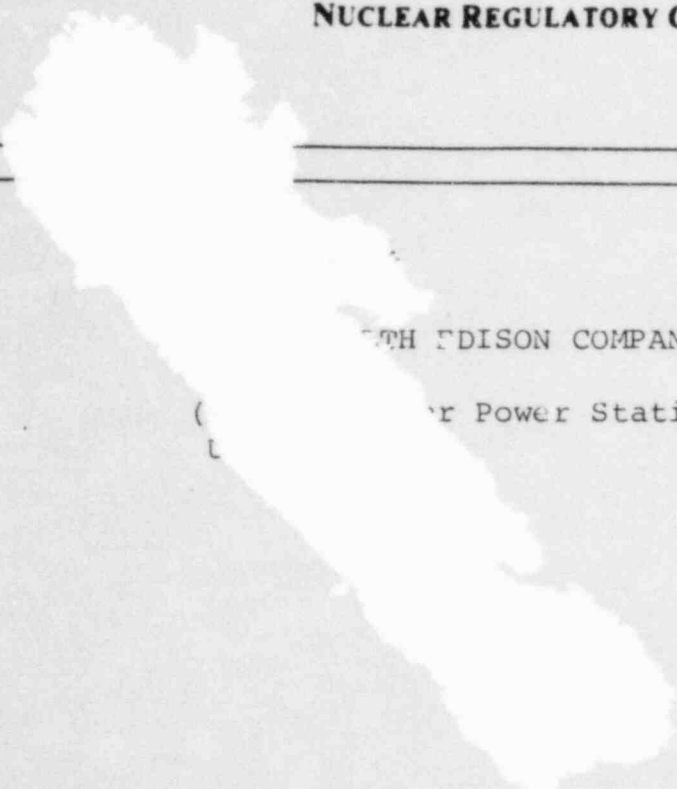


ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION



EDISON COMPANY

() Power Station,

Docket No. 50-454 OL
50-455 OL

Location: Rockford, Illinois

Pages: 9675 - 9915

Date: Tuesday, Jul. , 1984

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY & LICENSING BOARD

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 In the matter of: :
 :
 COMMONWEALTH EDISON COMPANY, : Docket Nos. 50-454 OL
 : 50-455 OL
 (Byron Nuclear Power Station, :
 Units 1 and 2) :
 :
 ----- x

Magistrate's Courtroom
Federal Building
211 South Court Street
Rockford, Illinois

Tuesday, July 31, 1984

The hearing in the above-entitled matter was reconvened, pursuant to recess, at 9:00 a.m.

BEFORE:

IVAN W. SMITH, Chairman
Atomic Safety & Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

A. DIXON CALLIHAN, Member
Atomic Safety & Licensing Board

RICHARD F. COLE, Member
Atomic Safety & Licensing Board

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P R O C E E D I N G S

1
2 JUDGE SMITH: Good morning. Is there any
3 preliminary business?

4 MR. CASSEL: There were at least two matters
5 hanging fire from yesterday, Judge.

6 One was your ruling on the motion to admit the
7 issues relating to the new alleger, and in that connection,
8 I believe Isham had indicated that they would provide this
9 morning copies of the interim report of the National Boiler
10 Board. I gather it hasn't arrived yet.

11 MR. GALLO: That is right, Your Honor.

12 JUDGE SMITH: We will want to see the report.

13 MR. CASSEL: I would like to see it, yes, sir.

14 And secondly, with respect to Mr. Forney of
15 the Staff, we met -- who, by the way, is here this morning
16 with us -- Counsel for the Intervenors and for the Applicant
17 and for the Staff all met informally with Mr. Forney last
18 night to seek to find out more about his views than was
19 apparent on the face of the affidavit which the Board has
20 previously seen.

21 At the conclusion of the informal interview,
22 which was not reported by any formal means, it was my view,
23 Judge, that it would be extremely useful to the Board and
24 to the record to have Mr. Forney called by the Board as a
25 witness, or if the Board is for any reason reticent to do

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1 that, Intervenors would call him, because I think he has
2 some interesting and -- well, some interesting perspectives
3 that I personally found illuminating on the issues relating
4 to inspector qualifications, as they are reflected in the
5 reinspection program.

6 I have not heard the views that Mr. Forney
7 expressed or the perspective that he voiced really stated
8 by any of the other witnesses that we have heard so far.
9 And it seemed to me to be a useful perspective and one which
10 would enlighten all of us.

11 So for that reason -- and I don't want to try to
12 speak for him concerning what his particular views are --
13 I just want to say that I thought they were relevant,
14 interesting, and certainly not duplicative of anything we
15 have heard or seen in the perfiled testimony of any other
16 witness.

17 MR. LEWIS: Your Honor, while I can understand
18 Mr. Cassel's view that the points that Mr. Forney discussed
19 last night were interesting and not duplicative of what he
20 has heard in this hearing session, the fact nevertheless
21 remains that Mr. Forney did testify extensive on the record
22 in this proceeding, and his testimony was extensively
23 discussed in the initial decision of this Board.

24 I am led to the concern that for Mr. Forney to
25 take the stand in this session without some bounds to it,

mgcl-3

1 it would inevitably be going over ground that's already in
2 the record.

3 We are prepared -- Mr. Cassel offered to call him
4 as an Intervenor witness. The fact of the matter is, the
5 Staff is prepared to make him available as our witness and
6 to ask him certain questions in order to clarify his
7 affidavit, which apparently the Board and parties found to
8 be insufficiently clear on certain points.

9 So it would be our view that the relevance of
10 Mr. Forney's testimony in this session would be to clarify
11 his affidavit of July 12, 1984, in order that this Board and
12 the parties may fully understand the ways in which he agrees
13 and the extent to which he may disagree with the testimony
14 of this panel. And I think that that can be done in a way
15 that does not rehearse all of his previous testimony in this
16 proceeding.

17 MR. CASSEL: I certainly agree with Mr. Lewis'
18 suggestion that the scope could properly be limited to not
19 going over all the same ground that was gone over last year.
20 I had not intended to address any issues with Mr. Forney
21 other than the ones that are raised by his explanation of
22 why he said what he said in his affidavit.

23 MR. MILLER: Judge Smith, we oppose this procedure
24 whether it be that Mr. Forney is called as a Staff witness
25 or as an Intervenor witness, and it seems to me that this

mgcl-4

1 whole thing smacks of a bootstrap operation which is being
2 engineered by the Intervenors.

3 What we had was an affidavit prepared by
4 Mr. Forney, which was less than totally clear, but which we
5 were assured by Staff counsel did not represent a dissenting
6 professional opinion, as that term is properly used within
7 the Staff.

8 It seems to me that 2.720 of the Commission's
9 Rules of Practice makes clear that the Staff designates the
10 witnesses which it wishes to call, and absent some extra-
11 ordinary circumstances, that choice is not disturbed by
12 the Licensing Board at the request of any other party.

13 What we have here is Mr. Cassel saying, "Well,
14 his testimony will be interesting, relevant, " and that seems
15 to me to fall far short of the extraordinary showing as to
16 why he ought to be called in this proceeding. The Board,
17 I believe when his affidavit was first submitted, expressed
18 its uncertainty, which was shared, I think, by all the
19 parties, as to just what the point was that Mr. Forney was
20 trying to make.

21 Having say in on the informal session with
22 Mr. Forney yesterday, I don't believe that he has done
23 anything to dispel the confusion that exists in the affidavit.

24 What we are going to have, I believe, is quite
25 an extended examination in an effort to determine just what

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1 it is Mr. Forney really means in his affidavit, when the
2 affidavit, on its face, makes clear that he has not been
3 associated with this project or the reinspectio program
4 since before he testified before the Board in August of
5 1983, and that his views, whatever they are, are not
6 necessarily those of the NRC Staff. And in short, we are
7 going to spend, I believe, a significant amount of time
8 dealing with what is essentially a tangential issue.

9 And on that basis, I really think it's a diversion
10 of everybody's attention and time to have Mr. Forney take
11 the stand at all.

12 JUDGE SMITH: Well, I share your concern,
13 Mr. Miller; however, I at least have other concerns, not
14 the least of which is really trying to understand what might
15 be the significance in March of 1983 and in August of 1983
16 of differing professional views.

17 It seems to me that it's something that perhaps
18 ought to be explored, but for the life of me, I can't
19 explain why it should be. So I really don't know. And the
20 Board has not discussed it as a Board.

21 I have two observations that I've made, and one
22 is that when I read Mr. Forney's affidavit, I contrasted
23 it with my view of Mr. Forney's demonstrated ability to
24 speak very directly. And here's an affidavit which quite
25 a few people used to deal with language they did not fully

mgcl-6

1 understand. So I thought that that should not be accepted
2 if it can be avoided.

3 And my other concern is that even today, it
4 seems that Mr. Little, who has been a very, very important
5 official in the design of the reinspection program, did
6 not understand the testimony of his own Staff in this
7 hearing.

8 Now what do we make of that? I don't know. But
9 I think those are matters that the Board has to discuss
10 and see if something has to be explored.

11 As I say, the events of 1983 may not be
12 particularly relevant as to what the situation is now, but
13 we will have to discuss it.

14 MR. MILLER: Well, except, Judge Smith, the area
15 where Mr. Forney expresses his disagreement --

16 JUDGE SMITH: I don't accept that characterization.
17 That's part of my problem.

18 MR. MILLER: Well, all right. But the statement
19 which is arguably inconsistent with the expressed Staff
20 position relates to what the understanding was of the
21 purpose of the reinspection program back in 1983.

22 JUDGE SMITH: Yes.

23 MR. MILLER: And we are, I think, inevitably going
24 to plow old ground if Mr. Forney takes the stand.

25 JUDGE SMITH: That's my concern, yes.

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1 If it doesn't have an identifiable constructive purpose,
2 we shouldn't do it.

3 MR. LEWIS: Your Honor, I think that is perhaps
4 a mundane explanation of the distinction I was trying to
5 draw.

6 I don't think that a discussion of the state
7 of mind of various Staff members as to the reinspection
8 program in February or March of 1983 is going to be that
9 relevant to matters pending before you now.

10 If you do seek to have Mr. Forney testify, I
11 would propose that it be limited to the subject matter of
12 the panel's testimony now and to the state of facts before
13 you now -- namely, the results of the reinspection program.
14 And I would not propose that it be broader than that.

15 JUDGE SMITH: I would expect, Mr. Lewis as the
16 legal representative of the Executive Director for Operations
17 in this proceeding, that you would have every right to
18 invoke the provisions of Section 2.720, and we would
19 certainly entertain objections from you, if you feel it has
20 gone beyond the scope of need for this hearing.

21 MR. LEWIS: Well, as I said, Your Honor, we
22 are prepared to offer Mr. Forney for the purpose of
23 clarifying those points made in his affidavit. They are
24 points which the Board may wish to hear about. He is a
25 member of the Staff; he's an important member of the Staff.

mgcl-8

1 We do not view this as a differing professional opinion.
2 If we did, in fact I might even have to determine whether
3 or not I could represent him. But that is not the situation
4 as we view it, and we will simply await a Board decision as
5 to whether or not you wish to hear from him.

6 JUDGE SMITH: Very good.

7 Did you have something to add, Mr. Cassel?

8 MR. CASSEL: Only that on the point which
9 Mr. Lewis just clarified, to focus Mr. Forney's testimony,
10 that point is critical -- namely, the issue of whether, from
11 the results of the reinspection program, one can make
12 inferences concerning the capabilities of the inspectors who
13 were reinspecting, let alone the inspectors who were not
14 reinspecting. It is an issue on which this Board has been,
15 in effect, asked to make a finding by the testimony of
16 various witnesses. And I think Mr. Forney's views on that,
17 which are based on his expertise -- it was clear with the
18 discussion with him that it wasn't just a case of somebody
19 thinking about something he knows nothing about. He had
20 reasons which grew out of his experience and his expertise
21 for his views.

22 I think, therefore, his testimony would be
23 directly relevant to that issue -- namely, whether from the
24 reinspection program, one can draw inferences concerning the
25 capabilities of the inspectors and to what extent. That is

mgcl-9

1 the reason I believe his testimony is not only relevant,
2 but important.

3 MR. MILLER: Judge Smith, just one final word.
4 That certainly is the conclusion that Mr. Forney addresses,
5 but that conclusion is colored by his perception of what
6 the purpose of the reinspection program was.

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1 And while my plans for cross examination of
2 Mr. Forney are, by no means, completely formulated, it's
3 apparent to me that it will be necessary, in order for the
4 Board to understand how Mr. Forney comes to those conclusions,
5 to explore what his state of mind was in 1983.

6 JUDGE SMITH: All right.

7 MR. LEWIS: Your Honor, the one point I wanted
8 to add in this discussion is that although it may be correct
9 that one of the findings this Board would make would be
10 with respect to whether or not the program provided adequate
11 confidence in the capability of inspectors, both reinspected
12 and those not reinspected, that is not the primary purpose
13 which the Staff's testimony addresses as its basic
14 conclusion.

15 Although it does -- the Staff's testimony also
16 does make an inference as to the capability of inspectors.
17 But the Staff's testimony stands even independently of that
18 on the basis of the conclusion that inspectors had not
19 overlooked significant safety deficiencies.

20 JUDGE SMITH: All right.

21 MR. MILLER: Judge Smith, before examination or
22 cross examination of the Staff panel resumes, I have two
23 documents that I would like to distribute to the Board and
24 parties.

25 The first is a letter dated July 16, 1984, from

1 a group of individuals who comprise an audit team of the
2 National Board of Boiler and Pressure Vessel Inspectors.
3 It is addressed to Mr. Cordell Reed and is dated July 16th.

4 (Counsel distributing documents.)

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1 MR. MILLER: Secondly, I would like the record
2 to reflect -- and I would be happy to distribute these
3 to the Board, if they wish it -- Commonwealth Edison
4 Company's first amended response to Interrogatories 11 and
5 12 of Intervenors' first set of interrogatories. These are
6 the amended responses to interrogatories which we discussed
7 on the record last week and yesterday.

8 (Document distributed to counsel.)

9 MR. MILLER: I will state for the record that
10 the amended answers to interrogatories do not contain any
11 procedures which were attached to the original set of
12 interrogatories. Those procedures do not change in any way.

13 Does the Board with copies of these answers
14 to interrogatories?

15 JUDGE SMITH: We will leave it up to the parties,
16 I guess.

17 MR. CASSEL: I wouldn't obviously be offering
18 them, Judge, until we've had a chance to review them and
19 determine whether they are relevant.

20 JUDGE SMITH: Let's wait until the parties --

21 MR. MILLER: All right.

22 Just turn to the July 16th letter for just one
23 second. I am informed that it is anticipated that certain
24 of the findings of the audit team from the National Boiler
25 Board will be resolved within the very near future, and we

mgc3-2

1 will certainly keep the Board advised of any developments
2 along that line.

3 MR. LEWIS: Mr. Chairman, I appreciate Mr. Miller
4 making this available. The Staff would have made it
5 available through their reproduction -- their access to
6 reproduction facilities here are better than ours.

7 JUDGE SMITH: Which is zero.

8 (Laughter.)

9 MR. MILLER: Ours is about ten percent.

10 MR. LEWIS: As we had indicated on the record
11 yesterday, this is the principal document that we felt should
12 be provided either by the Staff or the Applicant to you, and
13 it is now in your hands.

