionally what would occur so
8 I assume it did.

9 Q Did you see or discuss any reports produced as a
10 result of the investigations or analyses associated with the
11 incident?

12 A I don't believe I ever saw the B&W report. I
13 certainly saw the inspection report Don Haverkamp produced,
14 because I signed off on it as the acting section chief.

15 Q What did you do with that report before you signed
16 off on it?

17 A Read it, you know, made sure that it reflected the
18 situation that I understood had occurred; you know, that it was
19 an accurate representation of the actions that we had taken;
20 and that the licensee had taken.

21 Q You read it for its technical content?

22 A Yes.

23 Q Did you write a memorandum dated March 31, 1978 in
24 which you raised concerns about the design of the electromatic
25 relief valve?

1 A Yes, I did.

2 Q For the purpose of the record, this is a memorandum
3 for K. B. Siyfrit to Ebe McCabe from Dan Sternberg, May 1st,
4 1978, TMI Pressurized Relief Valve Control System; is that
5 the memo you wrote?

6 (Handing document to interviewee.)

7 A Yes, it is.

8 Q Why did you write that memo?

9 A Again, my feeling was I did not think that this was
10 the right way for a system to work, and that I wanted somebody
11 to look at it, you know, to call it to their attention.

12 My feeling is that the regional people are the first
13 line eyes and ears of what is out in the field and their job
14 is to identify, surface, technical issues and concerns so that
15 the licensing people and other technical people can review
16 and make corrections as appropriate.

17 Q Why did you not feel that this was the way the thing
18 ought to work?

19 A My engineering background and experience said that
20 loss of coolant accidents are not a good thing to have. They
21 represent challenges to the safety systems, and I believe
22 in defense-in-depth; and anytime you identify a situation
23 where you have lost one of the layers of defense-in-depth,
24 that's not good.

25 And an electrically initiated, unannounced coolant

jrb19

1 accident is just something that when it is so easy to correct,
2 is something that shouldn't exist.

3 Q You also mentioned in the memo you feel the valves
4 should be safety-related?

5 A Well, --

6 Q Why did you feel that?

7 A I didn't say that.

8 I will read the sentence and I will tell you what
9 my thinking was.

10 Q All right?

11 A The paragraph says, "this relief valve does not
12 appear to be a safety-related component, and it opens on a
13 one out of one logic power arrangement, producing a loss of
14 coolant condition."

15 There is a certain ongoing and probably still
16 ongoing battle of "what is safety-grade, safety-significant"?

17 I have been involved in these kinds of battles in
18 the past. I personally felt that something that produces a
19 loss of coolant accident is safety-significant.

20 The fact that it may not be on somebody's Q-list
21 or Class-1 or Class-1E is one of the standard arguments people
22 would use and say, we can't do any more in that area.

23 So I wanted to define right off that I understood
24 and recognized it was not safety-related; but I still felt
25 that something should be done to review this.

1 In other words, that could come back and somebody
 2 could say, it's not safety-related; and I just wanted to get
 3 that on the table, to call people's attention to it.

4 Q What did "safety-related" mean to you?

5 A Well, it means a lot of different things to a lot
 6 of different people.

7 One way of looking at it is if it is called
 8 "safety-related," it comes under the purview of the quality
 9 assurance program, and it has to meet certain requirements
 10 that a nonsafety-related component does not.

11 Safety-related has to do with whether or not
 12 certain redundancy and diversity requirements and separation
 13 of power systems, -- things like that -- would apply to it.

14 It simply means to me that a higher level of
 15 control and attention to the design, fabrication, manufacture,
 16 installation, testing takes place for safety-related
 17 components, than, as I have learned, is applied to nonsafety-
 18 related components.

19 Q What is normally required for something to be
 20 classified safety-related?

21 A That tends to occur in what I call the darkness
 22 and paths of the nuclear power plant. I might point out that
 23 my experience in the NRC was always plants very close to
 24 initial criticality and in the operations phase. Plants in the
 25 very early construction phase, I never had anything to do with.

1 In those days in the FSAR and PSAR where lists of
2 components and systems are set forth, a quality assurance
3 program is written identifying which components and systems
4 and pipes will be safety-class and which ones are not.
5 So it tends to be a set of givens by the time I see a plant.

6 And so -- I forget exactly your original question.

7 Q I'm just wondering what you felt it took for
8 something to be classified as safety-related? What was your
9 perception?

10 A It was a given.

11 Q What was included in that?

12 A It was a given to me, it was on somebody's list.

13 BY MR. PARLER:

14 Q Dan, you referred earlier in a part of your answer
15 about safety-grade versus nonsafety-grade to ongoing "battles",
16 presumably "discussions," about classifications of various
17 pieces of equipment one way or the other.

18 Would you be a little more specific on that? Were
19 these controversies within the regional office or between
20 regional office and headquarters, or between the NRC and
21 the utility, or what?

22 A I don't think there was ever any significant
23 disagreement in the regional office. I think invariably the
24 inspectors felt that we were being saddled, being asked to
25 put on blinders; and that there were memos written, you know,

1 to request that certain things be added to the Q-list.

2 For example, while reviewing an event at Peach
3 Bottom having to do with loss of three of the four diesel
4 generators, I found out that the diesel air starting system,
5 which was the reason the three generators became unavailable
6 -- the loss of air bled down the three starting air
7 receivers -- that the starting air system was not safety-
8 related; whereas the diesel generator itself was.

9 And it was clear and apparent to me that the diesel
10 generators were of no value on their own if their air was not
11 there to start them.

12 But it was that type of frustration of, you know,
13 seeing diesel generator, diesel fuel transfer system was on
14 the list, but diesel generator starting air system was not on
15 the list -- that kind of problem was relatively common.

16 When I came in the Commission in '74, you know, it
17 didn't take long before I was first hit with an example of
18 that; and I went to complain, to find out a "welcome to the
19 club," kind of thing, you know, "we've been trying to work
20 with the people who are reviewing quality assurance plans,
21 people in headquarters and things like that."

22 And I realized that it had been an ongoing battle
23 and that I was not going to in any way significantly win that
24 battle or anything else, but learn to live with it, and
25 surface things independently.

1 Q More specifically, the ongoing battle that you were
2 aware of was between the people who were in the regional offices
3 that identified these concerns and with the quality assurance
4 people at headquarters? Or was it somebody else?

5 A Well, I really can't say. I did not get actively
6 involved in that.

7 I knew, you know, of the existence of this kind of
8 thing. I knew there had been memos written, there had been
9 responses back; sometimes it was 18 months and nothing had
10 happened; you know, it was a condition that I believe was
11 generally recognized.

12 And I think, you know, I don't know what organiza-
13 tion is specific.

14 Q Did you write any such memos?

15 A No, I did not.

16 Q Do you have any that are available to you that you
17 could give us at a later time?

18 A I don't.

19 If you want to talk to somebody who probably would
20 be able to give you some details, Bill Ruhlman, who's now in
21 Region-2, R U H L M A N; because Bill was active in the
22 quality assurance inspection program. Bill served as sort of a
23 mentor in the early phases of my inspection activities.

24 Q Now, as a specific example, you cited this incident
25 at Peach Bottom; were you ever able to get the air starting

1 system added to the list of safety-related equipment?

2 A No.

3 When I wrote that inspection report I generated
4 what I call "inspector concerns," sort of a laundry list of
5 things that absolutely in my mind had -- that diesel air
6 starter system would have been on a long list of items not
7 in compliance; because of the way our enforcement program
8 goes back through the quality assurance program, and the
9 tech specs, appendix B -- they were not items of noncompliance
10 although several noncompliant items did come out of the
11 event.

12 Q Even recognizing that it wasn't safety-related?

13 A Yuh, but the fact that three of the four diesel
14 generators were inoperable, you know, a significant event;
15 from that point of view.

16 Q It was significant because the three generators
17 were out of service, but then it wasn't a violation that the
18 three were out of service because the air system had failed,
19 or the fact that three air systems had failed?

20 A There was a concern about separation criteria, they
21 were concerned about maintenance on that system, leaks that
22 were known to exist, deviations from the as-built drawings,
23 the fact that operators weren't going in there and making a
24 check on a frequency that I felt was necessary to do it --
25 all sorts of things.

1 And, you know, I didn't mean to dig out that inspec-
2 tion report; it's certainly afield from the Three Mile Island
3 event. I just cited it as an example of the classical point
4 that I ran into as one that just came into my mind, that's all.

5 BY MR. HEBDON:

6 Q Could you tell me approximately when this inspection
7 was conducted at Peach Bottom, so we could go back and get the
8 inspection report? Or could you provide it later?

9 A Unfortunately I'm not in Region-1 any more.
10 It probably was 1977, later or early '78.

11 Q Late '77 or early '78?

12 A That's my recollection.

13 I'm trying to think of a simple way to get the
14 information; I conceivably have a personal copy in my own
15 personal file.

16 Q If you should happen to run across it or think of
17 a more specific date you can tie it to, I would appreciate it.
18 It would make it easier to track it down.

19 What you are saying, I guess, is that that system
20 if it didn't go on the list of safety-related equipment, there
21 was a considerable reduction in the quantity of testing
22 and the quality of the QA that's applied to it, and all the
23 rest of it, as opposed to it being on the list of safety-
24 related?

25 A Well, --

1 Q That there's a major difference in the way safety-
2 related equipment and nonsafety-related equipment is maintained
3 and installed and tested?

4 A I don't know that I would go that far, but I do
5 know that I&E's ability, you know, to identify and correct
6 problems is significantly impaired if the item is not defined
7 as a safety-related component.

8 The licensee may very well do everything the same.
9 I am not, you know, trying to say the licensee does or he
10 doesn't.

11 But I am saying when the field inspector identifies
12 a problem in a nonsafety-related component, you basically
13 turn the other way.

14 At TMI-1, I was there for initial criticality, and
15 walking through the auxiliary building; I saw a pipe which
16 I considered to have excessive pipe vibration.

17 And I wanted, you know, to get something done about
18 it. And I was told, "that's a recirc line in feed pump and
19 it is outside, you know, it's not safety-related, in the
20 secondary system."