14 JUDGE SMITH: If there is nothing further --

15 MR. CASSEL: Just a scheduling question. Is it
16 the Board's intention to take up the matter of Mr. Forney's
17 testimony at some break later in the day?

18 JUDGE SMITH: Yes. We will consider it at either
19 the morning break, or if we can't resolve it then, at the
20 noon break.

21 Should we await the further comment of the
22 parties on the Boiler Board, or shall we look at it --

23 MR. CASSEL: I would appreciate that.

24 JUDGE SMITH: We will defer it until the parties
25 have commented on the interim report.

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1 So if there is nothing further of a preliminary
2 nature, would you continue your examination?

3 Whereupon,

4 KAVIN D. WARD

5 JAMES MUFFETT

6 WILLIAM LITTLE

7 RAY LOVE

8 KEVIN CONNAUGHTON

9 resumed the stand and, having been previously duly sworn,
10 were examined and testified further as follows:

11 CROSS-EXAMINATION (RESUMED)

12 BY MR. LEARNER:

13 Q I would like to direct this question to Mr. Ward.
14 In your testimony at page 11, you refer to having found no
15 discrepancies in the documentation of the original inspectors.

16 MR. GALLO: What page is that, Counsel?

17 MR. LEARNER: The testimony on page 11, last
18 sentence, first full paragraph.

19 BY MR. LEARNER:

20 Q Mr. Ward, with respect to that statement, isn't
21 it true that an audit of Hunter and some of the other
22 contractors showed that they were not using the appropriate
23 corrective action documentation?

24 A (Witness Ward) It could have. But in my
25 inspection of what I looked at, I did not find any.

mgc3-4

1 Q So with respect, then, to your testimony on
2 page 11, do I understand you to be saying that although
3 you did not find any discrepancies in the original
4 documentation, you are speaking there only individually and
5 not on behalf of the entire NRC Staff?

6 A Yes, sir.

7 Q Mr. Connaughton, isn't it true that you found
8 from an audit of Hunter and some of the other contractors
9 that they were not using the appropriate documentation to
10 describe discrepancies?

11 MR. GALLO: Objection. Lack of definition.
12 "Other contractors" I would perceive as Hatfield, Hunter
13 and PTL. The question is vague and unanswerable.

14 JUDGE SMITH: I will hear from you, Mr. Learner.

15 MR. LEARNER: I think the question is wholly
16 proper with respect to documentation.

17 MR. GALLO: To the extent that he is asking
18 questions of other contractors beyond PTL, Hunter and
19 Hatfield, it's irrelevant to the proceeding.

20 JUDGE SMITH: Mr. Gallo sought an understanding
21 yesterday --

22 MR. LEARNER: I'll amend the question.

23 JUDGE SMITH: Let's address Mr. Gallo's more
24 basic concern. He wishes to be free of objecting in each
25 instance of excursions beyond the issues. I really wish

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1 there would be an understanding concerning the scope of
2 your cross-examination or if an identification and understanding
3 isn't possible, something. But there's no need to stop
4 every time this comes up, and you stand there looking
5 confused. Mr. Gallo -- we know what his complaint is. Now
6 let's address it.

7 MR. LEARNER: I understand that. The difficulty
8 is, the Staff hasn't always clarified that in their
9 testimony. So therefore with respect to the Staff, I'm
10 unclear when Mr. Ward testifies that he found no deficiencies
11 in the documentation of the inspection program, is he
12 referring simply to Hatfield, Hunter and PTL, or with
13 respect to all the contractors.

14 MR. LEWIS: I don't know what the basis for that
15 confusion is. The paragraph is regarding American Welding
16 Society work. Let's see what the previous paragraph is.

17 The question that's being responded to is with
18 respect to Hatfield, Hunter and PTL: "Please describe how
19 the Staff monitored the implementation of the reinspection
20 program?"

21 JUDGE SMITH: All right. Let's do this. We will
22 impose the groundrule that unless you specify to the contrary,
23 your questions are limited to Hatfield, Hunter and PTL.

24 MR. LEARNER: Fine.

25 JUDGE SMITH: You are free to specify to the

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1 contrary. That way we will identify a deviation and
2 address it.

3 MR. LEARNER: Fine.

4 JUDGE SMITH: Is that satisfactory, gentlemen?

5 MR. GALLO: It sounds fine, Your Honor.

6 BY MR. LEARNER:

7 Q Mr. Connaughton, do you have my question in
8 mind?

9 A (Witness Connaughton) Yes. Yes, I am aware
10 of an audit finding made by the Applicant which concerned
11 the fact that Hatfield Electric and Hunter Corporation were
12 not using the formal corrective action system documentation
13 described in their QA program to document discrepancies
14 identified during the reinspection program.

15 It is my understanding that that was done in part
16 to segregate the discrepancies identified in the reinspection
17 effort from discrepancies and nonconforming conditions
18 identified by the routine inspections which were ongoing.

19 Q How do you know that?

20 A Discussions with the Applicant, Applicant
21 personnel -- Mr. Tuetken, Mr. Klingler. The concern was
22 had they funneled these items into their normal corrective
23 action system without some measures to assure that the
24 discrepant conditions were completely defined, were preserved
25 for future evaluation, then they may be corrected and be

mgc3-7

1 unavailable for later engineering evaluation for
2 significance.

3 Q Whatever the explanation, though, isn't it correct
4 that the documentation procedure that Hunter and Hatfield
5 used was not in conformance with the quality assurance
6 program?

7 A That is correct.

8 Q Are you aware of any other circumstances,
9 notwithstanding Mr. Ward's earlier testimony, of improper
10 documentation?

11 A (Witness Little) If I may shed some light on
12 this, I think in these case, yes --

13 Q If I could get an answer first to my question of
14 whether Mr. Connaughton is aware of any other cases. I
15 don't have any difficult with your shedding light, but I
16 would at least like to get a response first to my question.

17 A I thought he had responded.

18 MR. LEWIS: Is there some particular testimony
19 sponsored by Mr. Connaughton which forms the basis of your
20 asking this specifically of him, as opposed to someone
21 else -- the written testimony?

22 MR. LEARNER: He's already described one example
23 of where there are documentation problems, after Mr. Ward
24 has said that in his experience, there were no documentation
25 problems.

mgc3-8

1 I would like to ask Mr. Connaughton first if he
2 is aware of any other circumstances. I will ask the other
3 members of the panel as well, but I think I am entitled to
4 follow up with Mr. Connaughton before we get into a long
5 discourse on documentation.

6 WITNESS CONNAUGHTON: Yes.

7 BY MR. LEARNER:

8 Q Could you please describe the other problems --
9 other situations; excuse me -- in which there are
10 documentation problems that was not in accordance with
11 the quality assurance program?

12 A (Witness Connaughton) The other situation which
13 comes to mind was not necessarily not in conformance with
14 their quality assurance program, but did present difficulty.
15 This was with respect to Hatfield Electric -- did result
16 in difficulty in identifying those original inspections which
17 were -- which lent themselves to reevaluation or
18 reinspection. That is, there was a problem in identifying
19 which inspection reports were the latest for a given item.
20 That is, you couldn't determine, on the face of any
21 particular inspection report, weld traveler in this case,
22 that the item had not been reworked without doing a manual
23 search of their documentation system to verify that you,
24 indeed, had the latest inspection.

25 Q So with respect to weld traveler cards, there

mgc3-9

1 was insufficient documentation by Hatfield? Is that a fair
2 statement of what you're saying?

3 A That's incorrect.

4 Q Would you please explain it?

5 A There was adequate documentation. However, the
6 way the documentation was filed, as well as the fact that
7 when an inspection report was superseded by a later
8 inspection, it was not indicated on that report. It was
9 not marked "Void" or "Superseded." You could not
10 establish that you had the latest inspection report without
11 doing a large manual search.

12 Q And what attributes did that involve, please?

13 A Visual weld inspections.

14 Q Of what physical material?

15 A It could be any number of things. Hangers.

16 Q Would that apply to welds on hangers?

17 A Yes, sir.

18 Q Would it apply to welds on structural steel?

19 MR. GALLO: Objection. The record is quite
20 clear that Hatfield did welding on hangers, pans and other
21 cable tray items, and that the structural steel issue is
22 beyond the scope of their work.

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1 MR. LEARNER: He said it applied to other things.
2 At this point I want to find out what it refers to.

3 MR. LEWIS: He said other things. He said where
4 it applies to a weld traveller card. What more do you need
5 to know?

6 MR. LEARNER: I would like to know what specific
7 attributes --

8 MR. GALLO: That question was asked and answered.
9 He said visual weld inspection, that is the attribute.

10 JUDGE SMITH: All of the welding done by Hatfield,
11 is that what you meant by your answer?

12 WITNESS CONNAUGHTON: All welding that is within
13 the scope of the Hatfield specification, yes.

14 All welding.

15 BY MR. LEARNER:

16 Q Was the practical effect of that documentation
17 by Hatfield such that it was impossible to do a reinspection
18 without retracing the documentation?

19 A (Witness Connaughton) It was impossible to be
20 assured that what you were reinspection was in fact the
21 item on any given inspection report. And that what you were
22 looking at was the condition observed by the inspector on
23 that inspection report.

24 JUDGE SMITH: Excuse me. The basic problem then
25 being not only did you not know that you were inspecting the

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1 item of work demonstrated by the record, because it could
2 have been reworked, but you have no assurance that that was
3 that inspector's work, too?

4 WITNESS CONNAUGHTON: That's correct.

5 The net result was that it did require a rather
6 awkward manual search to verify that you did, in fact, have
7 the latest inspection report.

8 BY MR. LEARNER:

9 Q As a result of that research -- I'm sorry, let
10 me rephrase.

11 As a result of that manual search of reinspection,
12 was there structural reworking of the Hatfield hangers
13 at the Byron 1 and Byron 2 facilities?

14 A (Witness Connaughton) Not as a result of that
15 search.

16 Q Ultimately was there a reworking of the hangers
17 at Byron?

18 MR. GALLO: Objection.

19 MR. LEWIS: Let me state the objection first, Joe.
20 Objection. This questioning does not seem to be
21 related to the reinspection program which I understand to
22 be the topic we are addressing at the moment.

23 JUDGE SMITH: I assumed that it was directly
24 related, central to it.

25 MR. LEWIS: No. It seemed to me that he jumped

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1 right from a question about inspection findings and weld
2 traveller cards -- as I understood the examination, it was
3 on the question of, did the weld traveller cards have
4 sufficient information in order to do the reinspection.

5 And then the next question I heard, which didn't
6 seem to me to follow was, was there rework done on any of
7 these structural components of Hatfield.

8 JUDGE SMITH: Yes, that's correct.

9 MR. LEARNER: That's correct.

10 MR. LEWIS: There is no foundation for that question
11 in my mind.

12 JUDGE SMITH: That has been a very important part
13 of the testimony of Sargent and Lundy people.

14 Overruled.

15 What is your objection, Mr. Gallo?

16 MR. GALLO: I have a different objection, your
17 Honor. I have sat quiet while Mr. Learner has tested the
18 recall and knowledge of Mr. Connaughton. But this whole
19 area of the Hatfield documentation question as it relates to
20 welding documentation is testified to by Mr. Ward.

21 This line of cross-examination is really beyond
22 the scope of Mr. Connaughton's testimony. It seems to me
23 if we are now getting down into the merits of the issue as
24 to whether or not this Hatfield documentation disarray that
25 apparently was resolved by this manual search, whether or not

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1 that adversely affected the reinspection program is really
2 a question to be addressed to Mr. Ward.

3 I would object on that basis.

4 MR. LEWIS: Your Honor, let me make one observation.
5 This was really the point I was raising when I was concerned
6 that Mr. Learner was directing a question to Mr. Connaughton
7 and Mr. Little had wanted to interject, and he wanted an
8 answer from Mr. Connaughton first.

9 Our testimony is organized in such a way that
10 it identifies the sponsor of each answer. Now, when
11 Mr. Learner is questioning on a particular answer, he is
12 certainly entitled to direct his question and to require an
13 answer from that witness. But, to the extent he is not
14 doing that, I think it is most appropriate for the Staff to
15 indicate who the appropriate person is to respond. And that
16 was the point I was seeking to make.

17 JUDGE SMITH: Mr. Learner?

18 MR. LEARNER: I am not sure I even need to respond
19 at this point. I have asked a question regarding documenta-
20 tion of Mr. Connaughton. He has answered it. It seems to
21 be fully within his knowledge.

22 I am following up on the question I asked him.
23 If Mr. Connaughton is not aware of the answer, I am sure he
24 will tell me and I will direct that to other members of
25 the panel.

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1 JUDGE SMITH: Well, we do have a protocol in which
2 cross examination is normally limited to the subject of
3 direct examination.

4 They are asking you to adhere to the protocol.
5 Do you think that is unreasonable?

6 MR. LEARNER: I believe I am adhering to it and
7 that the questions that I have asked Mr. Connaughton relate
8 directly to his testimony in the Staff filed testimony.

9 MR. GALLO: Where is that?

10 MR. LEARNER: If you recall, I addressed my first
11 set of questions to Mr. Ward who said, not on behalf of the
12 NRC Staff, but on behalf of himself, he had not found any
13 documentation problems.

14 I then addressed the next part of my testimony
15 to Mr. Connaughton, who testified as to some documentation
16 problems.

17 I believe I am within the realm of that testimony.

18 MR. GALLO: Your Honor, I would like to know
19 where Mr. Connaughton testifies about Hatfield documentation
20 questions in connection with welding in his direct testimony.

21 MR. LEARNER: I would refer you to transcript
22 page 19, which is where Mr. Connaughton discusses documenta-
23 tion problems with respect to Hunter. And that is why I
24 turned my question to Mr. Connaughton and followed up with
25 Mr. Connaughton as to whether he was aware of any other

MMmgc4-1 1 documentation problems.

2 He has testified today that he was with
3 respect to welding. I think it's a legitimate follow-up
4 with him as to the structural rework. If he's not aware
5 of it, he can answer.

6 JUDGE SMITH: Gentlemen, we are spending too much
7 time on this trivial point. In fact, I didn't follow your
8 last point. I don't know how long were going to get
9 stalled on this point. I think it's a quibble, and I'm
10 going to resolve it as a practical matter. I will allow
11 Mr. Connaughton to answer any question within his knowledge
12 along this line.

13 MR. LEARNER: Fine, Judge.

14 JUDGE SMITH: With the additional admonition --
15 although I shouldn't call it an admonition -- but the
16 additional recognition that the protocol to be followed is
17 to address the question to the sponsoring witness.

18 MR. LEARNER: I believe, Judge Smith, that's
19 what I'm doing. If there becomes a difficulty where other
20 members of the panel are more conversant with the subject,
21 I will direct it to them.

22 MR. LEWIS: Or they may feel free to add.

23 BY MR. LEARNER:

24 Q Mr. Connaughton, do you have my question in mind
25 at this point?

mgc4-2

1 A (Witness Connaughton) No, sir.

2 Q Let me retrace, then, a little bit to bring us
3 back.

4 Is it correct that there were certain documentation
5 problems with respect to Hatfield weld travelers?

6 MR. LEWIS: I don't think we really need to retrace
7 it. I think that was asked and answered. Perhaps you can
8 go to your latest question. That's all he needs to be
9 refreshed on.

10 MR. LEARNER: We've gone about ten minutes down
11 the road now. I would like to get back to the thread of
12 questioning so I can follow up on his response.

13 JUDGE SMITH: Repeat your last question. See if
14 that will do it.

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15 BY MR. LEARNER:

16 Q Are you aware of any structural reworking that
17 was required as a result of the documentation discrepancies
18 with respect to weld travelers?

19 A (Witness Connaughton) No, I am not.

20 Q Are any of the gentlemen on the panel aware of
21 that?

22 A (Witness Ward) No.

23 A (Witness Muffett) No.

24 A (Witness Love) No.

25 A (Witness Little) No.

mgc4-3

1 Q Was there any restructural reworking required
2 of the cable hangers at the Byron 1 plant? I will address
3 that to whatever gentleman on the panel is familiar with
4 it.

5 A (Witness Love) There has been rework of hangers,
6 but I believe most of it has been due to design changes.
7 There's always rework.

8 Q Mr. Love, do you know what percentage of the
9 hangers at Byron 1 were found to be unacceptable as a result
10 of the reinspection program?

11 A Percentage? No, sir.

12 Q Are you aware that it was more than ten percent?

13 MR. GALLO: Objection. There is no foundation
14 that any hanger was found unacceptable during the
15 reinspection program.

16 JUDGE SMITH: Do you wish the word "discrepant"
17 to be used.

18 MR. GALLO: I don't know what he's driving at.

19 MR. LEWIS: The word should be "discrepant", I
20 believe.

21 MR. LEARNER: I'm not sure the word should be
22 "discrepant."

23 JUDGE SMITH: Ask your question that way, and
24 then see if the witness understands your question. How
25 about acceptable?

End4MM

1 BY MR. LEARNER:

2 Q If I could ask the panel which witness was
3 responsible for drafting page 22 of Inspection Report 84-13.

4 MR. LEWIS: Is that one of the enclosures to
5 our testimony?

6 MR. LEARNER: It's not really one of your
7 enclosures. I'm referring to the full Reinspection Report
8 84-13.

9 BY MR. LEARNER:

10 Q I would direct your attention to the third
11 full paragraph labeled "NRC Finding" on page 22.

12 JUDGE SMITH: What document are you talking
13 about?

14 MR. LEARNER: I'm talking about NRC Inspection
15 Report 84-13, dated April 16, 1984.

16 JUDGE SMITH: Where would one find that document?

17 MR. LEARNER: That was the report, I believe sent
18 by the NRC to Edison confirming the Reinspection Report.

19 JUDGE SMITH: It is not a document which has --

20 MR. LEARNER: It is Mr. Love's Deposition
21 Exhibit Number 3.

22 JUDGE SMITH: All right. So we're not supposed
23 to have that document?

24 MR. LEARNER: A portion of it attached to
25 Staff testimony.

1 JUDGE SMITH: All right. Well, where would we
2 find it there? That is why I would prefer that you --

3 Enclosure 3?

4 MR. LEARNER: Excuse me. I will introduce it
5 into evidence. The deposition have been made a part of
6 the record?

7 (Counsel conferring.)

8 JUDGE SMITH: Mr. Lewis, the Board had
9 requested that matters that accompany the written testimony
10 be called attachments, and I guess you didn't agree with
11 that request. And that the attachments be serially numbered,
12 and I guess you didn't agree with that request.

13 And here is an example how it could have saved
14 us some trouble.

15 MR. LEWIS: We do have copies of the entire
16 Inspection Report which we can make available to the Board
17 for their reference for this examination. It would take
18 just a moment.

19 JUDGE SMITH: It's up to the parties. We don't
20 have the information that you're referring to.

21 MR. LEWIS: I am not referring to any.

22 MR. CASSEL: Here is a copy of 84-13, Judge.

23 (Counsel handing document to the Board.)

24 BY MR. LEARNER:

25 Q Does the panel have a copy of the document that

1 I am referring to? Are you familiar with it?

2 A (Witness Little) Yes.

3 A (Witness Ward) Yes.

4 Q If I could refresh the collective memory of the
5 panel, is the panel familiar with document 84-13, dated
6 April 16, 1984?

7 A (Witness Ward) Yes.

8 A (Witness Muffett) Yes.

9 A (Witness Little) Yes.

10 A (Witness Love) Yes.

11 A (Witness Connaughton) Yes.

12 Q Which of you gentlemen is responsible for
13 writing the language that appears on page 22?

14 A (Witness Ward) I did.

15 Q Mr. Ward, with respect to the material in
16 paragraph 3, is it correct that that identifies some problems
17 with unacceptable hangers?

18 A Paragraph 3 is the --

19 Q -- NRC findings. It begins, "The allegations
20 are substantiated..."

21 A If I remember right, it was the documentation --
22 the documentation was unacceptable. Like I say, including
23 weld travelers --

24 Q Was that an example where the original inspector's
25 documentation was not acceptable?

1 A Well, it was missing. That would be
2 unacceptable. You know, it wasn't there.

3 And like I say in the last sentence, where the
4 travelers are missing, the list was sent to the production
5 group to have the weld travelers generated in accordance
6 with the NCR 540.

7 Q Isn't it also true that that indicates that
8 more than 10 percent of the hangers from Unit 1 and greater
9 than 10 percent of the hangers for Unit 2 were found to be
10 unacceptable?

11 MR. GALLO: Objection. That is not the testimony
12 of this witness. First of all, the question as asked is
13 ambiguous because it suggests that there were hardware problems
14 with the hangers. The witness has testified that it was
15 documentation problems.

16 The witness has further identified that this is
17 a matter that was covered by an NCR and remedied.

18 JUDGE SMITH: None of those are inconsistent
19 with his question, that I can see. Had you finished?

20 MR. GALLO: Yes. Well, he has mischaracterized
21 the witness' testimony.

22 JUDGE SMITH: When you take the question in
23 the context of the preceding questions and answers, I don't
24 think that there's any basis for confusion.

25 WITNESS WARD: You know, being that a weld

1 traveler is missing, they could have been all acceptable.
2 I didn't find anything that wasn't any documentation, again,
3 that wasn't unacceptable.

4 BY MR. LEARNER:

5 Q That wasn't unacceptable?

6 A (Witness Ward) Well, I take it back. Well,
7 like it says here, when they're missing, they are missing.
8 You know.

9 Q Are you responsible for the statement in this
10 paragraph that of the 4,836 hangers that have been inspected,--
11 excuse me, let me rephrase it.

12 Were you responsible for the statement in this
13 paragraph that for Unit 1, 572 hangers have been inspected
14 and found to be unacceptable?

15 A Yes, sir.

16 Q Was that your view at the time that you wrote
17 this document?

18 A Yes. And I don't remember where I got those
19 numbers, from what individual.

20 Q And similarly, with respect to Unit 2, are you
21 responsible for the statements in this document that 138 of
22 the hangers were inspected and found to be unacceptable?

23 A Yes, sir.

24 Q Are you also responsible for the statement that
25 in a number of those cases, the weld traveler documentation

1 was missing?

2 A Yes, sir.

3 Q And is this one example of the situation in
4 which the original inspector's documentation was discrepant?

5 A Yes.

6 Again, I really don't know. If you're calling --
7 well, they are missing. I guess that's a discrepancy.

8 Q Thank you. Mr. Love, are you familiar with the
9 Hatfield electric conductor butt splice problem, and its
10 potential safety significance at Byron?

11 MR. GALLO: Objection. The whole line is beyond
12 the scope of this proceeding. We argued at length about that
13 element of Mr. Love's testimony yesterday, and he is now
14 asking him if he's familiar with this problem, and then the
15 next question is going to be as to the safety significance
16 of the problem. That's the very point he asked in his
17 question: are you aware of the safety significance of the
18 butt splicing problem.

19 I thought we had an understanding when that
20 testimony was admitted that the merits of that issue were
21 not to be entertained in this proceeding.

22 JUDGE SMITH: My memory is somewhat different,
23 Mr. Gallo. I thought that we accepted it so that we would
24 have it in the record for two purposes, which you suggested
25 be the purposes. One is that it demonstrates the Staff's

SYmgc5-1 1 completeness in its notification processes, and that it be
2 in the record, so that the context of the cross-examination
3 on it would be complete.

4 I thought all parties agreed that cross-examination
5 on it was not precluded. That was my perception of the
6 agreement.

7 MR. GALLO: I thought it was limited, that its
8 admission was limited specifically to the point that butt
9 splicing was not at issue in this case, that the only
10 purpose of cross-examination on that information was for
11 the purpose of using the existence of that particular item
12 to cross-examine on another conclusion or another factual
13 statement that was properly within the scope of this
14 proceeding.

15 JUDGE SMITH: Mr. Learner?

16 MR. LEARNER: I will just comment briefly. My
17 recollection is at odds with Mr. Gallo's. Secondly, I
18 think Mr. Gallo is jumping beyond, anticipating my next
19 question.

20 Now, I would suggest that my next question
21 may not be what Mr. Gallo thinks it will be. The question
22 I have asked is wholly proper.

23 JUDGE SMITH: All right, overruled.

24 BY MR. LEARNER:

25 Q Could you answer that question now, Mr. Love?

mgc5-2

1 A (Witness Love) Could you repeat the question,
2 please?

3 Q Are you familiar with the Hatfield electric
4 conductor's butt splice problem and the potential safety
5 significance at Byron?

6 A Yes, sir.

7 Q And were these problems identified through the
8 reinspection program?

9 A No, sir.

10 Q Why were they not identified through the
11 reinspection program, to the best of your knowledge?

12 A I'm afraid I can't answer that.

13 Q Were these attributes subject to reinspection?

14 A The attribute of inspection of butt splices was
15 not in the Hatfield quality program during the reinspection
16 program.

17 Q Why wasn't it?

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1 A Here, again, I cannot answer that.

2 Q Can any of the NRC Staff members answer why this
3 was not an element to the reinspection program?

4 A (Witness Little) The reinspection program was
5 reinspecting things that had been inspected at one point in
6 time in the past. They did not have a program for inspecting
7 butt splices. So you can't go in and reinspect something
8 that they did not have a program for inspecting.

9 Q Is it fair to say, Mr. Little, that there are
10 certain hardware elements or attributes at the Byron plant
11 that have not been subject to the reinspection program because
12 the contractors did not arrange to inspect those attributes
13 at the very beginning?

14 A There are none of safety significance that I am
15 aware of.

16 Q Well, is the butt splice problem of potential
17 safety significance?

18 A In my evaluation, it has a very minor safety
19 significance, if any. And the Licensee is still evaluating
20 whether these have any safety significance, the problems
21 that were identified.

22 Q Mr. Love, was it your testimony that this was
23 a matter of potential safety significance?

24 A (Witness Love) My testimony states that the
25 Licensee had filed a potential 50.55(e) report.

mgc6-2

1 Q And would the 50.55(e) report indicate that this
2 is a matter of potential safety significance?

3 A Potential; yes, sir.

4 A (Witness Little) I think that until the Licensee
5 makes the evaluation, it is purely potential. I think you
6 have to look at what can happen if a butt splice is
7 improperly made. And when you look at that and when you
8 evaluate it and when you evaluate all of the chances there
9 are to catch it, if it's really a defective connection,
10 when you do the circuit checks, when you do the pre-op
11 programs, all of these things would identify that, and all of
12 these things have to be taken into consideration when you
13 consider the safety significance of it.

14 If you have a loose splice, I think we know pretty
15 much what will happen over a period of time. And it's
16 not something of great safety significance.

17 Q But isn't it true, Mr. Little, that this
18 attribute was not reinspected in the reinspection program?

19 A I think I have already said that.

20 Q Mr. Love, are you familiar with the Hatfield
21 electric cable grip problems and the potential safety
22 significance at Byron?

23 A (Witness Love) Yes, sir.

24 Q And similarly, were these problems identified
25 through the reinspection program?

mgc6-3

1 A No, sir.

2 Q Why were they not identified in the reinspection
3 program.

4 A The cable grips were a part of the -- well, the
5 cable installation attribute. And the cable installation is,
6 if you will, a non-recreatable inspection.

7 Q And is this non-recreatable attribute now, the
8 electric cable grip, have a problem associated with it that
9 is of potential safety significance?

10 A The potential, yes. But here again, the Applicant
11 is in the process of evaluating that as to its safety
12 significance.

13 The safety significance of a cable grip again
14 would be very minor in that what it is supporting, the cable,
15 is so designed that they can support themselves for, oh,
16 I'd say at least 100 feet of the run without additional
17 support.

18 Q Mr. Love, yesterday there was some testimony
19 with respect to the similarities between recreatable and
20 non-recreatable objective attributes.

21 Which recreatable objective attributes would you
22 view as being similar or identical to the non-recreatable
23 attribute, the electric cable grips you just referred to?

24 A Right off, I can't think of any that would be.

25 A (Witness Little) I could provide some insight

mgc6-4

1 there. I think when you look at the skills involved, there
2 are many. It takes no great skill to determine whether
3 a cable grip is installed properly. Those sorts of skills
4 are reproduced over and over again in the reinspection
5 program. So I think there are many similarities as far
6 as the skills involved in the inspection of cable grips.

7 Q Mr. Love, are you familiar with the Hatfield
8 cable pull shortcomings?

9 THE REPORTER: Could you repeat that please?

10 (Counsel repeats the question.)

11 MR. LEWIS: She wanted to know what the word
12 was. I wanted to know where your characterization of
13 shortcomings -- what is that making reference to?

14 MR. LEARNER: I believe it is referring to
15 his testimony at pages 25 to 27.

16 WITNESS LOVE: Yes, sir, I am.

17 BY MR. LEARNER:

18 Q Isn't it true that the NRC identified shortcomings
19 with the Hatfield cable installation procedures?

20 A (Witness Love) Yes, sir.

21 Q And this was the subject of an NRC inspection?

22 A Yes, sir.

23 Q And were the cable pull shortcomings identified
24 in the reinspection program?

End6SY

1 A Were the cable pull --

2 Q -- shortcomings identified in the Reinspection
3 Program?

4 A No, sir. I had stated earlier that cable
5 pulling was not reinspected during the Reinspection Program
6 because it was not a recreatable attribute.

7 Q I see. And which of, if any, the objective
8 recreatable attributes did you view as being similar or
9 identical to the non-recreatable attribute of cable pulls?

10 A Again, cable pulling is, if you will, a
11 go/no-go type situation. You are installing cable, you
12 monitor the cable pull tension, and it is basically someone
13 reading a meter, torquing of a bolt. I guess in torquing of
14 a bolt, you're looking at a meter on a torque wrench, where
15 in cable installation you're pulling cable and reading a
16 dynamometer, so I guess you could correlate those two.

17 A (Witness Little) And I think, again, the skills
18 involved are very similar. Like he says, it doesn't take
19 much to inspect cable pulling. The skills you need to do that
20 are very similar to the skills needed to inspect the attributes
21 that were inspected. And I think in that respect, they
22 are similar.

23 Q I will address this to either Mr. Love or
24 Mr. Little. Are the potential safety-related implications in
25 the cable pulling problem those of overstress?