21 I accepted that. I had come from the Navy philosophy
22 you know, there's one reactor plant there, you know, you don't
23 make distinctions upstream/downstream of the mainstream
24 isolation valves.

25 That's a distinction however that I&E does make in

1 terms of its inspection program.

2 That is not to say, you know, a problem is identified
3 that is in any way significant that you can't discuss it;
4 but it is not your primary mission, and it is not the intent
5 of our inspection program to identify areas out of the safety
6 boundary.

7 Q Getting back to the memo that you wrote on March
8 31st, do I understand you correctly, then, that you did not
9 feel or you were not recommending that that particular
10 part of the system be included as safety-related?

11 A No, I did not feel that was germane. I tended to be
12 somewhat pragmatic as a result of, you know, my feelings,
13 as I indicated; I tended to look at a condition whether or not
14 I felt it was good engineering or, you know, whether it
15 was the right way for something to happen.

16 And when I realized it's not safety-related, you
17 know, I give that its dues, but nonetheless, you know, say
18 I think something should be done.

19 So, you know, I was not trying to fight that
20 battle; as I said, that was a three or four-year old battle
21 at that point; and one that, you know, I could let it go on.
22 But let's get around about our business of being sure these
23 plants are operated as safely as can be done.

24 Q Well, if you had the perception that there was a
25 reasonable chance of getting something added to the list of

1 safety-related equipment, would you have then recommended that
2 this particular piece of equipment be added?

3 A Perhaps.

4 Except that point it would be one of many things,
5 and I would have been looking for a program that relooked
6 at everything, and got all of those things -- either get rid
7 of the definition of, you know, "safety-related" and say,
8 you know, the component is in the nuclear power plant, it
9 should be as good and safe as possible.

10 I, for one, you know, recognize the need for these
11 kinds of lists, but I do not, you know -- it gets to be a
12 legal game, whether it's on the list, whether it's not on the
13 list. It never seemed to me that important to come up with
14 good lists, because as soon as you do, one of the arguments
15 -- getting back, for example, to diesel generators, has to do
16 with whether or not the fuel for diesel generators was
17 safety-related.

18 You know, if you have a tank-full of what you think
19 is diesel fuel and it turns out to be salt water, again the
20 diesel generator won't work.

21 Q Let me interrupt:

22 How would anyone view that fuel for the diesel
23 generator is not safety-related if they argue the diesel
24 generator is? -- for the obvious reason that you say, if you
25 don't have any fuel for it, it doesn't do you any good?

1 A Well, I don't know the answer to your question.
2 I do know that that was one of the examples.

3 Again, if you want to know the person that pursued
4 that item, that was Ebe McCabe, who was arguing the fuel for
5 diesel generators should be safety-related and, therefore,
6 fall in a quality assurance program.

7 In other words, the samples should be analyzed, there
8 should be some control over where it's purchased from; you know,
9 what's put into the tanks.

10 One of the counterarguments -- and I don't know
11 who raised it -- they said, "well, if you are going to make
12 the fuel safety-related, well how about making the air for
13 the diesel generators safety-related; because you don't want
14 to run out of air, either?"

15 And sometimes it devolved into one of these
16 productions, you know, of an absurd situation kind of thing.

17 But I think one of the arguments was it was a
18 consumable, and therefore it didn't fall under the QA program
19 because the QA program excluded consumables.

20 — Again, to me, I tend to look at things technically,
21 and whether it's consumable didn't really matter; if it was
22 essential, you know, to me, a safety objective, then it was
23 by original definition safety-related, and that's the way I'd
24 have it.

25 Q Getting back to the memorandum which you wrote, was

1 that memorandum part of the normal function of your job?

2 A Possibly not, no; perhaps a real section chief, not
3 acting, would have an inspector write it.

4 I sort of was neither a fish nor a fowl: I felt
5 like myself I was an inspector at the same time I was acting
6 section chief. I knew that the inspector assigned to the
7 facility, who would have written it if he were available was
8 tied up at the site. I felt it had to be done. I had the
9 time. I had the background and the details of the event.

10 I could answer any questions which would come up.
11 As you can tell from the length, it didn't take a long time
12 to write; and so I wrote it. I wanted to get it out fast.
13 And it did. You know, again, look at the date; I am pleased
14 when I look back at it, it didn't take long in typing, you know,
15 it was concurred in right away by Ebe, and we got it out.

16 Q Why did you feel you had to get it out quickly?

17 A Well, I don't want to give a false sense or urgency
18 to it; perhaps I was more afraid it might slip through the
19 cracks if I forgot; it was fresh in my mind.

20 I can say it was a Region-1 philosophy to what we
21 call "track things" to headquarters; you know, to bring to
22 headquarters' attention things like this, you know, anomalous
23 conditions that came up, that was the modis operandi of the
24 office, was, you know, to write a memo, get any action item
25 in the tracking system.

1 So I felt it was well within our normal way of
2 doing business. The only thing is you might ask whether, you
3 know, I thought it was significant -- really not; an inspector
4 typically would write that if he were in the office. He
5 might do it at the direction of the section chief, or again
6 as an individual; it's sort of a management rule to identify
7 those areas that are particularly significant or potentially
8 generic and, you know, to ensure that they are passed on.

9 Q I notice that you sent the memo through Ebe McCabe;
10 is there any particular reason why you did it that way?

11 A No.

12 I wrote that and, no, I don't recall why I did it.

13 There were always discussions in the office about
14 what level in the office could contact what level in
15 headquarters organization, things like that; and it may be
16 because it was going to an AB that effectively it should come
17 from a branch chief.

18 There was another thing that was going on around
19 about recognition of individuals. The policy in the past had
20 been everything was signed by a branch chief or a director.
21 The result was that the people who were actually doing the
22 work, their names were never heard of, you know, at headquar-
23 ters, and NRR.

24 And there was an attempt, and it may have been Ebe's
25 attempt, to, you know, give the guys who were writing some

1 recognition, so, you know, it didn't appear the branch chief
2 was doing everything in the region.

3 So maybe it was for that purpose. It really couldn't
4 come from a section chief to an AD, but it would go through a
5 branch chief. There were things like that that were going
6 on.

7 Q Earlier you mentioned your concern about an
8 unannounced LOCA; would you explain what you mean by that
9 term?

10 A Unannounced -- the thing I found particularly
11 difficult to believe when I heard it was that there was not a
12 light or an annunciator or alarm saying the power operated
13 relief valve was open.

14 Q What indication was available?

15 A No direct indication at all.

16 It was, as we know, decreasing pressurizer level,
17 or perhaps increasing pressurizer level, reactor coolant
18 system pressure, reactor drain tank, pressures, temperatures
19 and levels -- but, you know, I guess I was a little surprised
20 that considering the thousands of lights, meters, gages,
21 alarms in the control room that something, you know, seeing
22 the valve was being commanded open did not exist.

23 Again, I hark back to my BWR experience, where a
24 similar valve, the target rock relief valve -- you know, to
25 me that's basically a target rock relief valve sitting in the

1 pressurizer.

2 There was an automatic position and a manual position
3 and there was a light on it, and that's what I would have
4 expected, you know.

5 When I discussed it with the inspector and the
6 people at Med Ed, the event, they said their first indication
7 of a problem other than the loss of the inverter was they
8 had a safety injection on their hands; and I found that
9 surprising.

10 And I pursued it enough to find out that there was
11 no light or anything, an indicator.

12 Q Why did you not in your memo recommend some sort
13 of indication be provided on the relief valve?

14 A When I discussed this with you before, I indicated
15 that another attitude, if you will -- I am not quite sure
16 how to describe it -- a feeling of "we don't want to do some
17 things."

18 And one of the things we did not want to do was
19 write what we call purple words or purple memos.

20 I had in the past written memos of this nature
21 with a sentence, "I recommend this item be transferred to
22 NRR for review."

23 And somehow back through the system I had been
24 informed, "You do not put those kinds of words into a memo."
25 In effect, I was preempting the headquarters prerogative

1 for analyzing events, making the decision which ones to
2 transfer over to licensing.

3 As a matter of fact, I think I changed the words
4 around, as I look at the memo, "producing a loss of coolant
5 condition". I did not want to make anything particularly
6 inflammatory, you know, an unannounced LOCA.

7 I don't have the PN with me that's referenced here.

8 Q I don't have it right here, but I can go get it.

9 A It might be worth looking at. I had a feeling
10 the fact that there was no light indication may have been
11 discussed.

12 MR. HEBDON: Let's take a break for about five
13 minutes.

14 (Recess.)

15 MR. HEBDON: Let's resume now.

16 We will resume now, you are still under oath, and
17 the witness notification you read earlier still applies.

18 BY MR. HEBDON:

19 Q What you have been looking at, for the record, is a
20 preliminary notification of event or unusual occurrence,
21 PNO78-68, dated March 30, 1978.

22 A Okay.

23 I notice in there that again -- and I had written
24 that PN, and I did not discuss an annunciator light. It is
25 even conceivable that at this time I had not been aware that

1 there was no light.

2 However, I do know I subsequently did become aware
3 of it, because I had words with the licensee, Metropolitan
4 Edison, on this subject.

5 Q What do you mean by "you had words"?

6 A We discussed the fact that I'm sure they didn't
7 want this, either; that they could have the PORV go open
8 and not have an indication of it.

9 And I suppose I became somewhat placated in this
10 whole issue when Metropolitan Edison agreed -- or maybe even
11 proposed it themselves -- to change the logic arrangement
12 so that the PORV would not fail open in the loss of a buss;
13 it would fail closed on a loss of that buss. And that they
14 did install an indicating light on the control panel to show
15 that the valve was being commanded open.

16 At that point two significant concerns I had about
17 the event, as far as the PORV goes, was placated.

18 Q Okay.

19 Could we go back a little bit to the discussion we
20 started to get into concerning this issue of "purple words"
21 or "inflammatory comments"?

22 You have said this is a perception that you have.
23 What caused you to feel that way? What caused the perception?

24 A It had come out at staff meetings, whatever you call
25 it; I think I may have paraphrased it as "purple words," it was

1 what we call "maturity of judgment," how you said and wrote
2 certain things so that it conveyed the technical safety
3 concerns without appearing to be immature or not being wise
4 in your judgment.