1 A (Witness Love) Would you repeat that question
2 again, please?

3 Q Is the potential safety-related problem of the
4 cable pull shortcoming essentially that of overstress?

5 A (Witness Little) If I may, what you're concerned
6 about if you overstress the cable, you neck down the
7 conductor. That is one concern. You can possibly do that.
8 You may reduce its diameter, the outside diameter of the
9 conductor.

10 This does affect the current capabilities of
11 the wire. As far as the potential safety significance of that,
12 again, it has minor and individual -- an individual cable
13 being reduced in diameter has minor safety significance.

14 Q Did the NRC identify some cables that had been
15 overstressed at Byron, Mr. Love?

16 A (Witness Love) Yes.

17 Q And as a result of that identification, was
18 some reworking of those cables done?

19 A Yes, sir. If you're referring to the, I believe
20 it was, DR 33-82, I believe there were 12 cables replaced.

21 Q Apart from the three areas we've just discussed,
22 the butt splices, the cable grips and cable pull shortcomings,
23 are there any other areas that have demonstrated problems
24 that did not appear in the Reinspection Program that you are
25 familiar with?

1 MR. LEWIS: Objection, Your Honor. Are we
2 referring -- first of all, I think it should be understood
3 clearly here that we must be talking about Hatfield. That
4 seems to be -- I know we're supposed to be under a general
5 understanding to that effect, but the question, to me, had
6 a very broad reach to it.

7 Will counsel accept that we're talking about
8 Hatfield?

9 MR. LEARNER: Yes. I thought we had already
10 accepted it. I'm referring to Hatfield, Hunter and PTL;
11 those are the boundaries of my questions that we have agreed
12 to unless I specify otherwise.

13 MR. LEWIS: Well, okay. Your Honor, my problem
14 is that I perceived the question that was asked to be
15 extremely broad. I guess, as I now understand the question,
16 it is whether or not there were any other problems identified
17 from Hunter, Hatfield and PTL.

18 MR. LEARNER: You know, to explain, I think he
19 has identified here a number of potentially safety-related
20 problems that for one reason or another seem to have slipped
21 through the cracks in the Reinspection Program.

22 What I'm asking is --

23 MR. GALLO: I object to the characterization.

24 MR. LEARNER: I'm asking if there are any other
25 ones that he's aware of with respect to Hunter, Hatfield and
PTL.

1 MR. GALLO: Wait a minute. I object to that
2 characterization. I move to strike "slipped through the
3 cracks."

4 JUDGE SMITH: He can characterize it anyway
5 he wishes. Of course, he's not testifying; he's not asking
6 it as a question. I think that it's appropriate for you
7 to point out that you don't accept the characterization, but
8 I don't think it's a basis for an objection.

9 MP. LEWIS: Your Honor, I, however, have an
10 objection; not based on his characterization. My objection
11 is that in essence, the witnesses are being asked to recall
12 all inspection findings with respect to these three contractors,
13 and state whether or not there was anything -- testify
14 whether or not there are any other problems that they would
15 like to bring to his attention that were not covered by the
16 Reinspection Program.

17 That's a very broad task for them to do. Maybe
18 they can do it.

19 JUDGE SMITH: Yes. See, that's one of the
20 problems I'm having with yesterday afternoon's and this
21 morning's events. There's so much concern of protecting
22 these witnesses from inappropriate questions, but they don't
23 seem to need the protection.

24 They come back with -- I mean, they know their
25 subject matter, and they don't really need so much protection,

SYmgc7-1 1 and it's taking a lot of time. The progress is very slow.

2 Gentlemen, does that question -- do you think
3 it's going to throw your testimony into chaos or disarray
4 and cause you confusion and demoralize you?

5 WITNESS LITTLE: Well, we get tired some times.

6 (Laughter.)

7 JUDGE SMITH: Overruled. You didn't need all
8 that lecture, Mr. Lewis, I'm sure.

9 I am getting discouraged with the slow process.
10 For the amount of debate and discussion, we are getting
11 very little substantive answers from the panel. The lawyers
12 are threatening to overwhelm the process here in bringing
13 up this one, I suppose. So the objection is overruled.

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2 WITNESS LOVE: Yes, sir, I am aware of the cable
3 tray separation problems, as well as cable separation
4 problems within panels.

5 BY MR. LEARNER:

6 Q Are any of the other members of the panel aware
7 of any other similar problems?

8 A (Witness Little) I'm not aware of any. I guess
9 I am trying to think of words to put in context what Ray
10 said. There have been separation problems that were
11 identified long before the reinspection program. They were
12 not identified as part of the reinspection program.

13 The reinspection effort, I question whether it was
14 designed to identify those kinds of problems. But our
15 inspection program is, and it had identified them, and it
16 was being processed and corrections being made where
17 necessary and evaluated in all instances.

18 JUDGE SMITH: The last sentence, I wasn't sure
19 I understood it.

20 What did you say? You said "our inspection
21 program"?

22 WITNESS LITTLE: Yes.

23 JUDGE SMITH: Would you repeat your last sentence?
24 You mean your ongoing regular inspection programs?

25 WITNESS LITTLE: Our inspection program outside
of the reinspection program.

mgc8-2

1 WITNESS LOVE: If I might clarify those two
2 problems that were identified, the cable tray separation
3 problems, the main reason that that was not being covered
4 in the reinspection program, there was already a 100 percent
5 reinspection of that attribute scheduled, and which is
6 right now probably 99 percent complete.

7 With respect to the cable separation problem,
8 again there was 100 percent reinspection for that attribute
9 in process. That has now been completed.

10 And I think I closed that in my Report 8427.

11 BY MR. LEARNER:

12 Q When you say "100 percent reinspection," you are
13 referring to a hardware reinspection, not a reinspection of
14 the inspector performance with respect to that?

15 A (Witness Love) Yes, sir.

16 A (Witness Little) And those problems reflect more
17 on the manner in which Sargent & Lundy control separation
18 problems, more than they reflect on the inspectors out
19 in the field. I don't think those problems reflect on the
20 inspector out in the field. They reflect more on Sargent &
21 Lundy's methods for controlling cable tray and cable
22 separation.

23 Q That's a nice thing to pick up on.

24 Mr. Muffett, with respect to Sargent & Lundy's
25 engineering evaluations, did you review their calculations

mgc8-3

1 from their documents?

2 A (Witness Muffett) Yes.

3 JUDGE SMITH: For what purpose?

4 MR. LEARNER: For reviewing their engineering
5 evaluations to determine if they had correctly ascertained
6 or chategorized various discrepancies of nonsignificance.

7 WITNESS MUFFETT: Yes.

8 JUDGE SMITH: Identified in the reinspection
9 program?

10 MR. LEARNER: Identified in the reinspection
11 program.

12 BY MR. LEARNER:

13 Q In many cases, did Sargent & Lundy do the
14 calculations for you?

15 A (Witness Muffett) No.

16 Q In all cases, did you make your own independent
17 calculations?

18 A When I review calculations, I do not make a
19 formal calculation of my own. I will read through the
20 calculations, and on some basis I will bring my own
21 calculator and reverify the multiplication of some numbers.
22 I will read the formulas that we used, and in almost all
23 instances, these are commonly used formulas.

24 Q Did you independently generate your own numbers
25 and calculations from material that had been provided to

mgc8-4

1 Sargent & Lundy?

2 MR. GALLO: Objection. Asked and answered.
3 He just explained how he went about conducting his review.

4 JUDGE SMITH: I don't see how this question is
5 going to produce any different answer. Do you see a
6 difference in your questions?

7 MR. LEARNER: I'm not sure, and I'm trying to just
8 make sure from the witness what he did. I understand his
9 last answer to be that he looked at the figures Sargent &
10 Lundy had, and in effect verified them. And that's what
11 I'd like to make sure of.

12 JUDGE SMITH: For the purpose of clarifying,
13 I'll allow the answer.

14 WITNESS MUFFETT: Could you repeat the question?

15 BY MR. LEARNER:

16 Q Did you independently make your own calculations
17 with respect to the Sargent & Lundy figures, or did you
18 take their calculations and verify them?

19 A (Witness Muffett) I guess we have a gap in our
20 understanding here. I did not formally make my own
21 calculation, although I would have, if I found something
22 that I thought was questionable. But I do on occasion
23 recalculate some of the numbers, you know, if they don't appear
24 on first blush to make sense.

25 Q And without getting into precise percentages,

mgc8-5

1 roughly how often -- how many occasions do you recalculate
2 the numbers, or did you recalculate the numbers?

3 A I reviewed from Hunter, Hatfield and PTL, I will
4 say now on the order of 100 calculations. I would say
5 probably out of each one of those, I rechecked what I would
6 say was probably the most involved mathematical calculation.
7 I checked it with my own calculation -- one.

8 Q You said occasionally you did these recalculations.
9 I'm asking you roughly, what percentage of the time was
10 occasionally? Ten percent, thirty percent?

11 A Well, I think I did one on each calculation, but
12 there are a number of formulas and calculations, numerical
13 calculations, that make up what is called "a calculation,"
14 and I would check one of those generally in each
15 calculation package, and it would be the one that I thought
16 was the one that would be easiest to make an error in.

17 I can't really give you a percentage.

18 Q How many of the Sargent & Lundy engineering
19 packages did you review?

20 A Off the top of my head, I would say six.

21 Q Isn't it true you only reviewed seven of the
22 Hatfield engineering packages that Sargent & Lundy had?

23 A Hatfield?

24 Q Yes.

25 A No.

mgc8-6

1 I would be glad to count them if you would like.

2 Q Why don't you give me a rough figure. I had
3 understood from your deposition that there were seven. Have
4 you reviewed more than seven?

5 A Yes, significantly more than seven. I think the
6 difference in there is that this inspection took place in
7 two parts. In the initial one, there were seven that were
8 reviewed. On the second trip to Sargent & Lundy, which
9 starts approximately page 37, there are some more significant
10 number, which I would say is on the order of twenty.

11 JUDGE COLE: Sir, to what document are you
12 referring now?

13 WITNESS MUFFETT: This is the Inspection Report
14 8413.

15 BY MR. LEARNER:

16 Q Is it true that you reviewed only about 80 of
17 the welds that S&L conducted an engineering evaluation on?

18 A (Witness Muffett) I would say that's a fair
19 guess.

20 Q Do you know how many welds total Sargent & Lundy
21 conducted engineering evaluations of?

22 A I can say on the order of 1000. That's my
23 feeling.

24 Q Do you understand -- let me rephrase.

25 Do you know whether Sargent & Lundy reviewed all of

mgc8-7

1 the discrepant welds, or just some of 'hem?

2 MR. LEWIS: For which contractor?

3 MR. LEARNER: My question is referring to
4 Hatfield, Hunter and PTL.

5 MR. LEWIS: Because there's a difference.

6 WITNESS MUFFETT: I would like to clarify the
7 terms here. When you say "reviewed," in my direct testimony
8 and when Mr. Lewis questioned me in the beginning, I said
9 that all discrepant welds were evaluated. Some of them
10 were evaluated by a specific engineering calculation dealing
11 with that weld. Some of them were divided into populations
12 of most highly stressed or worst visual appearance. Those
13 welds were analyzed, and that enveloped the ones that didn't
14 fall into those.

15 So I believe that they were all evaluated.
16 They all did not have a specific analysis.

17 BY MR. LEARNER:

18 Q When you say "enveloped," what you are saying is,
19 in effect, the results of the engineering evaluations on
20 some welds were transferred to other similar welds?

21 A (Witness Muffett) There is one word there I
22 would like to clarify. They are similar in that they are
23 the same types of welds, but the ones that were analyzed
24 were the ones most highly stressed and the ones with the
25 worst visual appearance, so that they would, in effect,

mgc8-8

1 envelop the ones that weren't.

2 Q Apart from your term "envelop," would there, to
3 the best of your knowledge, be some Hatfield welds that
4 had been identified as discrepant by the reinspectors, which
5 Sargent & Lundy did not conduct an engineering evaluation on?

6 A I believe that there was one, if I could again
7 refer to 8413, which is listed in my report as Hatfield
8 Discrepancy 121, the QC Inspector Report 2219, and my
9 description there -- this is page 38 -- it says, "No
10 calculation present. Calculation prepared during inspection."

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2 MR. LEWIS: Your Honor, I think I should provide
3 the Board with copies for their reference. At the break
4 we will determine what --

5 JUDGE SMITH: We have one copy and the Board can
6 share it.

7 MR. LEWIS: Well, we have some extras.

8 (Document handed to Board)

9 BY MR. LEARNER:

10 Q Mr. Muffett, apart from your use of the term
11 "envelope," do you know how many individual Hatfield welds
12 counted discrepant, were not subject to individual engineering
13 evaluation by Sargent and Lundy?

14 A (Witness Muffett) The number is probably up
15 in the hundreds, but I can't give you a better number.

16 Q When you say hundreds, do you mean to refer to
17 two hundred, or in the middle five hundreds?

18 A I mean some number between one hundred and a
19 thousand.

20 (Laughter)

21 Q Are you aware that some of the discrepant welds
22 were repaired prior to Sargent and Lundy's engineering
23 evaluation?

24 A Yes.

25 Q Do you know with which contractor that repair
occurred?

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A No.

Q Do you know if that occurred with respect to Hunter?

A It would be my best recollection that the majority of the things I looked at were from Hunter and Hatfield. And because of that fact I would think that the ones that were repaired were either Hunter or Hatfield's.

Q And isn't it true that there was no engineering evaluation conducted of that weld prior to its repair?

A That is possible.

Q I would like to direct your attention to one of the -- what are labeled enclosures submitted with the Staff testimony. Let me direct your attention to Enclosure No. 5, the second page of Enclosure No. 5. It says at the top, Exhibit E1, page 8 of 12.

Have you had a chance to find the page I am referring to?

A Yes.

Q Did you review the engineering evaluation referred to in Note No. 4, Discrepancy HE-129?

A No, I don't believe -- no, I did not.

Q Would you take a look at the description in Note No. 4, please? It continues on to the following page.

A Yes, I am familiar with that.

Q Are you aware of the general safety significance

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1 of that sort of discrepancy?

2 A I would not comment on that because that is out-
3 side the area of my expertise.

4 Q Can I ask the panel if there are any members of
5 the panel whose area of expertise this discrepancy falls in?

6 A (Witness Little) This system is a system that
7 is designed to mitigate the consequences of an accident.
8 It is certainly not as important as the emergency core
9 cooling system; it is not as important as those systems that
10 are designed to protect the fuel clad barrier, the primary
11 pressure boundary or the containment boundary --

12 Q Mr. Little, I don't mean to cut you off --

13 JUDGE SMITH: Then don't.

14 MR. LEWIS: Your Honor --

15 WITNESS LITTLE: I thought you wanted to know
16 which safety substance.

17 BY MR. LEARNER:

18 Q First I wanted to know which member of the panel
19 had some knowledge and expertise with relation to this
20 factor.

21 MR. LEWIS: Well, he is giving an answer, and
22 if you think his answer does not reflect expertise you can
23 take some appropriate answer after he finishes.

24 MR. LEARNER: Steve, I think I am entitled --

25 JUDGE SMITH: I already ruled, counsellor. I said

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1 do not cut him off.