5 And I guess it had come up time and time again over,
6 you know, the time I was there and to me it was just simply
7 a way of doing business. It was not in any way restraint on
8 what was said, it was more, if you will, advice on how to
9 effectively prepare a memo, you know, that would get the
10 point across without, you know, being necessarily condemning
11 of anybody or anything else, but simply, you know, to keep
12 the memo addressed on the technical issues.

13 Q Who were you trying to -- and this may be overstating
14 it a little -- who were you trying to shield from these
15 inflammatory words?

16 Was it a concern about headquarters reading this
17 type of material?

18 Or was it a concern the utility would be upset if
19 they saw these sorts of things?

20 A I really don't know.

21 Looking back at it I would suspect that it basically
22 resulted from the public record and things being quoted out
23 of context.

24 And, you know, perhaps the thing was not to put more
25 grist into the antinuclear mill, you know, saying certain

1 things when you read that sentence alone either without the
2 background of the issue or without the technical knowledge
3 that, you know, surrounds the work we do; and it would seem
4 to represent to the layman a more significant or serious
5 event than it actually was.

6 And I think, you know, part of the caution was to
7 be sensitive to this type of thing, and to, you know, if
8 nothing else be circumspect in what was being said or written.

9 BY MR. PARLER:

10 Q The caution came from what source? From Headquarters
11 or the then director of the office, or from someone else?

12 A I assume it came from headquarters. It was passed
13 on in staff meetings.

14 Q By the person in charge of the regional office?

15 A Down through the branch chief or the section chief.

16 BY MR. HEBDON:

17 Q Was it passed through in basically the same context
18 you have it here, or was this your interpretation of something
19 someone else said?

20 A It basically is the same. It was never, you know,
21 it was never an attempt to say, "Don't inform us of things,
22 don't, you know, pass on safety concerns."

23 You know, nobody -- it's not that we don't want to
24 hear it -- and I think the term "maturity of judgment" came
25 up time and again.

1 And it was a matter of selection of words and things.

2 Q Why did you feel that the term "unannunciated LOCA"
3 would fall into this category of words?

4 A The more I think about it, the more I think I might
5 not even have been aware at the time of the lack of
6 annunciation.

7 I have a feeling, the more I think about it, judging
8 by the timing of that memo, that we had not in any way finished
9 our investigation of that event.

10 And I think the fact, as I told you before, that
11 that was a "purple word" -- it's probably a mistake on my
12 part.

13 I think I became aware of the lack of annunciation
14 afterwards, and therefore, it was really something that
15 transpired between Met Ed and I and Don Haverkamp in terms
16 of what things were we looking for the licensee to have done
17 as a result of this event.

18 And one of the things that did come out of it was
19 the installation of a light.

20 Q Well, looking back on it, regardless of the time
21 when you thought of the term, why now would you consider
22 "unannunciated LOCA" to be an inflammatory term?

23 Is there any significance associated with that
24 particular term?

25 A I don't -- I think I might have overstated it when I

1 talked to you before.

2 I did not have that memo when you and I spoke over
3 the telephone. And, you know, I was trying to recollect
4 then whether or not I discussed it.

5 But the more I think about it the more I have a
6 feeling that it did not come to my attention until afterwards.

7 That, even today, might not be the way I would
8 characterize this condition. It is a succinct way of saying
9 it, but I might state it differently simply to more
10 accurately define what it was, the condition of a relief valve
11 being open without any indication that it was being totally
12 open.

13 Q To whom did you send the memo?

14 A Karl Siyfrit.

15 Q Why to him?

16 A It was sometimes confusing to figure who to send
17 something to in headquarters -- at least to me it was
18 confusing.

19 However, at that time I knew that my branch chief,
20 Eldon Brunner, was always on top of who things should be
21 directed to. I found sometimes the organization in headquarters
22 personally to me to be confusing, and quite often I would
23 simply ask someone: here's my concern, who do I send it to?
24 And Eldon would make a decision and tell me.

25 And I have a feeling that at that point it was

1 probably, you know, based on my asking Eldon, or, since
2 probably Eldon wasn't there I may simply have gone back to the
3 last memo I had written or somebody else had written, and
4 gotten the name and title.

5 Q I notice the distribution on the memo does not
6 include a copy to anyone in NRR; do you recall if copies were
7 sent to anyone outside of I&E or to any in NRR?

8 A It was very infrequently, if at all, that memos
9 of this nature would automatically be cc or vcc to NRR.

10 Q Why?

11 A I really don't know.

12 It was simply, I think the headquarters organization
13 served to screen and turn those types of things over.

14 Q So even at a VCC level it would have been considered
15 inappropriate to have included NRR?

16 A I don't know whether it would have been inappropriate
17 I believe it was not a way of doing things.

18 Q What did you have in mind should be done with them?

19 A They should be sent to NRR, and that, you know,
20 very simply what it says there: "the adequacy of this design
21 should be reviewed."

22 It was my feeling it was not an adequate design,
23 that it was not the way somebody -- whether or not it was
24 intended to function that way really didn't matter to me;
25 but now that the significance of that design had come to my

1 attention, I felt that it was not what somebody would really
2 want, and once called to their attention it would require,
3 you know, the change to be made, to make it not fail open
4 on loss of electrical power.

5 Q You felt then it should be sent to NRR for review?

6 A Yes.

7 Q Why did you not include a recommendation in the
8 memo to that effect?

9 A As I indicated a few minutes ago, once or twice or
10 even more often I had included that type of request in the
11 memo; and I had gotten feedback through the organization that
12 that was not the type of thing that would be included in a
13 memo; that that decision was to be made by the headquarters
14 organization.

15 Q You were not even given an option of making a
16 recommendation?

17 A I am sure that the letter would have been typed and
18 forwarded with that recommendation in it; yes. I was given
19 the option. It was just I had no reason at that point to
20 put it in after I had been asked not to put it in.

21 Q What was done as a result of the memo?

22 A Well, there was a response which came back a few
23 months later, I think in May.

24 Q For the record, this is a memorandum for E. J.
25 Brunner, dated May 3rd, 1978, from K. B. Siyfrit; is that

1 the response you received?

2 (Handing document to interviewee.)

3 A Yes, it is.

4 Q Did the response that you actually received
5 personally include a copy of section 74116 of the FSAR which
6 is referenced in the memo?

7 A No, not that I recall. I read it, opened it up
8 and looked at it.

9 Q You did look at that section of the FSAR?

10 A Yes, I did.

11 Q What did you get out of that, what did it tell you?

12 A I am going to read it again.

13 Q Certainly.

14 (Pause.)

15 A Okay.

16 It told me about what I already knew, that somebody
17 had considered it could fail open, and they had put a block
18 valve in it.

19 Again, my concern all along had been, yuh, I know
20 that; to me it represented an unnecessary challenge to the
21 reactor coolant system integrity; and that you just didn't
22 want things randomly popping open on a loss of electrical
23 power situation.

24 Q From reading that particular section of the FSAR,
25 did you -- do you read that to say that the valve not only

1 was consideration given that the valve might fail open, but
2 the valve was intended to fail open for a fairly specific
3 reason?

4 A No, I had a feeling they had considered the valve
5 could fail open. It says in the event that the relief valves
6 were to fail in the open position, then pressure could be
7 controlled by cycling the block valve.

8 Q But it says earlier in the section that the
9 redundancy is provided by the blocking valve, and the only way
10 that redundancy could be provided by the blocking valve is if
11 the relief valve itself fails open?

12 A Well, I didn't read it that way.

13 In fact I am not quite sure even now that I quite
14 understand what they mean by redundancy.

15 For example, on a safety valve there is no back-up
16 capability; there is no redundancy.

17 Q The redundancy of the other safety valve?

18 A Well, that's a functional redundancy, that's
19 parallel valves.

20 Here's it's functional redundancy, if you will, to
21 close a loss of coolant path, and the valves you place in
22 series; so the concept of redundancy on safety valves is a
23 functional redundancy, that in two valves each of which is
24 capable of relieving the pressure; whereas here you are
25 talking about redundancy -- and the ability to close, like they

1 are talking about a block valve can be operated outside the
2 control room.

3 So I don't -- I am not quite sure what they mean
4 here by redundancy.

5 Q Well, as I understand it, what they are talking
6 about there is that the function to be performed
7 is the ability to control pressure.

8 And what they are saying is that you can manually
9 operate the relief valve to control pressure during a shutdown,
10 which is the context of section 7.4 of the FSAR.

11 A Yuh.

12 Q Now it's the redundancy of that function, the
13 ability to control pressure, it's provided by the fact that
14 there's also a blocking valve that can be operated, that can
15 be opened and shut; and that that redundancy is provided by
16 virtue of the fact that if the relief valve fails, it will
17 fail open, leaving the path open, so that you can then use the
18 blocking valve to perform that function.

19 A That's one way of looking at it. I wouldn't look
20 at it that way; yuh.

21 Q And I assume that what you're saying, you didn't
22 look at it that way when you read it?

23 A To me that safety valve is something that's open
24 for an extremely short period of time, for the vast majority
25 of the safety valve, the relief valve, it won't be open

1 and I can see how you are reading that.

2 Functionally I don't think of a safety relief valve
3 in that context.

4 As a matter of fact, if that were the case I would
5 then have had serious concerns about the change which the
6 licensee had made if, indeed, failing in loss of power the
7 bistable was a design intent, then I would have considered it
8 an unreviewed safety question to make the change to have it
9 fail closed on a loss of power to bistable.

10 Q Well, that was one of the questions that I was
11 going to ask you, that - did you think the licensee's decision
12 to have the valve fail shut, rather than failed open, was
13 an issue that required a review before the change could be
14 made?

15 A Not one involving NRC, no, I didn't.

16 Part of it, and I can fall back very comfortably
17 at this point, and say it was not safety-related; and again,
18 that could change what was required in terms of what the
19 licensee had to do.

20 The changes made to systems that aren't
21 safety-related fall into a different category of design review
22 and approval than do those that are safety-related.

23 The real issue here was, you know, what I harken
24 back to very simply is, the bistable, does it energize or
25 deenergize to perform its function?

1 And I know design considerations go in for
2 engineered safeguard questions, which way the bistables
3 energize or deenergize, whether they energize to perform their
4 function or deenergize to perform their function.

5 To me the way that I thought the system should be
6 was that anything that can induce a loss of coolant accident
7 should fail safe, and fail safe in my mind - in this parameter
8 the valve fails closed; to take positive action to produce
9 that infrequently desired event of opening the reactor
10 coolant system essentially atmosphere -- not that it failed
11 in that position.

12 Q So then in your mind there was no analysis of that
13 change in design required by the Staff?

14 A Not by NRC Staff, no.

15 Q What about the utility? What analysis was required
16 on their part?

17 A Whatever was required by the plant design change
18 procedure which, that procedure itself, was reviewed by the
19 NRC and --

20 Q Would it be part of their tech specs?

21 A Not directly.

22 It may say the plant operation review committee was
23 responsible for all changes, but the actual package of the
24 plant design change -- in other words, the thing that would
25 set forth why they would want to make the change, how they

1 would propose to make it, that whole design change package is
2 a system that the NRC looks at, and essentially in terms of
3 an adequate system.

4 So I knew the change that would do this was done
5 in accordance with that.

6 Q Did you -- as you understand that change procedure,
7 would the change have been reviewed by the plant operations
8 review committee?

9 A Absolutely.

10 Q Do you know for a fact whether or not it was?

11 A I don't recall.

12 I remember the issue was discussed in Don
13 Haverkamps report. I don't know whether or not he indicated
14 he reviewed that design package.

15 So I do not know if that was done.

16 Q Did you find the response that you received to be
17 adequate?

18 A Well, first let me say, I said yes to the
19 Kemeny Commission in answer to that question.

20 I will say yes, again, and qualify it the same way
21 I did there -- I hope --

22 A) I was somewhat flakey about the fact that
23 Met Ed at Three Mile Island-2 had changed their bistable and
24 had installed the indicator light;

25 B) I believed then and still believe that it's the

1 purpose of headquarters to establish a priority of things that
2 come in from the field.

3 And my basic conclusion was, yes, the FSAR did
4 address it, the idea of a PORV failing open, you know, was not
5 an alien concept.

6 But I knew, you know, for a variety of reasons
7 a relief valve could fail open. Target rock relief valves
8 in boiling water reactors periodically fail open. And I,
9 you know, understand that potential.

10 I felt I had dispensed an obligation, that a
11 condition had come to my attention; I had passed it on; I knew
12 that headquarters had seen it. They had researched it to the
13 point at least of establishing the FSAR.

14 And they had responded to me. In effect, a loop
15 was closed.

16 In that regard, the response was back, I got a
17 response; somebody had looked at it, somebody in a position
18 of looking at it from the perspective of the other things that
19 are going on; and they addressed the matter back to me.

20 I feel in that regard it was adequate.

21 I will again emphasize what I told the Kemeny
22 people: that had somebody gone to battle stations on this,
23 it would not probably have changed Three Mile Island PORV
24 failure, in that A), it didn't fail open because of an electrical
25 problem; and B) that valve does not lend itself as it was

1 presently designed in any form of direct position indication.

2 I thought it was a great breakthrough for safety
3 when they put the light in parallel with the celanoid. I
4 would have probably -- had I been asked: is that an
5 adequate position indication? -- would have said yes,
6 considering what would be necessary to get direct indication.

7 You have to essentially replace that valve, redesign
8 it.

9 I would have been -- probably I wasn't in a position
10 to do this -- but mentally I would have said the cost of
11 doing that comparing it to the benefit -- there are indications
12 that the valve is open.

13 And I also know that even when you have positive
14 valve indications you get problems in other valves with a
15 stem and a disc of a gate valve become disconnected, and the
16 stem clearly indicates the valve is open, although the disc
17 is fully closed.

18 There is so far you can carry this.

19 I think I would have been totally content in the
20 best of all worlds if the response had come back and said, yes,
21 we required all B&W plants to ensure that the valve fails
22 closed with loss of power and they put these indicating
23 lights in parallel with the celanoids.

24 And that would have in my mind been 99 percent of
25 the best of all possible worlds, rather than going in and

1 modifying the valve -- I don't think I would have felt it
2 was warranted or demanded it if I were totally in charge of
3 this thing.

4 Q What did you do after you received the response?

5 A Basically ignored the issue at that time.

6 As I said, at Three Mile Island-2 it was solved,
7 and I might have been sensitive to another occurrence.

8 I in the past when something didn't quite go the
9 way I wanted it, I became sensitized to it; and in reading
10 notifications from other regions or a book which I discussed
11 with the Kemeny people -- it's called Nuclear Power Experiences.
12 It comes out monthly and has very good summaries of
13 operating events and problems at plants.

14 If I had noticed something I might have resurrected
15 the issue. I've done that in the past.

16 A thing that I had been concerned with in the past
17 had been operator errors. I had tried to get an I&E bulletin
18 written on the subject of operator errors, and it was
19 not received.

20 Q What was the subject? What were the details?

21 A Well, if you want to see it, it did subsequently
22 did get issued after another event; and I was going to bring
23 it up.

24 I was sensitized to that issue, and after the
25 Millstone inadvertent criticality, I proposed the bulletin

1 again; and this time it was issued.

2 However, it was issued as a circular, I&E Circular
3 7607.

4 And I think I've got a copy of that if you're
5 interested, down in the car.

6 Q I've got a copy.

7 A Okay.

8 And the thing that concerned me was events which had
9 been occurring, and I think I used the words, "degradation
10 in defense-in-depth contribution of the operator". I strongly
11 believe that we were going to have a problem with operator
12 error, that it was going to play a significant role in it.

13 And again that became a point with me. It was
14 necessarily the licensed operator but the guy who was doing
15 tests, leaving valves closed, things like that.

16 Q Why wasn't the memo sent out or the circular sent
17 out when you first proposed it?

18 A Well, I had gotten involved in writing several
19 bulletins and circulars, and, again, it is a matter of, you
20 know, feeling defeat before you start.

21 I can remember the example of a bulletin I had
22 proposed. There were several having to do with switch gear;
23 that, you know, a response would come back, "we've checked
24 with a couple of plants, they don't have that problem."

25 To me that was missing the idea of the bulletin. The

1 bulletin was to go out to everybody, to alert to a problem,
2 you know, do a spot check through the other plants, see if they
3 have the problem, because it may be the fourth plant you would
4 have called that had the problem.

5 So the issue of headquarters issuing bulletins
6 and circulars had been one I had been involved with several
7 times in the past.

8 As a matter of fact, as I think about it now, I am
9 not even sure that I had written or proposed in writing a
10 bulletin before the Millstone criticality. I had discussed it
11 probably with Jim O'Reilly (phonetic), the Regional Director
12 at the time; and I think we reached the conclusion that it
13 wasn't the kind of thing that was going to get issued.

14 But he strongly supported it. As a matter of fact,
15 within about 20 minutes of the inadvertent criticality
16 notification in Region-1 he directed me to go ahead and write
17 the bulletin about operator errors.

18 Q I guess I still haven't quite figured it out: what
19 was the reason he felt it would not get issued?

20 A I guess I no longer can remember enough to be
21 meaningful to the thing here. I don't remember whether I had
22 written one. I can remember that at the time of the criticality
23 I felt that we had enough at this point to go with one.

24 Q What sort of reasons would form a basis for not
25 issuing a circular when someone felt that there was a need to

1 issue one?

2 A I really don't know what went into that kind of
3 decision. I still don't know.

4 BY MR. PARLER:

5 Q That was a decision that was made at headquarters,
6 I understand; was it?

7 A I don't recall on that particular bulletin whether
8 we attempted it in writing or not. There's no doubt in my
9 mind that at the time of the Millstone criticality I knew that
10 we had enough justification to try it; whether or not I felt
11 before there weren't enough specific examples, I had been
12 involved in several events that were operator error contribu-
13 tions which were significant.

14 And I felt that this was an issue that had to be
15 addressed. And clearly at the time of this criticality we
16 went ahead and wrote that proposed bulletin.

17 I was basically disappointed it was not issued as
18 a bulletin. I can remember mentally saying to myself: be
19 grateful at getting it out; don't fight the battle that it's
20 a circular not a bulletin.

21 The significant difference is that there's no
22 action required of a licensee with a circular, whereas in a
23 bulletin licensees would have had to commit in writing to what
24 they would have done in response to that, what was issued as
25 a circular.

1 Q And where was the decision made to issue it as a
2 circular rather than as a bulletin?

3 A In headquarters, and I don't know where or by whom.

4 Q Do you have -- you submitted it as a bulletin?

5 Did you submit just the document as such, or is there a cover
6 letter that says why it ought to be a bulletin as opposed to
7 a circular?

8 What are the mechanics of that?

9 A You propose it in the form you would like to see it
10 issued. It's proposed as a bulletin.

11 Q All right.

12 A And in terms of a cover letter, no, I don't think
13 a cover letter -- I don't think justification is necessary. The
14 idea is it is supposed to be self-standing.

15 Yuh, but the argument, the decision of whether it's
16 a bulletin or a circular is not included in the bulletin itself.

17 Q So it would seem as though there were going to be a
18 decision made, particularly if there's a chance that the
19 decision would be made to issue it as something different
20 from what you originally proposed, that you would want to
21 include some sort of description or justification of why you
22 had prepared it as what it was, as a bulletin?

23 A Well, I don't know the answer to that question.

24 I can tell you that it is not significantly different
25 today than it was then in terms of getting something issued as

1 a bulletin.

2 Q So you write these things up as a bulletin, you send
3 them in to headquarters, and it may be issued as a circular?

4 And headquarters, based on their decision without
5 any input from you issues what they feel -- issue it in
6 whatever form they feel it ought to be?