2 BY MR. LEARNER:

3 Q Mr. Little, are you aware of the pending
4 question?

5 A (Witness Little) Yes.

6 Q Do you have expertise with respect to this
7 matter?

8 A I have had expertise in the past in reactor safety
9 analysis. It has not been my main function in the last ten
10 years. I think I know enough about it to address your
11 question.

12 Q Who on the Staff would be responsible with
13 respect to reviewing the engineering evaluation made by
14 Sargent and Lundy with respect to the discrepancy identified
15 in paragraph No. 4?

16 A Since my branch had the primary responsibility
17 for evaluating it, it would be someone in my branch. If I
18 need help from operations-oriented people, there are other
19 people within the division that I can go to. So, it will
20 depend on what the discrepancy is.

21 Q Do you know if anybody on your staff conducted a
22 review of Sargent and Lundy's engineering evaluation with
23 respect to this discrepancy?

24 A No. We reviewed the report and the statement
25 here. No one went to Sargent and Lundy and pursued their

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1 evaluation.

2 Q Were you the person on your staff who was
3 principally responsible for reviewing this paragraph 4?

4 A I probably spent more time reviewing it than
5 anyone else on my staff. Yes, I screen things that come
6 to me as an assignment and decide what needs to be done and
7 who should do it.

8 In this case, I read it, I didn't think a single
9 instance of this sort required anything further than what
10 the Licensee described, so I did not describe it to anyone
11 else.

12 Q Why do you understand Sargent and Lundy to say
13 this is not a discrepancy of safety significance?

14 MR. LEWIS: You are asking --

15 WITNESS LITTLE: I haven't looked at their
16 analysis.

17 BY MR. LEARNER:

18 Q Take a look at the paragraph at the top of
19 page 9 of 12.

20 JUDGE SMITH: Counsellor, review here.

21 Mr. Ward said he was unable to answer the question.
22 Mr. Little began to answer, was not permitted to make a
23 complete answer, and now you seem to be going over to other
24 matters.

25 MR. LEARNER: No, I am going exactly to this

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1 matter.

2 MR. CASSEL: It is the same thing, Judge.

3 JUDGE SMITH: I see that.

4 MR. LEARNER: I simply want to identify first,
5 your Honor, that Mr. Little was the appropriate person with
6 the expertise on the NRC Staff, who would have reviewed
7 this.

8 JUDGE SMITH: What is the status of his previous
9 incomplete answer?

10 MR. LEARNER: The status of that is, I will be
11 perfectly comfortable with him completing that answer at
12 any point that he would like to, now that we have
13 established --

14 JUDGE SMITH: I don't know if that is going to be
15 a remedy. But, proceed.

16 BY MR. LEARNER:

17 Q Have you had an opportunity to look at that,
18 Mr. Little?

19 A (Witness Little) Yes.

20 Q Do you agree with Sargent and Lundy's explanation
21 as to why this discrepancy was not a matter of safety
22 significance?

23 A Yes, I would think generally from what I read
24 here.

25 Q Why do you agree with it?

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1 A I think they are pointing out the fact that even
2 if you don't get automatic operation of the damper, radia-
3 tion monitors would alert the operator to the fact that he
4 had a problem. He could close it manually. And therefore,
5 as long as he takes that action it shouldn't be a problem.

6 Q When you say "as long as he takes that action,"
7 do I understand you to be saying that it is not a safety-
8 related problem because if the automatic device doesn't
9 work there is a human backup, manual action?

10 A I am not saying that this does not have any
11 safety significance.

12 I am just saying that generally I agree with them
13 that as long as the operator knows how to operate his
14 equipment, knows his procedures, knows what to do when he
15 gets a radiation monitor alarm, he should be able to
16 manually do what he needs to do to close the damper.

17 Q If the operator did not adequately take those
18 steps, would there be a safety problem?

19 A There could be, depending on what the situation is.

20 Q And if there were human error there, would that
21 lead to a serious safety problem?

22 MR. LEWIS: Your Honor, I am going to object to
23 further questioning on this as irrelevant. This is a foot-
24 note to a table in the reinspection report and the questioning
25 now is going to an analysis of a particular discrepancy, as

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1 to whether or not if an operator did not take that action
2 it could be a safety problem.

3 While I recognize that this is an exhibit to the
4 reinspection program report, I fail to see what the
5 relevance of this is at all to inspector qualification
6 issues and I object to the question, to any further ques-
7 tioning on it.

8 MR. LEARNER: If I could respond, Judge Smith,
9 briefly?

10 JUDGE SMITH: Go ahead, respond.

11 MR. LEARNER: The Staff has testified that they
12 found no discrepancies that had design significance in
13 their judgment.

14 This is a discrepancy that we believe has
15 significant safety risks associated with it. I am
16 entitled, I believe, to probe here whether the Staff
17 reviewed the Sargent and Lundy evaluation here, and why or
18 why not the Staff believes this has or has not safety
19 significance.

20 JUDGE SMITH: It is a question of how much?

21 MR. LEARNER: That is correct.

22 JUDGE SMITH: That is a determination the Board
23 has to make.

24 MR. LEARNER: Also, the question very easily
25 switches between design significance and safety

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1 significance. And I believe design significance of
2 discrepancies is something the Staff has testified to.

3 I don't know if this is a design-significant
4 question here. I'm not going to testify. I will stop
5 there.

6 JUDGE COLE: Mr. Learner, based upon my reading
7 of this, part of the operating procedure requires the
8 operator to check that damper under the conditions of an
9 alarm.

10 So you are also then assuming that he is not
11 going to do that?

12 MR. LEARNER: I am not making that assumption at
13 all. I am asking the witness to what degree he believes that
14 there could be human error. And, if there were human error
15 in these manual operations, whether that could lead to a
16 serious safety-related problem.

17 I think we have seen a number of examples in the
18 nuclear power field in this country where there has been
19 manual error, and I am seeking to probe here whether the
20 witness believes that sort of error could occur, and whether
21 that would, in fact, lead to a safety-related problem.

22 JUDGE SMITH: My concern, counsellor, is that
23 through this one question, through this one discrepancy we
24 could litigate the entire nuclear industry, given enough
25 resources. And, I think you have them. So, we have to

mm10

1 apply some cutoff.

2 Now you are going into factors of engineering
3 in the nuclear plants.

4 I don't think that this panel, nor your questioning,
5 is going to provide important information to this Board
6 beyond a certain point on this particular issue. You don't
7 have any big human-factor people here, and we don't have a
8 human-factor case going either.

9 So, I am going to allow you a limited amount of
10 questions to make your point. You have already gone very,
11 very far and I don't think that you are going to produce
12 a great deal of reliable evidence.

13 MR. LEWIS: You have overruled my objection?

14 JUDGE SMITH: I am overruling your objection as
15 to this particular question.

16 However, we are looking at your objection and
17 we are agreeing that a point is about to be arrived where
18 he won't go any further.

19 MR. LEARNER: Mr. Smith, let me see if I can clear
20 this matter briefly.

21 JUDGE SMITH: I wish you would.

22 MR. LEARNER: I am trying to, your Honor. I am
23 getting held up.

24 JUDGE SMITH: Counsellor, now proceed.
25

end 9 MM

mac10-1
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1 BY MR. LEARNER:

2 Q Is it the Staff's position that none of the
3 discrepancies identified in the reinspection program were
4 safety-significant?

5 A (Witness Little) Yes.

6 Q And did the Staff conduct a review of Sargent &
7 Lundy's engineering evaluation that is referred to in Note
8 No. 4 in the enclosure that we have been looking at?

9 A We did, to the degree that I've already described
10 to you. I was just informed by one of my Staff that another
11 individual in another section also reviewed this. He is a
12 man with extensive operations experience, and he reviewed it
13 and had no problem.

14 Q And on the basis of your experience and your
15 review right now, is it your position that there is no
16 safety significance to this discrepancy because of the
17 potential for human manual backup of the automatic device?

18 A I would rely on the FSAR description which
19 established the requirements, and as I read it here, it
20 says, "The damper operates either automatically on a safety
21 injection system or manually."

22 Now this deficiency did not prevent the manual
23 operation of the valve, so, yes, I don't think this had
24 safety significance.

25 Q Mr. Muffett, Mr. Cassel reminds me, earlier I

mgcl0-2

1 asked you a question, and there was a discussion that maybe
2 I had cut you off in terms of your adding something you
3 wanted to say.

4 Is there anything further you haven't said that
5 you would like an opportunity to add?

6 A I thought you were talking to someone else.
7 Would you ask that question again?

8 Q Earlier Judge Smith indicated that I might have
9 prematurely cut off one of your answers.

10 Is there anything further you would like to add
11 that hasn't come out in the discussion in the last several
12 questions?

13 A Well, I could continue my discussion of relative
14 safety-significance of systems. I feel like this is a
15 safety system. It has safety significance. It is in the
16 lower echelon of importance. It is not as important as
17 those systems that I designed to protect the fuel clad
18 barrier and the primary coolant system, boundary containment,
19 primary containment boundary. It is not as significant
20 as those systems, then, which are -- where automatic action
21 is required instantaneously.

22 This is a system where the operator should get
23 other indications of problems in time for him to take manual
24 action, and it is all of those things that cause me to say
25 that it is in the lower echelon of safety significance.

mgc10-3

1 But I do think it's an important system, and
2 it's designed to protect individuals working in the plant,
3 and I don't want to imply that I don't think it has safety
4 importance.

5 A (Witness Connaughton) I'd like to add to that
6 response if I could. A wiring termination error of this
7 type, which defeats an automatic feature like this damper
8 actuation signal, is very, very, very likely to be caught
9 in preoperational testing. All such designs -- it's a very
10 fundamental design feature of that system, and our
11 experience tells us that the preoperational testing program
12 verifies operation of such features.

13 A (Witness Little) And in addition, the
14 surveillance testing program throughout the life of the
15 plant confirms that these systems continue to perform the
16 way they are supposed to. Even if it is not through some
17 quirk not caught in the pre-op program, you have other
18 chances to catch it in the surveillance testing program.

19 JUDGE COLE: How was this discrepancy discovered?

20 WITNESS LITTLE: I think it was in the test,
21 during the construction test.

22 JUDGE SMITH: As a part of the reinspection
23 program?

24 WITNESS LITTLE: No. Independent.

25 JUDGE COLE: What do you mean by construction

mgc10-4

1 testing as compared to preoperational testing?

2 WITNESS CONNAUGHTON: Prior to turnover of
3 a system or subsystem to the operating organization for
4 preoperational testing, various tests are run on the
5 components by the construction organization. That's the
6 difference between a construction and preoperational test.
7 A preoperational test is a second series of tests which
8 are generally more tightly controlled and more formal, and
9 it establishes system performance prior to releasing that
10 system to operation.

11 JUDGE COLE: Now why would that be considered
12 a discrepancy, if the people that are putting it in, while
13 they are putting it in, they are just finished wiring it and
14 they want to test it and see if it works? Why don't they
15 just fix it right then? Or what is the procedure?

16 WITNESS LITTLE: In construction testing, they
17 test the pump to make sure it rotates in the right direction.
18 If it doesn't rotate in the right direction, they fix it so
19 it will, and the same sort of thing on valves.

20 JUDGE COLE: Okay. Now what about this particular
21 discrepancy? Under what conditions would that not be listed
22 as a discrepancy?

23 WITNESS LOVE: This one, the timeframe, from the
24 time of termination until the time that they had caught it,
25 as I remember the discussions, it was like a month or two

mgc10-5

1 between the actual timeframe --

2 WITNESS LITTLE: Between the construction testing
3 and the reinspection?

4 WITNESS LOVE: No. From the time of the
5 termination until the time that they actually performed the
6 test on the equipment. Whenever they performed the test
7 on the equipment, they identified it as a deficiency, and it
8 went into the book, and then they have to do -- through their
9 procedures, the disposition was then corrected, which they
10 in turn made things right.

11 WITNESS MUFFETT: It's a discrepancy against the
12 original inspectio., but there is no discrepant hardware.

13 WITNESS CONNAUGHTON: The construction test is
14 not the first means by which you verify that the wiring
15 is correct. There was an error made when the termination
16 inspection was performed. Construction tests would be the
17 second means of catching that, and apparently it had gone
18 undetected after the termination inspectors. It was counted
19 against that individual.

20 It was subsequently discovered during the
21 construction test when the components were operated.

22 JUDGE SMITH: How did it get picked up, then, as
23 a reinspection program discrepancy? That is what they say,
24 but that is not what the table says. Or is it that I just
25 don't understand the table?

mgc10-6

1 MR. LEWIS: Your Honor, I thought the fact that
2 it had a discrepancy number indicated that it was a
3 reported discrepancy in the reinspection program.

4 JUDGE SMITH: That's what I thought, too, and
5 that's why I can't reconcile that with the witnesses'
6 testimony.

7 WITNESS LOVE: The reinspection program did not
8 pick it up at that point. In other words, the construction
9 test picked it up before the reinspection program go to it.

10 JUDGE SMITH: Oh. In those situations, then, is
11 that thrown into -- those results are thrown into the
12 reinspection program data base?

13 WITNESS LOVE: That was counted against the
14 inspector.

15 JUDGE SMITH: As if it had been caught by the
16 reinspection program?

17 WITNESS LOVE: That's correct.

18 WITNESS CONNAUGHTON: That's correct.

19 JUDGE SMITH: Then that is another, you might
20 say, -- okay, well, what if -- that was thrown in because
21 that was one of the items that had been selected for
22 reinspection, and it was found before the reinspection.

23 If this had been an item which had not been
24 in the population to be reinspected, it would not have
25 been counted against any inspector?

mgc10-7

1 WITNESS CONNAUGHTON: That's correct.

2 WITNESS LOVE: That's right.

3 WITNESS LITTLE: That's right.

4 BY MR. LEARNER:

5 Q I want to ask one more question in this area.
6 Let's just take this as an example of how you would analyze
7 for safety-significance. I will direct this to Mr. Little,
8 I think appropriately.

9 Do I understand your reasoning to be that this
10 discrepancy does not have safety significance to the three
11 stages -- first, that there was a manual backup; secondly,
12 that any problems would be caught in some other tests; and
13 third, that therefore there was no safety significance?

14 A (Witness Little) I don't think I have said there
15 is no safety significance to this system. I have agreed with
16 their evaluation that there is no safety significance to
17 this problem. And it goes beyond those three things, but,
18 yes, I think -- generally I will say yes.

19 Q Mr. Muffett, with regard --

20 JUDGE SMITH: If this is a good breaking -- are
21 you changing direction now?

22 MR. LEARNER: Yes, I am, to the last subject
23 area. This is a a good time to take a break.

24 JUDGE SMITH: All right. Let's break for fifteen
25 minutes.

26 (Recess.)

End10SY

1 JUDGE SMITH: The Board has determined that
2 we would like for the Staff to present Mr. Forney as a
3 witness, and that his testimony would be limited to the
4 explanation of the affidavit, and limited also to any
5 appropriate inquiry into the design of the Reinspection
6 Program. And that is, Mr. Little's testimony concerning the
7 definiteness of the acceptance criteria for the program.

8 We would expect that to be a very limited
9 inquiry because of its limited importance.

10 MR. MILLER: Excuse me, Judge Smith. Might I
11 ask that we set a time certain for Mr. Forney to take the
12 stand, and I would suggest first thing tomorrow morning.
13 That way, I can prepare my examination of Mr. Forney with
14 some expectation of making it shorter and more to the point
15 than it would otherwise be.