7 A Two things: one, there are criteria, and it is
8 stated in our manuals what is a bulletin, what is a circular;
9 secondly, the battles which I have been having recently in that
10 area have not been on bulletins or circulars I have proposed,
11 but those that have come across my desk for review being
12 forwarded as a circular as issued and sent out to all regions
13 for comment.

14 Okay, and in my comment on a lot of the circulars
15 I say, these should have been bulletins, that they should
16 demand action of licensees.

17 Essentially the circular says all the right things
18 but doesn't require it. And essentially a licensee could
19 ignore it.

20 The responsibility then effectively shifts to the
21 inspector to review what has licensee done in response to that
22 circular. Well, legally, the licensee could do nothing and
23 become compliant; typically, the licensee is responsive to the
24 circular, not because he has to but because he is respon-
25 sible.

1 And it just seemed to me that in a large number of
2 cases things are issued as circulars which should be issued
3 as bulletins.

4 I am not familiar with, you know, what are the
5 reasons and problems that go into that decision-making
6 process.

7 I know I have had frequent discussions with our
8 headquarters up to now because one of my jobs in my current
9 position is to review bulletins and circulars when they come
10 into the office and pass on our comments back to headquarters.

11 And if I were to look for the single-most common
12 element it is, you've got the right subject material, but I
13 think it should be a bulletin not a circular.

14 Q What happens, do you make those recommendations in
15 the response you provide?

16 A Yes, quite often they over the telephone; sometimes
17 they are in writing.

18 Q How many of them have in fact been elevated from
19 circulars to bulletins?

20 A One that I am aware of.

21 Q Out of about how many you have recommended on?

22 A Five to ten, I imagine.

23 Q Getting back to the memo that you wrote in the
24 March 29 incident, did you feel that that incident had any
25 generic implications?

1 A Yuh.

2 I had indicated in the memo I thought it should be
3 reviewed at TMI-2 and all B&W plants.

4 Q The solution that the utility proposed of changing
5 the valve to fail shut and putting an indication, did you feel
6 that that had any generic implications? -- that that should
7 be implemented on other plants?

8 A I think I forgot. The Kemeny Commission asked me
9 the same question, and somehow it had been solved in my mind
10 at Three Mile Island and what the other plants were doing at
11 that point sort of escaped me.

12 I know it was a concern when I wrote the memo,
13 because I thought it would be part of the system supplied by
14 the NSSS; and when I got the response I had been trying to
15 think why I did not propose a bulletin or a circular at the
16 time; and it was basically a very simple, straightforward
17 matter.

18 There were a limited number of plants, it was a
19 simple question to ask; and it seemed to me Licensing was
20 the one that could get the information and make the change
21 necessary, you know, to go out and tell them, you know, to
22 make sure it goes this way instead of that way.

23 And it is not -- for example, the bulletins I
24 had written in the past had to do with, if you had this
25 particular model GE circuit breaker, there's a problem with the

1 ratchet, or something. God only knows where they are in the
2 plants who has them, you know; that requires some research.

3 So I think the reason I didn't even consider a
4 bulletin at the time, it was a rifleshot kind of thing; it was
5 a very clean question. That's why it only took one paragraph
6 essentially to raise the technical concern and, you know,
7 request the action required.

8 Q Licensing never knew about this, they never
9 were involved in any of this exchange?

10 A Well, I would not swear to it, but there's no doubt
11 in my mind that Harley Silver heard my concerns.

12 And again I'm not trying to put Harley on the spot
13 because it may be that I am wrong. But I have a feeling
14 that in my discussion with Harley which was very frequent,
15 that I raised that issue.

16 BY MR. PARLER:

17 Q I have a question:

18 I gather from some of your responses that it is
19 typical for a person in the regional office, such as yourself,
20 to have frequent contact with the project manager for a
21 particular plant.

22 On the other hand, when an inspector such as yourself
23 in a regional office has a significant, potentially significant,
24 safety matter, that may have generic implications brought to
25 the attention of the headquarters people, that in such a

1 situation that the individual inspector has to go through
2 I&E Headquarters, is pretty much bound by the decision of I&E
3 Headquarters.

4 Is that understanding of these channels of communica-
5 tion correct?

6 A Yuh, I think it's essentially correct. There has
7 never been any suggestion about prohibition of direct
8 communications over the telephone with the licensee project
9 manager.

10 But in terms of really getting into -- I can
11 remember on the sodium hydroxide issue that I kept imploring
12 Harley to get somebody to do something in licensing to get
13 this sodium hydroxide situation corrected.

14 And I can remember his telling me that he had gone
15 up and talked to the reviewers and that nobody seemed to share
16 our concerns; that he, you know, didn't seem to find a vast
17 responsive audience out there with that kind of concern.

18 That suggested essentially to me that had I gone
19 through the formal route that it wouldn't be particularly
20 different.

21 There's a point here on the PN which is issued
22 -- by the way, the region proposed a preliminary notification;
23 headquarters makes a decision whether or not to issue a PN.
24 The region is then informed whether or not the PN has been
25 issued. And PNs do get over to NRR.

1 And in that PN which I had written, I believe
2 there's probably some reference to the relief valve failing
3 open, which, you know -- yuh, I did indicate it, does open
4 in loss of power.

5 Q The PNs which are issued get over to NRR, but I
6 guess a PN, if somebody at I&E Headquarters decides not to
7 issue one, then there is a chance that NRR will not know about
8 the situation?

9 A Yuh.

10 Let me emphasize that a PN is a separate piece of
11 paper. It is sort of like a news flash, compared to a
12 request for action, which, you know, goes another route.
13 NRR does get PNs and that does get over to NRR.

14 Q Are the majority of PNs which are proposed by
15 regional offices, as far as you are aware, issued by
16 headquarters?

17 A Yuh, I would think it would have to be an extremely
18 trivial matter before it isn't issued by headquarters; or
19 it may be coming in from a lot of different plants -- for
20 example, if a Part 21 report comes in and that affects all
21 Westinghouse plants, each region may submit a PN for each
22 licensee that calls it in.

23 But headquarters will only issue one PN perhaps
24 on the subject.

25 So, yuh, I don't think there's been any problem

1 in PNs not being issued.

2 BY MR. HEBDON:

3 Q Were there any other aspects of the March 29, 1978
4 incident at TMI that are relevant to the March '79 incident
5 at TMI?

6 A I think there's something I was reading, someone
7 may have suggested it -- the high pressure injection pumps
8 had been secured -- oh, they were secured during the March 29,
9 '78 event.

10 But again there was no essential need for safety
11 injection, and the reason for securing them was one I agreed
12 with completely, to minimize sodium hydroxide being injected
13 into the reactor coolant system.

14 There wasn't any real concern on fuel damage, as I
15 said, the core was essentially clean.

16 Q The next few questions concern the relationship
17 between I&E and the Region and some of these things we've
18 already touched on; but I would kind of like to go over them
19 again just to have a complete discussion.

20 What is your general perception of the relationship
21 between I&E Headquarters and the I&E Regions?

22 A Well, I can speak from an interesting point: I've
23 now been in two regions; I started in Region-1 and now I'm
24 in Region-5.

25 For one thing I would say it does not significantly

1 differ between the two regions.

2 The regional office feels that it has its mission
3 assigned to it and that periodically as a result of the
4 guidance which is provided with interaction with headquarters
5 is required.

6 I am not quite sure what to answer your question
7 with, since I am not sure specifically what you are getting
8 at.

9 Q Well, is it more of a friendly relationship or more
10 of an adversary relationship?

11 A I think it is definitely friendly, definitely one
12 of, you know, people basically know each other, know the
13 problems each other has, you know, respects the problems;
14 each understands the other's mission and the objective of,
15 you know, all of them getting the job done the best they
16 can with the available resources.

17 I would not in any way characterize it as an
18 adversary one.

19 I think there are times when there are differences
20 of opinion resulting from a difference of perspective on
21 given issues, but, typically, it is not a hostile one.

22 BY MR. PARLER:

23 Q Is the mission as you understand it, Dan, of
24 I&E Headquarters essentially the same as the mission of
25 regional offices?

1 A No.

2 I characterize the mission of I&E Headquarters
3 as basically interfacing with the outside world, namely,
4 all the other offices within NRC, Congress, the public, in
5 developing programmatic guidance for the field office. I
6 consider that a different mission than the regional office,
7 which is, as I said earlier, the eyes and ears of the NRC
8 to go out where the plants are to ensure that the plants are
9 really the way the people who license them and establish the
10 standards think they are, and to surface issues where correc-
11 tions may be required.

12 BY MR. HEBDON:

13 Q Would you say I&E Headquarters enhances or hinders
14 your efforts to perform what you consider to be your function?

15 A I think they provide an essential leveling action,
16 that there is no doubt in my mind that there are differences
17 in the aggressiveness of inspectors, branch chiefs, regional
18 directors; and that they provide some sense of uniformity.

19 They collect good ideas and recommendations where
20 they exist in the field and disseminate them in the program
21 to everybody; and if necessary -- I am not sure I could cite
22 an example, you know -- essentially come back to a region
23 and say, knock it off, or get started in this area; you are
24 not doing enough.

25 I think in that sense they provide and complement

1 the I&E field.

2 Q What is your perception of the relationship between
3 I&E regions and NRR?

4 A There probably is very little formal connection
5 between the regions and NRR. There is probably a great deal
6 of informal relationship with project inspectors and as I say,
7 project managers, because of problems which occur where a
8 licensing project manager wants to know about something
9 or there is a meeting and we're involved in the same meeting.

10 Sometimes when a concern was issued it was also
11 an NRR meeting, the LPM, Licensing Project Manager is there.

12 So it is not that I feel I am a well-known fixture
13 in licensing as an inspector, but I am a lot closer to NRR
14 than I would be, say, to Congressional Affairs or Standards
15 Development people.

16 Q Do you feel that the I&E and NRR relationship
17 facilitates the feedback of operational experience in the
18 licensing process?

19 A Not directly. I am not sure, you know, what
20 mechanism does exist to do that; but I do not think at the
21 field level stuff gets fed directly to licensing, other than
22 through an informal phone call.

23 Q Doesn't get fed at all? You say it doesn't get
24 fed directly; does it ever get there?

25 If you have a concern, for example, that you didn't

1 think it was a good idea that PORVs fail open. Do you think
2 that concern, by whatever mechanism, ever got to the licensing
3 reviewer who reviews the particular place in the PSAR where
4 it say that valve fails open?

5 A Part of it is. I have a feeling NRR does get
6 quality information, the LERs somehow find their way over
7 there.

8 My feeling is I know if they are like me they've
9 got their day-to-day things and a great deal of mail gets
10 routed through them, or it may even get routed down to the
11 LPM.

12 So part of my job is to help highlight, call atten-
13 tion to something, you know, hey, remember the thing you
14 saw last week, you want to take a look at that second line
15 because in there is a whole hummer kind of thing.

16 The licensee event reports do get distributed.
17 God knows, they must get distributed somewhere; licensees
18 have to submit 30 copies.

19 So I know that, you know, the stuff is there. When
20 I feel particularly strongly it has to be highlighted so as to
21 make sure it doesn't slip through the cracks, I, you know,
22 will go this route of writing the memo.

23 Q Well, two things from that, though, first, the memo
24 the concerns that you raised in the memo would not have been
25 reflected explicitly in the IER; and the memo that you wrote

1 never got to NRR?

2 A Well, I would have expected I would have gotten it
3 to NRR when I wrote it. It was there, it was there in the PN,
4 the fact the valve failed open in loss of power. It was
5 probably there in the LER and the 14-day report.

6 But there's no doubt in my mind that sometimes you
7 can get something and perhaps the significance of what you are
8 reading is not quite as apparent as some of the one-liners.
9 And that may not be the best thing.

10 So, you know, it may be how much time a person has
11 to devote to analyzing a given incident; and, you know, I&E
12 I think is tasked with spending more of its time analyzing
13 operational incidents than the licensing project manager,
14 who is looking at a totally different aspect of the nuclear
15 power plant.

16 Q Do you feel that it's a weakness of the system
17 the fact that you focused on that one particular problem and
18 never got to the licensing half of the process?

19 A Yes.

20 Q Do you feel it's a significant weakness or that
21 it's something we ought to try to do better on? How significant
22 do you consider that to be -- how significant a problem do
23 you consider that to be?

24 A Enough that the task force I am on -- what I&E
25 should do differently as a result of TMI, a preventive task

1 group; it's one of the things I have addressed a proposal to
2 I&E Headquarters to improve that particular path of
3 communications, both establish joint working groups and to
4 essentially establish an automatic appeal.

5 For example, with my memo, one that's decided no
6 further action would be taken, it would automatically then
7 get sent out -- I am proposing; again, it's just a proposal
8 that has not even been reviewed by our I&E management -- that
9 it would go over and get concurred in by NFR somewhere
10 either at the LPM level or some level.

11 So that rather than have to use it as an opinion
12 a dissenting view -- whatever the right word is -- that method
13 where you have to go in and appear; you know, say, I am
14 dissatisfied with this, I appeal it to a higher level; that
15 there be an automatic appeals process built-in.

16 And if nothing is going to happen then you get that
17 at least from two independent organizations, both of which
18 have overview responsibility for the identified problem.

19 And I feel something like that might go a long way
20 towards reducing the probability that something that should
21 have action taken on it would not get action accomplished.

22 Q Is there a method in I&E to exchange information
23 among inspectors in similar plants in different regions?

24 A Well, the morning report is disseminated to all of
25 the regions.

1 Q Does that get down to the inspector level?

2 A It's made available, it's posted on the bulletin
3 board where the inspector has access to it.

4 Management will particularly review and highlight
5 and circulate an interesting morning report that may appear to
6 have a high level of significance or something of generic
7 applicability.

8 PNs from one meeting are distributed to all the
9 other meetings.

10 Q How much attention do these normally get from
11 the inspectors if you are an inspector on a B&W plant, do you
12 have the time or the inclination to review in any detail
13 the PNs from the other B&W plants?

14 A I think the key word there is "in detail". You
15 can't read it in any more detail than it's written.

16 Q That's part of the problem, of course, in fact it's
17 usually one page?

18 A Yuh.

19 If you read it, yuh, you can absorb it. It may
20 trigger a similar occurrence or you might, you know, be
21 more sensitive in your next inspection to something that
22 may have contributed to that.

23 Q You don't ever have a meeting of all the B&W
24 inspectors, that sort of thing, sit down and discuss problems
25 and concerns?

1 A No, you don't. Some of that does take place through
2 the schools they are conducting, the PWR, BWR school; but
3 there is no real counterpart meeting; although they are having
4 counterpart meetings for the resident inspectors. That's not
5 so much to discuss what's going on at the plants, but aspects
6 of the inspection program.

7 BY MR. PARLER:

8 Q I&E Schools?

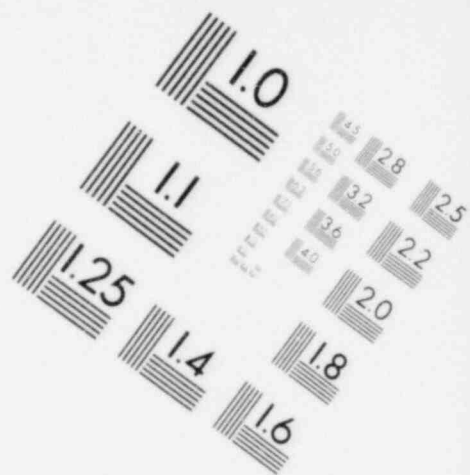
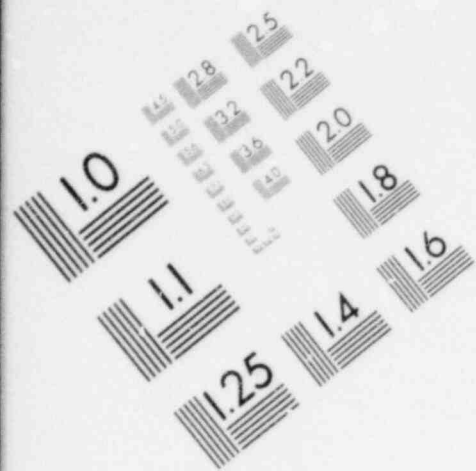
9 A I&E has their own training center.

10 Q This morning report you referred to, I've seen
11 references to it in other places -- who originates that
12 report?

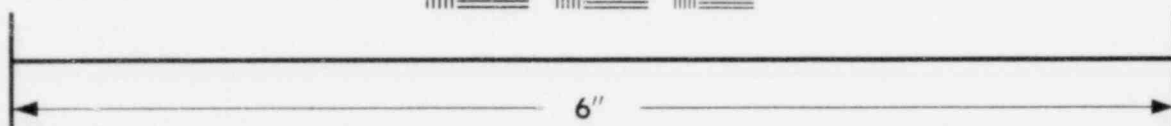
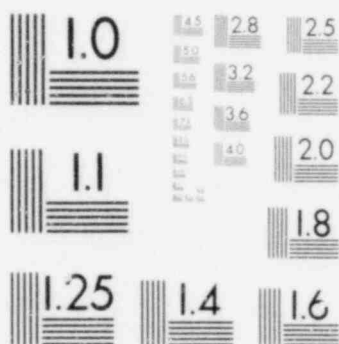
13 A It is done in the regional office. It is done
14 typically by the inspector or his section chief. There are
15 criteria as to what items should be included in the MR,
16 covered by one of our manual chapters.

17 Typically any prompt report of a licensee event
18 is included in the morning report the next morning, even if
19 it had previously reported with preliminary notification; and
20 then sometimes significant 30-day reports are also included
21 in the morning report, and things like licensee meetings
22 are included in the morning report.

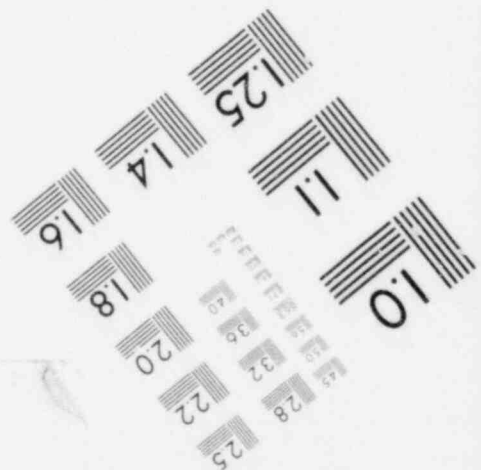
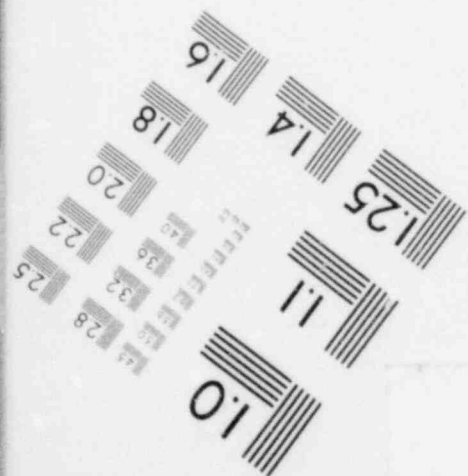
23 They are generated at the regional level and then
24 sent in on one of our communications systems to headquarters
25 where it is compiled and distributed internally.