16 JUDGE SMITH: You don't want it before tomorrow
17 morning?

18 MR. MILLER: That's correct.

19 JUDGE SMITH: Is that satisfactory?

20 MR. LEWIS: That's fine.

21 One other consideration we have is that
22 Mr. Keppler is coming in this evening and would be prepared
23 to testify early tomorrow morning. I would like to
24 accomodate his schedule as much as possible.

25 On the other hand, I don't know exactly whether

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1 we will be in the midst of some panel as of the adjournment
2 today, and if we are in the midst of some panel, I would
3 propose to finish with that panel before we proceed
4 either to Mr. Keppler or to Mr. Forney.

5 JUDGE SMITH: What is scheduled after this panel?

6 MR. LEWIS: The next panel would be Mr. Hayes
7 and Connaughton on the --

8 JUDGE SMITH: On the allegations.

9 MR. LEWIS: Yes.

10 JUDGE SMITH: That seems it would probably work
11 out rather well for the time. I think the normal course
12 of events would give you the time that you require,
13 Mr. Miller.

14 MR. MILLER: Just while we are talking about
15 schedule, is it anybody's anticipation that we will begin
16 with the Applicant's systems control witnesses today?

17 MR. CASSEL: Should we go off the record, Judge.

18 JUDGE SMITH: Yes. Off the record.

19 (Discussion off the record.)

20 JUDGE SMITH: Back on the record.

21 BY MR. LEARNER:

22 Q Mr. Muffett, did you find any safety-related
23 discrepancies -- excuse me; I want to rephrase.

24 Mr. Muffett, did you find any discrepancies in
25 your review to have safety-related implications?

mgc11-2

1 A (Witness Muffett) That is not the terminology
2 that I would typically use. I think what we said was
3 safety-significance. And defining that term, it is a
4 discrepancy that would not allow a component to perform its
5 function.

6 Q And did you find any discrepancies to have
7 safety significance?

8 A No.

9 Q Isn't it true that your opinion is, unless you
10 had a very, very disastrous discrepancy or flaw, that it
11 would not have safety significance?

12 MR. GALLO: Objection.

13 MR. LEWIS: Disastrous? Objection, Your Honor.

14 MR. GALLO: I yield to my colleague.

15 MR. LEWIS: My objection would be to "disastrous."
16 "Disastrous" is a term that I have not heard in this
17 proceeding before. To me, it is a rather inflammatory term
18 to introduce into a discussion of technical issues, and I
19 would object to its use.

20 JUDGE SMITH: Well, this example -- I think that
21 the witness is probably capable of handling himself and the
22 answer.

23 But what is the basis for you to pose the question
24 on those terms?

25 MR. LEARNER: Let me lay a foundation, Your

ingc11-3

1 Honor. It could be helpful.

2 BY MR. LEARNER:

3 Q Mr. Muffett, do you have your deposition
4 testimony of June 21, 1984?

5 A (Witness Muffett) No, I do not.

6 Q I will show you a copy of that to refresh your
7 memory.

8 MR. LEARNER: If I could direct Counsel's
9 attention to page 127, and I will show this to Mr. Muffett,
10 and I will also bring this to the Board, if that would
11 be helpful.

12 (Document distributed to Board, parties and
13 the witness.)

14 BY MR. LEARNER:

15 Q Would you review the top of page 127 and pass
16 it up to the Board when you are through?

17 (Pause.)

18 MR. LEWIS: Upon review of this, I withdraw my
19 objection.

20 JUDGE SMITH: I would like to hear the question.

21 MR. LEARNER: I will rephrase it again.

22 BY MR. LEARNER:

23 Q Mr. Muffett, isn't it true that in your opinion
24 only a very, very disastrous discrepancy or flaw would have
25 safety significance?

mgc11-4

1 A (Witness Muffett) Yes, and I would like to
2 explain that answer.

3 Q Go ahead.

4 A When I used "disastrous" there, it probably
5 wasn't a really well-chosen word, but what I meant was
6 due to the conservatism of the codes, due to the conservatism
7 of the analytical methods, due to the conservatism of the
8 materials allowables, the whole structure that is in place,
9 it has been my experience in reviewing discrepant items
10 that it takes a rather gross error by an inspector to
11 overlook a safety-significant item.

12 Q And threrefore when you said earlier that you
13 did not find any discrepancies that appeared in this
14 reinspection program to be safety-significant, did you mean
15 to say that you did not find any very disastrous
16 discrepancies?

17 A No.

18 Q Did you find any discrepancies you reviewed as
19 being not very disastrous, but just major?

20 A The standard that I reviewed these discrepancies
21 against was the applicable code. There were none of these
22 that violated the applicable code. When I go in as an NRC
23 inspector, that's the standard I measure against, regardless
24 of my opinions.

25 Q Isn't it true that Sargent & Lundy found a number

mgc11-5

1 of the discrepancies to have violated the code?

2 A They violated a code in a sense in that oftentimes
3 there's a chart or a table or a number listed, "This
4 dimension needs to be a quarter inch; this dimension needs
5 to be three-eighths."

6 Oftentimes, these tables will have a footnote that
7 the individual case can be evaluated, and it is always a
8 flavor, particularly in the ASME Code, that a more detailed
9 analysis of the situation can allow you to violate these
10 simplistic rules.

11 Q Thank you.

12 Was it the NRC Staff's concerns that led to
13 Edison's conducting the supplemental reinspection program?

14 A I can't speculate as to what would force them
15 to do something. I know that we had a meeting, I believe
16 it was in January of '84 at the Holiday Inn in Glenn Ellyn,
17 where we raised a number of concerns about issues, and these
18 things are reflected in the back of the reinspection report
19 as answers to our questions.

20 Q Whose idea was it that Sargent & Lundy should
21 review highly stressed welds?

22 A It was at least partially mine.

23 Q And did you view welds as having greater than a
24 10 percent reduction in strength as being sort of a critical
25 factor?

mqc11-6

1 A I think that that would be an appropriate
2 breakpoint for how you looked at the welds.

3 Q And of the welds that were found to have a
4 greater than 10 percent reduction in strength in the
5 supplemental reinspection program, did you independently
6 review any of those for safety significance?

7 A I believe that I did, yes.

8 Q And how many of the 50 Hatfield highly stressed
9 welds were listed in Category B-2, those greater than 10
10 percent strength reductions, did you independently review?

11 A I couldn't tell you at this time.

12 Q Do you know, was it more than five?

13 A I would assume it was, yes.

14 Q Do you know, is it more than ten?

15 MR. GALLO: Object. The witness is straining
16 to give an answer to the last question. He said he
17 couldn't recall the exact number, and it has been asked and
18 answered.

19 JUDGE SMITH: Overruled.

20 End 11
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WITNESS MUFFETT: Could I have the question
again?

BY MR. LEARNER:

Q Do you know if you reviewed more than ten of
the Hatfield highly-stressed welds that were found to have
their strength reduced by more than 10 percent?

MR. GALLO: Objection. Your Honor, this is the
kind of problem that these witnesses have had to cope with
throughout this cross examination.

JUDGE SMITH: That is the same question I
overruled you on.

MR. GALLO: No, it is not.

The question you overruled me on was highly-
stressed welds in the reinspection -- in the supplemental
program.

Now he has asked a question with respect to highly-
stressed welds generally, including the 50 highly-stressed
welds that were reviewed in the reinspection program.
I don't believe the record is being aided one bit by
confusing these two concepts, these two types of examinations.
It may be unintentional, but that is the result.

MR. LEARNER: I believe my question was directed
towards the same welds. If it will help Mr. Gallo, I am
referring to those welds, 50 Hatfield highly-stressed
discrepant welds listed in Category B-2 in the Supplemental

mm2

1 Reinspection Program.

2 WITNESS MUFFETT: I would like to change my
3 answer with that clarification.

4 BY MR. LEARNER:

5 Q Please do.

6 A (Witness Muffett) After the inspections that are
7 detailed in 8413, we had reached the conclusion that Sargent and
8 Lundy had an effective program for dealing with strength
9 reductions in welds, we did not review those added
10 populations of welds subsequently.

11 Q So with respect to Edison's June 1984 Supplemental
12 Reinspecton Program, it refers to 50 Hatfield highly-stressed
13 welds that were above that 10 percent strength reduction
14 threshold, you didn't independently review any of those?

15 A That is my recollection at this time.

16 Q And with respect to the highly-stressed welds
17 for the ten Hatfield inspectors who were outside of the
18 reinspection program referred to in the Supplemental Program
19 at page 4, you didn't review any of those welds either, did
20 you?

21 A That's my recollection at this time.

22 Q Do you have a copy of the Supplemental Reinspection
23 Program before you?

24 A I have updated my copy of the Reinspection
25 Program, so that it contains the corrections.

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1 MR. CASSEL: For the record, the witness has
2 just been handed a copy of the Supplemental Report.

3 BY MR. LEARNER:

4 Q If I could direct your attention to a page
5 titled S-ii-5, it contains Table SCE-9A.

6 Mr. Muffett, do you understand there to have
7 been 187 weld discrepancies found of these ten Hatfield
8 inspectors who had been outside the reinspection program?

9 A (Witness Muffett) There is 187 discrepancies
10 listed on this table, yes.

11 Q Is it true that 96 of those had their weld
12 strength reduced by more than 10 percent?

13 A Yes.

14 Q Is it also true that you did not independently
15 review any of those 96 for safety significance?

16 A That's correct.

17 Q And were the highly-stressed welds included in
18 the Supplemental Reinspection Program because those were
19 welds that had the greatest possibility of safety signifi-
20 cance?

21 A No.

22 Q Why were they included?

23 A Because those were welds that had a potential
24 for failure. They were not chosen in any kind of a
25 standard for safety significance.

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1 Q Do you know how many of those 96 welds in
2 Category B2 had their strength reduced by more than 50
3 percent?

4 A No, I don't.

5 As I stated, I have not reviewed these welds.
6 What I would like to clarify is that we reviewed extensively
7 Sargent and Lundy's system for dealing with discrepant
8 welds and reached the conclusion that the system was valid.

9 Q Then of all the welds referred to in the
10 Supplemental Reinspection Program, is it true that you have
11 conducted no independent review?

12 MR. GALLO: Objection. That has been asked
13 and answered at least twice. I don't know why the witness
14 has been badgered on this point. He has been quite
15 straightforward and candid that he didn't review it. Why
16 do we persist in covering the same ground?

17 MR. LEARNER: I have asked him about different
18 categories of welds in here. I don't believe I touched all
19 of them.

20 Rather than go through those seriatim, I am
21 asking this overall question.

22 JUDGE SMITH: Overruled.

23 With your explanation we have overruled it.

24 BY MR. LEARNER:

25 Q Mr. Muffett, do you have my question in mind?

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1 A (Witness Muffett) No.

2 Q Is it true that with respect to all of the
3 welds, the weld discrepancies described in Supplemental
4 Reinspection Program, that you have conducted no independent
5 review of Sargent and Lundy's determinations?

6 A I believe that is correct.

7 MR. LEARNER: I have no further questions.

8 JUDGE SMITH: Mr. Gallo?

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CROSS-EXAMINATION

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BY MR. GALLO:

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Q Mr. Ward, I have a few questions for you.

4

I see from your Professional Qualifications that in 1946 you were a welder and NDE inspector. Is that correct?

6

7

A (Witness Ward) I attended a school in 1946 for the first time which was welding, which consisted of welding and NDE.

9

10

Q When was the first time you actually did welding?

11

A Probably when I was about 14 years old. My dad was a plumber and I used to help him.

12

13

Q Were you a welder in the Navy?

14

A Yes, sir.

15

Q Were you in the Navy from 1946 to approximately 1952?

16

17

A Yes, sir.

18

Q Were you an NDE inspector in the Navy?

19

A Yes, sir.

20

Q And what does NDE stand for?

21

A Nondestructive examination.

22

Q During your career, have you ever been certified as a Level III test examiner for nondestructive test examination?

24

25

A Not in the Navy certified as a test examiner.

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1 I retired in 1966, and that was prior to any SNT TC 1A, and
2 this is in accordance with NAVSHIPS 250-1500-1.

3 Q My question was not precise.

4 During your work experience which is from your
5 first time in the Navy to the present, have you ever been
6 certified as a Level III test examiner for a nondestructive
7 test examination?

8 A Several times, yes, sir.

9 Q Can you tell me what the first time was?

10 A The first time was in 1968 when SNT first
11 started.

12 Q And you were certified at that time as a Level III
13 nondestructive test examiner?

14 A Yes, sir.

15 Q When was the last time you were certified as such
16 an examiner?

17 A It was when I worked for Bechtel prior to coming
18 to the Commission.

19 Q What year was that?

20 A I started January 1978. So, it was probably 1975
21 was the last time I took Bechtel written examination.

22 Q Are you certified as a Level III at the present
23 time?

24 A No, sir.

25 Q Can you explain why not?

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1 A The NRC doesn't require people to be certified.
2 We attend various schools, such as NDE schools -- nondestructive
3 examination, which is NDE. They have sent me to
4 in-service examination schools which NDE is involved. Also
5 welding schools. And, approximately every three years the
6 Commission sends us to these various schools to upgrade us
7 in the latest state of the art.

8 Q The last time you were certified as a Level III,
9 nondestructive test examiner, I believe you testified when
10 you were working for Bechtel, how were you so certified at
11 that time?

12 MR. CASSEL: Objection, relevance, Judge. This
13 line of inquiry has gone on for some time now and I haven't
14 raised any objection. But the Reinspection Program does not
15 include NDE, nor do I believe the Staff testimony included
16 NDE.

17 MR. GALLO: It is my understanding, your Honor,
18 that visual weld examination is a form of nondestructive
19 test examination, and therefore I am laying a foundation to
20 determine this witness' qualifications to have done exactly
21 what he did do, which was review the weld inspections
22 performed under the Reinspection Program.

23 MR. CASSEL: I will withdraw the objection.

24 BY MR. GALLO:

25 Q How did you become certified as a Level III

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1 inspector when you worked for Bechtel?

2 A (Witness Ward) By written examination, in
3 accordance with the document SNT-TC-1A.

4 Q What is the -- is there an organization that
5 gives this examination?

6 A The organization does not give the examination --
7 I'd like to strike that, because SNT does give an examina-
8 tion which is only a written examination.

9 They also write this document which various
10 companies have as a recommended practice to use in
11 certifying their people, such as radiographers, visual
12 examination, ultrasonics, various other methods of NDE.

13 Q What is SNT?

14 A Society of Nondestructive Testing.

15 Q Is that a professional organization?

16 A Yes, sir.

17 Q And they provide the means for this examination
18 that you took when you were with Bechtel?

19 A It was in accordance with this document that they
20 supplied, which is Nation/Worldwide Used.

21 Q Did you pass the test?

22 A Yes, sir. I became a test examiner.

23 Q Was I correct in my comment earlier, does
24 nondestructive -- strike that.

25 Does a nondestructive test examiner inspect for

1 what has been called in this proceeding, visual weld
2 examination?

3 A He may do so.

4 Q That is one of his duties?

5 A Yes, among several others.

6 Q Your present function with the NRC is to --
7 strike that.

8 Is your present function with the NRC the
9 equivalent of conducting reviews of evaluations involving
10 welds?

11 A It is.

12 Q You use the same skills as a Level III NDE
13 examiner?

14 A Yes.

15 Q How many years experience would you say you have
16 in this endeavor from the first time you became involved in
17 weld inspection or weld examination to the present?

18 A November will be 38 years.

19 Q Would you turn to Enclosure 1 of the testimony?
20 On page 19 there is a number of terms used. Are you at
21 page 19, Mr. Ward?

22 A Yes, sir.

23 Q Do you see under paragraph B, a listing of items
24 under the category of weld inspection abbreviations?

25 A Yes, sir.

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1 Q Is this a full listing of weld defects?

2 A Yes, sir.

3 Q I am going to ask you a series of questions. We
4 have had a lot of testimony in this proceeding using these
5 terms. I don't believe they have ever been defined.

6 Could you tell me what arc strike is?

7 A That is when an individual has an electrode in
8 his welding handle and he accidentally strikes -- he starts
9 the weld and he accidentally strikes either the weld, the
10 site of the weld, the pipe or whatever. Because, he has
11 this helmet on, and he somewhat locates the location where
12 he is going to weld, nods his head, the helmet goes down
13 and then he starts to weld. In some cases he might
14 accidentally hit -- his hand might move one way or the
15 other, and that makes an arc strike.

16 Also, when he has been welding and he pulls away,
17 he might accidentally hit the pipe or something, and that
18 will make an arc strike.

19 Q What is the effect of the welding instrument
20 striking the pipe as you indicated? What is the effect of
21 that?

22 A In a pipe it could cause corrosion in time, and
23 it could cause stress. I am not a metallurgist, but I have
24 heard this for years.

25 Q Is this from the heat of the weld rod that causes

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1 this?

2 A Yes, sir.

3 Q What does undersize mean? Let's take the first
4 part of it, undersize leg.

5 A Just like it says, there is undersize. There
6 isn't enough metal in the groove itself.

7 Q Clarify for me, what is the leg of a weld?

8 A It is the part that is --

9 MR. COLE: Are you talking about a fillet weld
10 now?

11 WITNESS WARD: Yes, sir. I am trying to relate
12 this to the hangers, and the leg is, just like it says, it
13 is when you start up the pipe, that is ordinarily the leg.

14 It is called various terms; the throat, the leg.
15 It is right in the groove.

16 BY MR. GALLO:

17 Q Between the base metal -- you say in the groove.
18 What is the groove?

19 A (Witness Ward) I am thinking about a hanger
20 where they are trying to put the hanger up against a
21 bulkhead or what have you.

22 Q Can you explain what nonfusion is?

23 A Nonfusion ordinarily is when the base material --
24 when a weldment is not fused to the base material. Most of
25 the time it is generally caught with ultrasonics. The best

mm8 1 way, like in a pipe, on the inside where the weld has not
2 fused to the base material.

3 Q Is nonfusion also discernible through visual
4 weld inspection?

5 A About the only way you can find nonfusion is on
6 the corner at the very end where it starts. Sometimes on the
7 edge where the metal is not fused you might see it just lay
8 up against the side of a hanger.

9 But again, you might call that cold lap, too.
10 There is so many variables on these various items.

11 Q When you say cold lap, do you mean overlap?

12 A Overlap.

13 Again, cold lap, overlap --

14 Q Is that the fifth item on this list that I am
15 referring you to?

16 A Yes, sir.

17 Q What is undercut?

18 A Undercut is, ordinarily when a welder starts out,
19 sometimes he does not hesitate long enough on the sides to
20 fill up his original undercut somewhat when he is welding.
21 He might be going too fast, his welding rod might be at
22 the wrong angle, and he forms a somewhat gouge into the
23 side of the base material. That is an undercut.

24 Q What is profile?

25 A Profile is the general appearance of the weld.

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In general, you see how it looks, to be uniform. By looking
at the profile, you find other problems which may arise,
such as the overlap and what have you.

Q What is porosity?

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1 A Porosity is ordinarily a bubble caused by
2 dirt when the welder is welding, and there is -- he runs
3 across a piece of slag. Generally dirt will bubble up,
4 pop, and that will cause a crater -- well, it will cause
5 porosity; crater is something else.

6 Q Now you mentioned a bubble. Can you give me
7 some perspective --

8 A Like a water bubble when it breaks.

9 Q What is the size of these bubbles?

10 A Oh, it can be like the head of a pin, or it
11 can be the size of thimble, depending on how large the
12 weldment is.

13 Q What is slag?

14 A Slag is -- ordinarily it's slag that comes
15 off of the flux of a welding rod. Sometimes when an
16 individual makes a pass, his flux might break off from
17 the rod being trapped, and this causes slag. You might
18 see it in a radiograph, or visually you would see it
19 trapped maybe in a weld that isn't blended really nice to
20 the base material.

21 Q What is spatter?

22 A When a welder is welding along, spatter auto-
23 matically comes from his welding rod, and it falls on the
24 pipe, sticks, and this should be removed prior to welding
25 again, or this slag -- this spatter would be entrapped and

mgc14-2

1 look like slag when everything is welded up. And this is
2 spots of small metal sticking to the pipe.

3 Q You mentioned crater. What is crater?

4 A When a welder is welding along and instead of
5 hesitating and making a small puddle prior to his rod
6 leaving the weld, he might pull his weld rod too fast, not
7 filling up his puddle, making a crater.

8 Q And would I be correct that excessive leg is
9 just the opposite of undersize leg?

10 A Yes, sir.

11 Q The next item, I believe there is typographical
12 error in the word. Is it "convexity", "excessive
13 convexity"?

14 A Yes, sir.

15 Q Can you explain what that defect is?

16 A I always get this confused with concavity.
17 It's when there is too much weld -- no, the other way --

18 JUDGE COLE: I think you have it confused.

19 WITNESS WARD: The other way.

20 MR. GALLO: No, take your time.

21 WITNESS WARD: No, I had it right the first time.

22 (Laughter.)

23 MR. GALLO: That was a test question.

24 (Laughter.)

25 WITNESS WARD: When there is too much weld, and

mgcl4-3

1 the opposite is convexity when there isn't enough weld --

2 MR. GALLO: You mean concavity?

3 WITNESS WARD: Concavity. I'm sorry.

4 BY MR. GALLO:

5 Q So that the record is clear on this point, let's
6 go over it again.

7 Excessive convexity is what, again?

8 A (Witness Ward) When there is excessive weldment
9 in the middle of the weld than it should be.

10 Q And the opposite, where there is less than
11 adequate weld in the weldment is called what?

12 A Convexity -- concavity.

13 (Laughter.)

14 Q What is overweld?

15 A When there's too much weld. There's just too
16 much weld all the way around. It's overweld.

17 Q Finally, nonpenetration. What is that defect?

18 A Nonpenetration is somewhat like nonfusion.
19 In fact, some people call even nonpenetration nonfusion.
20 But ordinarily that is found in the root of the weld where
21 it is not completely fused, and the best place, the way
22 you find that on visual -- well, about the only place would
23 be at the very end where the welder stops and starts, where
24 you can see that the weldment is not fused to the base
25 material. That would be nonpenetration.

mgc14-4

1 Q Are these all weld defects, examples of weld
2 defects -- strike that.

3 Are these all types of weld defects that were
4 found in the course of the reinspection program?

5 A Yes, sir.

6 Q And in your experience as a Level III inspector,
7 have you found these kinds of defects in welds yourself?

8 A Yes, sir.

9 Q Can you tell me whether in your experience arc
10 strike and spatter are considered the type of defect that
11 affects weld integrity?

12 A Not for hangers.

13 Q Not for hangers.

14 A No, sir. And weld spatter for pipe, my opinion
15 would be, is mostly appearance. But for hangers, that
16 wouldn't affect the hanger, no.

17 Q Are these two defects what are commonly called
18 cosmetic weld defects?

19 A Yes, sir.

20 Q Now let's have a few questions about the activities
21 that you undertook in reviewing the welds that were reviewed
22 during the course -- reviewed by you during the course of
23 the reinspection program.

24 Now if you know, if you can recall, how many welds
25 did you examine yourself when you were conducting your review

mgc14-5

1 under the reinspection program?

2 A Approximately 800 welds documented and thousands
3 of welds that I did not document. As an example, I would
4 be looking for certain weldments, and at the same time would
5 be looking at what other weldments would be around. And
6 the reason is, if I would have found a problem, I would
7 have investigated why that weld was unacceptable.

8 Q Did you conduct this review by going to the
9 Byron plant?

10 A Yes, sir.

11 Q And that's where you looked at the welds, right
12 there at the Byron plant?

13 A Yes, sir.

14 Q And what was the purpose of looking at these
15 welds, these thousands of welds that were not documented by
16 you? What were you looking for?

17 MR. CASSEL: Objection, unless the question is
18 specific to Hatfield, Hunter and PTL.

19 MR. GALLO: All right. I'll rephrase the
20 question.

21 MR. CASSEL: We don't know at this point whether
22 the preceding answer related to Hatfield, Hunter and PTL
23 or all the contractors.

End 14M M 24

25

1 BY MR. GALLO:

2 Q Mr. Ward, of the 800 welds you examined and
3 documented, how many of those welds -- to the best of your
4 recollection -- were Hatfield, Hunter and PTL welds?

5 A (Witness Ward) I believe 330.

6 Q That's the number in your testimony.

7 A Yes, sir.

8 Q Do you have a further breakdown of how many
9 were Hatfield and how many were Hunter?

10 A In my report, 84-13, I would have to count
11 them up to see --

12 Q Just order of magnitude.

13 A I believe Hatfield was approximately 200, and
14 I really don't know about the other -- the split among the
15 others. I don't know without counting.

16 Q But you think Hatfield was approximately 200
17 welds?

18 A I believe so.

19 Q These were AWS welds?

20 A Yes, sir.

21 Q Of these approximately 200 welds, were some of
22 the welds highly stressed welds that had been identified
23 as such by Sargent & Lundy? Do you know?

24 A I don't know if they were highly-stressed welds
25 or not.

1 Q Of these approximately 200 welds, were any of
2 them the welds that were identified by the Level III third
3 party inspector as the worst welds? Did you look at any
4 of those?

5 A I did.

6 Q How many of the 200 welds, Hatfield welds, that
7 you looked at included the so-called worst welds?

8 A I'm not sure. Altogether I believe I looked
9 at 54 of their worst welds. And I don't remember if they
10 were all or part of Hatfield.

11 Q Now, when you looked at the approximately 200
12 welds for Hatfield, what were you looking for? What was
13 the purpose of your examination?

14 A To satisfy myself that the Reinspection Program
15 was going in accordance with the program. And also, of those
16 approximately 200 welds, I wanted to get a feeling that the
17 people performing the reinspection were calling the welds
18 correctly. I wanted to satisfy myself that the third party
19 looking, reinspecting the reinspector's unacceptable welds,
20 that they were calling the welds that they said were
21 acceptable -- that they really were the welds that they
22 accepted. In my mind, I felt that they were acceptable.

23 I also wanted to satisfy myself that the
24 welds that were called acceptable, that the third party
25 was not looking at, that they were being called correctly.

1 Q All right. Let's look into each one of those.
2 When you reviewed the reinspectors' results of their
3 weld examinations for Hatfield, did you ever disagree with
4 a call made by a reinspector?

5 A Yes, sir.

6 Q What was the nature of that disagreement?

7 A Because they were being over-conservative.

8 Q What do you mean by that?

9 A In my mind, I felt that they were acceptable,
10 and they were calling them unacceptable.

11 Q You mean that the weld was acceptable, in your
12 opinion, that the reinspector had called unacceptable?

13 A Yes, sir.

14 Q Of the approximately 200 welds that you looked
15 at for Hatfield, do you have a recollection of how many fell
16 into this category?

17 A No, sir, I don't. I would like to add that
18 S&L, the third party, was doing a very good job in making
19 the welds that they found to be documented as unacceptable,
20 acceptable. But in some cases, I found that they were being
21 over-conservative, too.

22 Q Let me see if I -- go ahead, I'm sorry.

23 A And in asking the people why, you know, --
24 ordinarily, it's the other way around. And because of this
25 program, I talked to supervisors and inspectors themselves

1 on why they were so conservative, and the reason is because
2 they didn't know what welds I would be looking at. They
3 didn't know how many audits Commonwealth would be
4 performing, and they might find this, also.

5 Q So that I understand this process, you looked
6 at Hatfield welds that were inspected by a reinspector, and
7 disagreed with the call made by a reinspector in terms of not
8 believing that it was actually a defective weld. Is that
9 correct?

10 A Yes, sir.

11 Q Now let's take that particular example where the
12 reinspector found a weld he believed to be discrepant. What
13 role then, if any, did the Level III third party inspector
14 play with respect to that weld? Did he review it?

15 A They reviewed all the unacceptable ones, and --

16 Q So under my example, he would have reviewed
17 that weld?

18 A Yes, sir, he would have.

19 Q So what was the purpose of that review?

20 A To verify that those welds were really
21 acceptable.

22 Q If he disagreed with the reinspector, what
23 was done?

24 A He overruled that inspector, which is documented
25 in their reports, in my reports.

1 Q Did you review that activity of a Level III
2 third party inspector in this respect?

3 A Yes, sir. I went with them several times in
4 his performance, as well as several reinspection personnel,
5 looking at welds.

6 Q Did you disagree with any call made by the
7 Level III third party reinspector? I'm sorry, third party
8 inspector?

9 A Once in a while I would, yes, sir.

10 Q What was the nature of the disagreement?

11 A Again, being over-conservative.

12 Q Over-conservative.

13 A Yes, sir.

14 Q Does that mean that you didn't believe the
15 weld was defective?

16 A Yes, sir.

17 Q Did you look at any Hatfield welds that were
18 the subject of the Reinspection Program but were not
19 determined to be defective by the reinspector?

20 A Yes, I did. This is documented in my reports,
21 also, where I looked.

22 Q Did you disagree with any call made by the
23 reinspector during that review?

24 A No, sir.

25 Q So does that mean that you agreed that the welds

1 were not defective?

2 A Yes, sir.

3 Q Can you give me some idea of how many welds in
4 this category you looked at?

5 A I don't know exactly how many I have documented
6 in my reports, but I know I looked at thousands at Byron
7 and various other --

8 Q This is Hatfield welds we're talking about now.
9 Hatfield.

10 A I don't know which were Hatfield and which
11 were not.

12 Q Do you know that, in fact, some Hatfield welds
13 were in this grouping that you looked at?

14 A Had to be, yes, sir.

15 Q And on what basis do you conclude that they
16 had to be?

17 A Because in looking at welds, which I knew were
18 Hatfield's, in this same area there would be other Hatfield
19 welds. As an example, you're looking at a hanger on this
20 cable tray, and you know that the rest of all these welds
21 were done by -- I knew they were done by Hatfield.

22 Q Basically, did you know that Hatfield had done
23 the welding on cable trays and hangers?

24 A Yes, sir.

25 MR. GALLO: Could I have a moment?

1 JUDGE SMITH: Mr. Gallo, was there -- there may
2 be a place there where I lost the thread of his testimony.
3 Your questioning along this certain line began, did you look
4 at Hatfield welds which were the subject of the Reinspection
5 Program. And he said yes.