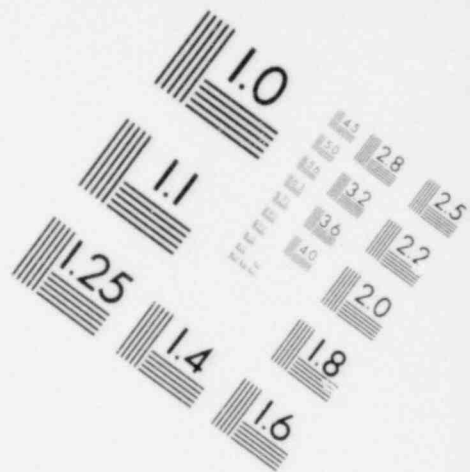
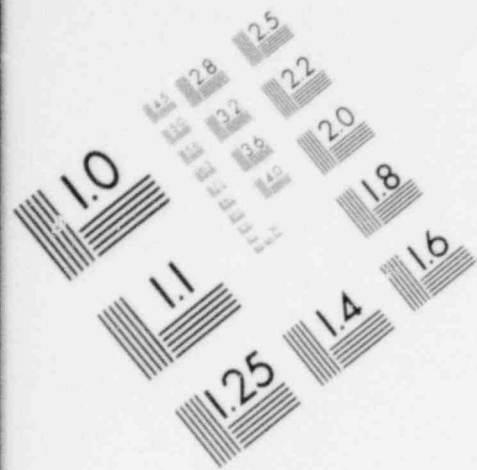


**IMAGE EVALUATION
TEST TARGET (MT-3)**

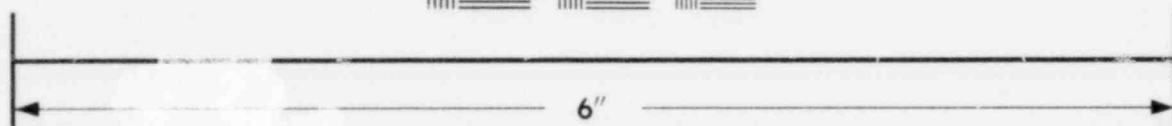
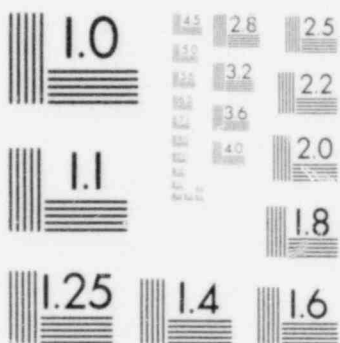


MICROCOPY RESOLUTION TEST CHART

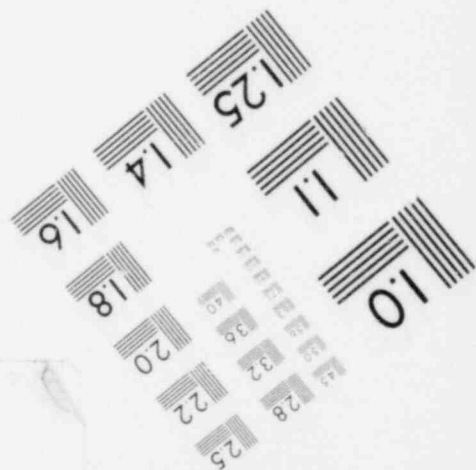
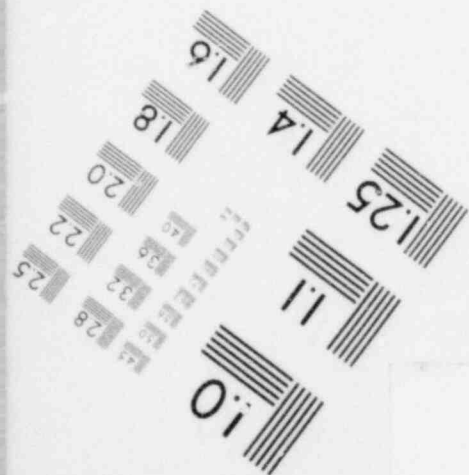




**IMAGE EVALUATION
TEST TARGET (MT-3)**



MICRO COPY RESOLUTION TEST CHART



1 Plus we distribute it out to the fields.

2 Q The reports cover things that have been evaluated
3 during the past 24-hour period, or what?

4 A Not so much evaluation, just things which have
5 occurred.

6 Q Have occurred?

7 A For example, the morning report for the 30th March,
8 I hope, would have indicated that there had been a safety
9 injection of sodium hydroxide event at TMI-2.

10 Q In other words, all of the occurrences in a reactor
11 of a particular region?

12 A All the significant ones. The significance, it's
13 not as objective as it sounds; it's basically all the prompt
14 reports and significant 30-day reports.

15 Q Does I&E review plant procedures?

16 A Yes, it does.

17 Q From what perspective? What is the purpose of
18 their reviewing?

19 A To ensure that they exist, to ensure that they
20 cover the plant conditions for which they are required to have
21 procedures.

22 The review looks at things in terms of, is there
23 -- are there proper precautions, are there retest requirements,
24 is it in the required format?

25 And finally review for technical adequacy of the

1 procedure.

2 Q Is consideration given to what the operator is
3 going to see and what the operator is going to do ^{with} what he
4 sees?

5 A I don't think anything that explicit is spelled out
6 in ther requirement and I don't from my own personal experience
7 in looking at procedures.

8 That is not to say that other people who look at
9 them might not include those; but typically it does not get
10 to that level of review or attention to that type of detail.

11 Q Do you know if anyone reviews these procedures from
12 that sort of perspective?

13 A I am not aware of any; no.

14 Q When you review a procedure you mentioned you look
15 to see if precautions are in the right place; do you look at
16 the procedure and say, here's a place somebody could really
17 go astray; there ought to be a precaution here?

18 Do you look at a procedure from that sort of perspec-
19 tive?

20 A Yes. If that issue, you know, if it jumps out
21 at you.

22 Quite often as a result of evaluating an event at
23 a plant I will discover problems with the procedure. I would
24 say a majority of the time when we review an event, especially
25 if there's been an item of noncompliance, it results

1 in a revision to the procedure. And quite often it's the
2 adding of a precautionary note or things that I have gotten
3 involved in in the past; that is, if given a calibration is
4 done to eight pressure switches, and I found that two of them
5 have been left off, I'd go back and I say to the licensee,
6 what you need is to sign off for each of these eight pressure
7 switches so that, you know, it won't be forgotten that two
8 of them were left closed.

9 You know, sit down and mentally think through
10 the procedure and think of, you know, well this would be an
11 ambiguous indication or, you know, there's really a good
12 chance you might misinterpret it.

13 No, I've never gotten to that level of detail. I
14 don't know if that is typical of the typical inspector, but
15 I suspect it is not that atypical.

16 Q If you find something in a procedure that you feel
17 raises a concern, do you have a mechanism where you can pass
18 that word around to inspectors from other plants that are
19 similar in design?

20 A Not a simple one I can think of, other than the
21 bulletin.

22 Q You would have to issue a bulletin or circular, then,
23 to get that word to the other people?

24 A Yuh.

25 I am trying to think of examples where another

1 mechanism exists. I'm sure when I go home I'll think of one,
2 but I can't think of any that would do that.

3 Q Do you review all the procedures, only emergency
4 procedures?

5 A I personally have not reviewed that many procedures.
6 In Region-1 they had inspectors who were assigned the
7 responsibility for reviewing procedures. I never was one of
8 those people.

9 My actions in reviewing procedures typically were
10 a result of following up an event at a plant; and I would
11 look at the procedures which were being used or the proposed
12 revision to that procedure to correct the problem which had
13 been identified.

14 Q Do you ever get involved in reviewing the Metropolitan
15 Edison's emergency plan?

16 A No, I did not.

17 Q Do you happen to recall the names of anybody up
18 there that did get involved in such a review?

19 A If you mean literally the emergency plan, that
20 is another branch. If you are talking about emergency
21 response procedures, for example, having to do with
22 pressurizer level and stuff, that's another thing.

23 BY MR. HEBDON:

24 Q I think he's asking both at the same time.

25 A The emergency plan is looked at by the emergency

1 planning officer.

2 Q Do you recall who is in charge of the group that
3 would review the procedures, plant procedures, emergency
4 procedures?

5 A The section chief.

6 Q There is a section that's responsible for procedures?

7 A Yes, and I do not know -- they've been reorganized
8 subsequently; but it was a section.

9 Q Okay, I can find out.

10 A It would vary with time. Ebe McCabe had it for a
11 while and others. They were procedures, quality assurance,
12 requalification training.

13 Q When you review an incident, you see an incident
14 that occurs at a plant and you perform a review, do you
15 review the incident as it occurred; or do you attempt to
16 extrapolate it to a worst-case condition and see what could
17 have occurred?

18 A That's a very general question.

19 I think I tend to extrapolate, but not wildly, in that
20 one can hypothesize almost anything leading to something
21 cataclismic.

22 Q Would you go to the extent of saying if that incident
23 occurred at 10 percent of power, I wonder what would have
24 happened if it had happened at 100 percent power?

25 A If it becomes obvious that it's a sensitive parameter

1 or something dependent power level or core history or something
2 even if you read that circular I wrote, when I did a lot of
3 the research for the things I was concerned with in operator
4 error, it became obvious to me that an overwhelming number
5 of these things, had they occurred in coincidence with something
6 else, could have been serious.

7 And you tend to keep that in the back of your
8 mind all the time.

9 But in terms of, you know, running a sensitivity
10 analysis to 10, 51 different variables, no; you typically
11 don't do that.

12 You know, certain things, for example, we had a
13 circular on high start-up rates on BWRs, short-period scrams;
14 and it was clear that those events were strongly dependent
15 on the xenon in the core, temperatures at the time of the
16 event, things like that.

17 So that you do look at those events or you even
18 get an analysis done by somebody else if it is that sensitive.

19 Q If you were to recognize a problem as a result of
20 one of these types of analyses would that fall into the
21 category of inflammatory terms that you felt you ought to
22 avoid?

23 For example, would you have considered it inappropriate
24 to use a statement in a report to the effect that if this
25 event had occurred at 100 percent power, significant damage

1 could have resulted?

2 A I think we avoid putting things like that in those
3 inspection reports. I think we have been schooled, trained,
4 conditioned, whatever, to keep judgement out of it.

5 Now, it's not exactly judgment, but it does not
6 particularly relate to the event.

7 Now, that might, if that were apparent to me,
8 be justification, you know, to request something else outside
9 an inspection report. That's the purpose of the inspection
10 report, to present the facts of what did occur, not to serve
11 as an SER or a probabilistic analysis.

12 It is to document? here are the conditions, here's
13 what has occurred; here's what the licensee has done as a
14 result of this.

15 That is not the form, it is not a matter that it is
16 inflammatory, it is just not the appropriate place.

17 Q But you would feel it was appropriate to write
18 such an incident or such a concern in a memo to someone saying
19 this needs more study.

20 Q Prior to March 28, 1979, prior to the accident at
21 TMI, what knowledge did you have concerning an incident
22 that occurred at Davis-Besse September 24, 1977?

23 A Very little if any. I can't recall any direct
24 knowledge.

25 At this point it's becoming very confused as there's

1 so much attention to it subsequently.

2 You know, I think I'd be hard-pressed to say
3 whether Davis-Besse was an operating plant or not; it's a
4 different region.

5 And since going to Region-5 I don't have any
6 responsibility for B&W plants and particularly sensitive
7 issues on B&W plants. I think I was hardly aware at all.

8 Q Ranco Seco is a B&W plant?

9 A It's not in my section; the section chief has it
10 and may be more aware than I.

11 I am just saying I have no real reason to be
12 sensitive to B&W.

13 Q The incident occurred at Davis-Besse, of course, was
14 while you were still in Region-1, and while you still had a
15 B&W plant; does it surprise you particularly knowing now what
16 you know about the incident, does it surprise you that you
17 did not know about it before the TMI accident?

18 A No, not at all.

19 There are just so many things which happen. That,
20 again, is a point that I made about saying to the licensing
21 manager, look at the second line of that thing.

22 If somebody starts waving a red flag, my attention
23 is very rapidly drawn to it. But unless for some reason
24 I am particularly sensitive to it, I have this innate belief
25 in the system that if it's really significant somebody

1 else in a parallel position as mine will recognize and,
2 you know, do the appropriate thing.

3 Q Well, as a result of that incident at Davis-Besse
4 the inspectors raised a concern because of the fact the
5 operator secured the high pressure injection pumps and had
6 added to the emergency procedure a note prohibiting the
7 operator from securing the high pressure injection pumps,
8 and cautioning him to look to see if possibly a relief valve
9 was stuck open.

10 That precaution is not in the emergency procedure
11 at TMI.

12 Does it surprise you that you are not aware that
13 that precaution was requested by the inspector, and in fact,
14 added to the emergency procedure at Davis-Besse?

15 A It does not surprise me. I wasn't aware of it, it
16 doesn't surprise me at all. It wasn't in the TMI procedure.

17 BY MR. PARLER:

18 Q How about it surprises me that you were not aware of
19 that situation by someone in the organization?

20 A No, it doesn't surprise me at all. I would
21 characterize that as a detail that typically would not
22 surface up the organization, across, and back down.

23 Of equal concern to me is extremely broad variation
24 in quality and depth of procedures from one facility to
25 another. There is very little available other than

1 jawboning by the inspector to bring about equally good
2 procedures from one facility to another.

3 There is no strong mechanism, if you will, like I
4 always try when I find a good procedure at one plant, I try
5 to let another plant know about it.

6 And again it's on relatively few occasions I have
7 done that.

8 Again, getting back to an interesting mission at
9 I&E: I&E's job is not to act as consultant. Okay? You
10 sometimes feel you are even stepping outside what you are
11 supposed to do when you say, why don't you check with, you know,
12 that plant down there? They've done a good job of developing
13 a procedure for this.

14 That is not really our mission. I have done it
15 on occasion, you know, for a specific reason; and I do have
16 concerns that one plant has extremely good procedures and
17 another plant, you know, has procedures that are, if you will,
18 that meet our requirements, but aren't anywhere near as good
19 as, you know another similar plant.

20 Q -- How do you draw the line? Or can you draw the
21 line between not being a consultant and on the other hand
22 being vigilant to assure that the word is passed about something
23 that is very important for them to understand from the point
24 of safe operation, especially something that is very important
25 for that purpose that is based on fairly recent operating

1 experience?

2 A Well, I am not sure that I would have recognized
3 in advance the safety significance of the cautionary note
4 you mentioned of the high pressure injection pumps and to
5 suspect a PORV may be stuck open; so even had I at one plant
6 seen that and gone to the next plant and seen it -- and I
7 might say, if you want to avoid the next Three Mile Island
8 you better add this precaution, this note.

9 My hindsight is much better than my foresight.

10 Q To what do you attribute this inconsistency in
11 the quality of the procedures?

12 A Different organizations, the different capability of
13 the organizations, the size of the staff, the experience of
14 the staff, if you will, the evolutionary nature of the
15 process, the newer plants, they will hire 500 procedure
16 writers from the outside to generate 200, 300 volumes worth
17 of procedures.

18 The older plants the procedures basically evolve
19 when problems are identified, the corrected procedures were
20 added as a result of events.

21 In some plants, a single utility or a utility that
22 only has one nuclear power plant tends to do things differently
23 than the utility that has six or eight plants or belongs
24 to an organization like the Yankee organization where a
25 service company is providing support to all of the plants in

1 the organization.

2 And again, it may be that one plant that had bad
3 operating procedures by my definition -- and not to say that
4 they are not acceptable may have good health physics procedures
5 and good chemistry and HF procedures.

6 And again, the idea of what good it may be that
7 an extremely good procedure might not have that one cautionary
8 note in there, which would be an extremely serious flaw
9 perhaps, but it might be significantly better than a three-step
10 procedure in another plant which had that note in it.

11 So I don't really have an answer to your question.

12 BY MR. PARLER:

13 Q On the basis of your experience are there any
14 communications channels informal or formal that typically
15 exist between a vendor and the regional inspectors?

16 A There is practically zero interaction between
17 the NSSS, the AE and the operational inspector. I am not sure
18 during the construction phase at all what takes place; but
19 I don't think I can ever recall talking to anybody in GE,
20 Westinghouse or B&W.

21 BY MR. HEBDON:

22 Q How would you rate the quality of the procedures
23 at TMI compared to the other utilities, the other plants you
24 are familiar with?

25 A I've never looked at them; I really don't know.

1 I've never looked at them at Unit 2.

2 I did inspect at Unit 1. I was there for the initial
3 criticality of Unit 1.

4 I remember having a fight with the station
5 superintendent at Unit 1 relative to valve line-up and valve
6 line-up checks; and there was a reluctance on the part of the
7 superintendent to form a valve line-up prior to criticality
8 at Unit 1.

9 As a result I did not feel I had strong regulatory
10 basis for doing anything.

11 I went out and compared some valves to some valve
12 line-ups, found valves in apparently the wrong position;
13 brought this back to the attention of the superintendent;
14 a valve line-up check was then performed by the licensee
15 which identified I think somewhere like 20 or 30 valves that
16 were in the wrong position.

17 And I do recall that event in great detail.

18 A) I felt frustrated there did not appear to be
19 regulatory requirements to compel the licensee to perform
20 the valve line-ups on the safety systems prior to taking --
21 the plant critical for the first time; and that I felt relieved
22 I did think of some way, you know, of getting something
23 done.

24 It resulted I believe in a noncompliance with
25 inspection report for failing to follow procedures, and again,

1 I was an extremely new inspector at the time. And maybe I
2 know of a better mechanism now, that there are ways in the
3 QA program that you would require qualifications tests.

4 But valve checks as this are not in the requirements
5 as I understand them now.

6 So in terms of your question about TMI procedures,
7 they do not have a procedure to do that, and I feel somehow
8 it's related to the TMI-2 event.

9 Q Do you know of any other precursor events that
10 are relevant to the accident at TMI?

11 A Hundreds in terms of things like valves being
12 left closed while on surveillance test; there are probably
13 hundreds relative to relief valves failing open, particularly
14 in boiling water reactors.

15 In terms of things like the anomalous level of
16 indications, I am not aware of any.

17 Q Do you have any additional information that might
18 be relative to our inquiry of the events surrounding Three Mile
19 Island?

20 A No, I don't.

21 Q Do you have anything else to add, any comments?

22 A I do not.

23 BY MR. PARLER

24 Q Dan, I understand you were at Region-1 for most of
25 the period TMI-1 was in operation; is that correct?

1 A Yes, I was there the whole time. I was there for
2 the initial criticality.

3 Q I realize this is a very general question: Would you
4 describe the general operating experience of TMI-1 as being
5 good?

6 A Yes.

7 Q You were also at Region-1 during some of the
8 operation of TMI-2?

9 A Under prelicensing through initial criticality, and
10 severa months after that.

11 Q Would you consider the operating history of TMI-2
12 from February 8 '78, or whenever initial criticalty was
13 achieved, through December 30, 1978 as being good -- or how
14 would you describe that operating history?

15 A It seemed to me that things kept happening there.
16 I couldn't understand at first why they were happening, until
17 I realized how different Units 2 and 1 were.

18 One of the immediate problems we were faced with
19 was the secondary steam safety valve problem which I believe
20 kept Unit 2 down for four months. I was involved right in
21 the beginning directly with that.

22 I think that was one of the things that caused one
23 of the subsequent blowdowns, was the excess cooldown rate
24 from the stuck-open safety valve.

25 And, you know, I couldn't understand, how come

1 they are having, this problem? Then I discovered it's a
2 different piping arrangement, different relief valves, the
3 bird screens are blowing out; then I discovered, you know,
4 how different Unit 2 and Unit 1 were.

5 Q Before March 28, '79 and during this period, I asked
6 you a question about -- that is February to December 1978,
7 were you aware of any efforts on the part of the utility to
8 rush the plant into operation, so that they could get the
9 plant into commercial operation by the end of 1978?

10 A I think the term "rush" is very subjective.

11 I think I've never seen a nuclear power plant that
12 is not anxious to get ready for licensing critical operations.
13 My feeling is that nobody is interested in dragging that out
14 any longer than necessary; that people tend to be very
15 responsive during this period of time, you know, looking at
16 it perhaps from a narrow point of view, it is easier to get
17 the licensee to commit right prior to licensing to things
18 that may not have a strong regulatory basis.

19 You want something done and they tend to be more
20 compliant with the idea of being, let's get it over with. I
21 don't know how I would gauge this, you know, fear of people
22 rushed or taking short-cuts; I personally believe that there
23 are no short-cuts taken.

24 BY MR. LEBDON:

25 Q Have you anything else to say?

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A No.

MR. HEBDON: Thank you very much. That concludes the interview.

(Whereupon, at 3:14 p.m., the interview was concluded.)