6 MR. GALLO: But were found not to be discrepant.

7 JUDGE SMITH: And found not to be discrepant.
8 And he said yes. And then you said how many.

9 MR. GALLO: I ultimately asked that question, yes.

10 JUDGE SMITH: Yes. Well, there's confusion in
11 my mind as to whether he understood your initial -- whether
12 the end of your questioning was -- . Did there come a point
13 in your questioning when you went to a different question
14 which produced the "thousands of welds" some of which were
15 Hatfield's?

16 MR. GALLO: Yes. As I understood the witness'
17 answer, at one point he interpreted my question to mean
18 welds generally under the Reinspection Program, and he said
19 "thousands of welds." Then I brought him back to Hatfield
20 only, and that's when he said he couldn't give me the exact
21 number.

22 JUDGE SMITH: Right. So his original answer was
23 probably incorrect.

24 MR. GALLO: I'm sorry, sir?

25 JUDGE SMITH: His original answer was probably

1 incorrect.

2 MR. GALLO: Well, I'll ask that question again.

3 BY MR. GALLO:

4 Q For Hatfield, did you review some Hatfield
5 welds that were the subject of the Reinspection Program,
6 which welds were not found to be discrepant by the reinspector?

7 A (Witness Ward) Yes, sir.

8 Q Now, my question is clear in your mind?

9 A Yes, sir. You are speaking --

10 Q All right. I guess where the confusion arose is
11 I asked you how many of those welds you looked at.

12 A Yes.

13 Q And your testimony may have been "thousands."
14 Now, for Hatfield non-discrepant welds as called by the
15 reinspector, generally how many welds do you recall that you
16 looked at?

17 A I would have to count the ones that are documented
18 in my report, and hundreds of others that were Hatfield.

19 Q You don't know the exact number at this time?

20 A No, sir.

21 Q But it's clear in your mind that you looked at
22 some; is that correct?

23 A Yes.

24 Q Is it clear in your mind that you agreed with the
25 call made by the reinspector that they were not discrepant?

A Yes, sir.

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MR. GALLO: Could I have a moment, Your Honor?

JUDGE SMITH: Yes. It's 12:00 o'clock. Would you like to break for lunch?

MR. GALLO: I was about to shift to the documentation on Hatfield, so it would be a good time.

JUDGE SMITH: All right, we will return at 1:15.

(Whereupon, at 12:05 p.m., the hearing in the above-entitled matter was recessed for lunch, to reconvene at 1:15 p.m. the same day.)

EWB 15

MMmgc16-1 1

AFTERNOON SESSION

(1:20 p.m.)

2
3 Whereupon,

4 KAVIN D. WARD

5 JAMES MUFFETT

6 WILLIAM LITTLE

7 RAY LOVE

8 KEVIN CONNAUGHTON

9 resumed the stand and, having been previously duly sworn,
10 were examined and testified further as follows:11 MR. LEARNER: Judge Smith, if I could be heard
12 on a preliminary housekeeping matter?

13 JUDGE SMITH: Proceed.

14 MR. LEARNER: Yesterday there was quite a bit
15 of discussion about a memorandum from Mr. Hayes. We had
16 not been planning on introducing that letter, but given
17 the amount of discussion, to avoid problems in the record,
18 we would like to introduce it at this time.19 I understand from Mr. Lewis that he will stipulate
20 as to the authenticity.21 MR. LEWIS: We will stipulate its authenticity.
22 We may ask some questions later on on redirect regarding
23 the document, but we have no objection to its being
24 identified in the record as being the memorandum of Mr. Hayes
25 to Mr. Spessard.

mgc16-2

1 MR. GALLO: I object, Your Honor. The
2 memorandum is irrelevant and immaterial to the issues in
3 the case. As I understand it, the testimony that was given
4 yesterday by Mr. Little, this memorandum reflects the
5 suggestions made by Mr. Hayes on or about February 13, 1984,
6 during the early formulation of the reinspection program.

7 Mr. Little indicated in his cross-examination
8 yesterday that Mr. Hayes no longer holds these views. What
9 is important to this proceeding is the results of the
10 reinspection program, not the different views of the Staff
11 people at the time of the formulation of the program.

12 For that reason, I believe it's irrelevant and
13 immaterial and should not be admitted into evidence.

14 MR. LEWIS: Your Honor, my agreement is simply
15 to stipulate as to the authenticity of it for identification.
16 It's my understanding that the purpose was that the record
17 should have in it for identification the document upon which
18 questioning was taking place. I didn't understand that
19 this was being offered for the truth of the statements
20 therein. If that were the case, I think we would want to
21 have Mr. Hayes more reliably state what his present views
22 are, if that is necessary to be done.

23 JUDGE SMITH: Since Mr. Hayes is here and he
24 has been present during all of the relevant testimony,
25 and in view of the statement that he has made here, which

mgcl6-3

1 is indeed relevant and material to the issues --

2 MR. GALLO: Which statement is that, Your
3 Honor?

4 JUDGE SMITH: "In my opinion, the reinspection
5 program tells us little about the capability and effectiveness
6 of the selected inspectors." If that's not relevant to our
7 business here, I don't know what is.

8 MR. GALLO: Well, Your Honor, the point in time
9 that the statement was made, I think, is significant.

10 JUDGE SMITH: Yes, I understand. I mean, his
11 statement is relevant. Whether it is still valid or not,
12 I agree with you, that is something that -- if we receive
13 this letter, then we have to also determine whether the
14 views persisted, if the views survived the collegial
15 process.

16 MR. GALLO: Your Honor, I, too, am an advocate
17 of the tidy record rule. I would suggest that we defer a
18 ruling on this matter until Mr. Hayes takes the stand, and
19 it can all appear at that one location.

20 JUDGE SMITH: Yes. That's what I had intended.

21 MR. LEARNER: Is Mr. Hayes going to take the
22 stand?

23 MR. LEWIS: Mr. Chairman, for purposes of this
24 limited question, when Mr. Hayes takes the stand regarding
25 his other testimony, I would not object to some brief

mgc16-4

1 questioning at that time.

2 JUDGE SMITH: That is exactly -- had I been
3 permitted to finish my remarks, that's exactly where I
4 would have ended up.

5 MR. LEWIS: Excuse me.

6 JUDGE SMITH: So that demonstrates the wiseness
7 of your suggestion.

8 (Laughter.)

9 MR. LEARNE^D: We obviously find that acceptable.

10 MR. GALLO: May I proceed, Your Honor?

11 JUDGE SMITH: Yes.

12 CROSS-EXAMINATION (RESUMED)

13 BY MR. GALLO:

14 Q Mr. Ward, just before we broke for lunch, I had
15 asked you a series of questions about your review of the
16 Hatfield welds.

17 I now turn to your review of the welds reinspected
18 which were produced by Hunter. Did you review any of
19 the Hunter discrepant AWS welds as a part of your evaluation?

20 A (Witness Ward) Yes, sir.

21 Q Was the total number of discrepant welds involved
22 60?

23 A It may have been.

24 Q Do you recall how many of the AWS Hunter discrepant
25 welds that you reviewed?

mgcl6-5

1 A I'm not sure. In one of my reports, I remember
2 it was documented as 27. I don't remember the exact number
3 of others that I looked at.

4 Q That's fine. It's not that important.

5 Did you -- again, what was the purpose of your
6 review of these Hunter AWS discrepant welds?

7 A The same reason as I had in looking -- when I
8 looked at the Hatfield welds.

9 Q Did you agree with the calls made by the
10 reinspectors with respect to the discrepant Hunter AWS welds?

11 A No, sir, not 100 percent.

12 Q What was the nature of your disagreement?

13 A Again being overconservative.

14 Q By that, do you mean that certain of the
15 discrepancies in the welds that you looked at were not
16 deemed by you to be discrepancies?

17 A Yes, sir.

18 Q Did you review any of the calls made by the
19 third-party inspector of the Hunter AWS welds?

20 A I did.

21 Q Did you agree with the calls made by the Level III
22 third-party inspectors of these welds?

23 A No, sir.

24 Q Again, what was the nature of your disagreement?

25 A Because they were also overconservative and not

mgc16-6

1 as much as the other people.

2 Q But there were some welds that were termed
3 discrepant that you believed not to be discrepant?

4 A Yes, sir.

5 Q Did you examine any Hunter AWS welds which the
6 reinspector had found not to be discrepant?

7 A Yes, I did.

8 Q And did you disagree with the calls made by the
9 reinspectors on those welds that you examined?

10 A No, I did not.

11 Q Turning to Pittsburgh Testing Laboratory, my
12 understanding of Pittsburgh Testing Laboratory, Mr. Ward,
13 is that they reinspected inspections originally conducted
14 by PTL inspectors. Is that your understanding?

15 A Yes, sir.

16 Q Did PTL in fact do any welding?

17 A I don't believe they did; no, sir.

18 Q Do you know what contractor did the welding that
19 was the subject of reinspection or inspection initially by
20 PTL?

21 A Hatfield.

22 Q Hatfield?

23 A Yes, sir.

24 Q Would the questions and answers I asked you before
25 lunchtime with respect to the Hatfield welds include any

mgc16-7

1 welds inspected by PTL?

2 A Yes, sir.

3 MR. GALLO: May I have a moment, Your Honor.

4 JUDGE SMITH: Certainly.

5 (Applicant's counsel confer.)

End 16MM 6

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1 BY MR. GALLO:

2 Q Did you review any discrepant ASME welds that
3 were produced by Hunter?

4 A (Witness Ward) I might have looked at them.
5 But it wasn't documented as ASME. It was AWS visual only.

6 Q AWS visual only?

7 A I might elaborate a little bit on this. You
8 know, why people were being overconservative again.

9 Originally all these welds were acceptable, so
10 therefore, because of this program, the majority -- just
11 about every one was on the borderline type. And day one
12 they were acceptable. So, because of the program, now the
13 ones that were borderline were unacceptable, and there
14 aren't any reports that you mark for borderline or gray
15 area. They have to be acceptable or they have to be
16 unacceptable.

17 So, these original welds that were originally
18 acceptable, now they turned to be unacceptable. And I
19 just use the word, people were gunshy, afraid that, you know,
20 we might find something that they missed. And they felt, you
21 know, really good when I complained, because why not, use
22 their education and experience and do their job, instead of
23 making good welds unacceptable.

24 Q I take it your comment -- I'm sorry, go ahead.

25 A I just wanted to explain a little further that

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1 most of these were borderline, and that was one of the
2 reasons for some of this.

3 Q I take it your comments don't apply to the
4 welds that were found to be cracked?

5 A I believe there were two that were found to be
6 cracked.

7 Q Do you consider those borderline or not?

8 A A crack, no matter how small, is unacceptable.

9 Q All right.

10 Turning now to your review of documentation
11 matters, I believe you testified that you reviewed certain
12 Hatfield documentation involved with the reinspection of the
13 visual weld inspections, is that correct?

14 A Yes, sir.

15 Q Can you identify for me what records you reviewed
16 with respect to Hatfield?

17 A Well, the original records and the records of
18 the reinspection program which -- and the records in most
19 cases looked like what is in our testimony on page 28.

20 MR. LEWIS: Will you also identify that by the
21 number. Is it an attachment to your testimony, an enclosure
22 to your testimony?

23 WITNESS WARD: I believe it is Enclosure 1, page
24 28. Well, pages 20, 21, 22 -- that's just an example of
25 what the records look like.

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1 BY MR. GALLO:

2 Q Let me ask you a question about these weld
3 travellers. A series of questions was asked by Mr. Learner
4 concerning the condition of the Hatfield weld travellers.

5 First of all, explain to me briefly what kind of
6 information is contained on a weld traveller?

7 A (Witness Ward) Most of the time it is the
8 weld number, the welder who did the welding. It might be a
9 join member. Various information about the weld.

10 Q Did you find the information on the weld travellers
11 that you reviewed to be -- I think your words was messy, to
12 the point where you could not identify the original inspector
13 of the weld, is that correct?

14 A Yes, sir. It was very hard. But, given enough
15 time they would -- this is on the original?

16 Q Yes.

17 A Given enough time they could come up with, most
18 of the time, enough information to satisfy what was
19 required.

20 Q How did Hatfield remedy this problem with the
21 documentation?

22 A Well, they had a Warg. I believe they had a
23 Wang. They hired more people -- this is Hatfield?

24 Q Yes.

25 A They hired all kinds of people to research,

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1 compare various documents with the weld travellers that
2 they had. It has been a long time ago, I have a hard
3 time remembering.

4 Q What did they use the Wang for?

5 A In documenting exactly what they had.

6 Q Is that a computer?

7 A Yes, sir.

8 Q In essence, is it your testimony that Hatfield
9 attempted to recreate the information on the weld traveller?

10 A Yes, sir.

11 Q Were they successful, to your knowledge?

12 A Yes, sir.

13 As far as they could -- you know, with what
14 information they had, they did everything possible to come
15 up with --

16 Q Through this process, were they able to establish
17 who the original inspector was with respect to some
18 weld inspections performed by Hatfield inspectors?

19 A I believe so.

20 JUDGE SMITH: Mr. Gallo, point of clarification.

21 I understood the earlier concern was that a given
22 weld traveller may not reflect the fact that a weld
23 subsequently may have been reworked and reinspected. Therefore,
24 an inspection of it would not be the work of the welder and
25 the inspector appearing upon the original document.

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1 Was that a concern, or was that as to a different
2 document, other than a weld traveller?

3 WITNESS WARD: I believe that was a weld traveller,
4 yes, sir.

5 JUDGE SMITH: So did I understand your testimony
6 correctly that that was a problem that was confronted with
7 Hatfield at the time?

8 WITNESS WARD: Yes, sir.

9 BY MR. GALLO:

10 Q All right, Mr. Ward. So the weld traveller
11 apparently -- some weld travellers for Hatfield apparently
12 did not have sufficient information so that the original
13 inspector could be identified. Is that correct?

14 A (Witness Ward) Yes, sir.

15 Q And some weld travellers apparently didn't have
16 sufficient information to determine whether or not the weld
17 under consideration had been modified at some subsequent
18 time, is that correct?

19 A There was just about every kind of a situation you
20 could think of on a weld traveller.

21 Is that right, Kevin?

22 A (Witness Connaughton) I think I can address that.
23 The computer base data management system we have
24 been referring to as the Wang, they used to input various
25 fields of information on the traveller cards. And, using that

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1 medium, they could sort all of the inspection documentation,
2 for example, by hanger number. Ask for all the information
3 on a hanger number.

4 It would list the various travellers associated
5 with that hanger, so you could establish the history in
6 which one was the latest traveller for that item.

7 JUDGE SMITH: When did they begin using the
8 Wang computer?

9 WITNESS CONNAUGHTON: It is my understanding they
10 started reviewing documentation and inputting it on to that
11 system to -- I believe it was August of '83 that they
12 decided to review all their inspection documents and to
13 get them on to the system, such that they could assure
14 themselves that they were using legitimate inspection
15 reports.

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2 JUDGE SMITH: You had testified earlier in the
3 August '83 hearing, and the Staff had expressed some
4 concern, that the actual inspectors would not be identified.

5 WITNESS CONNAUGHTON: That is correct.

6 JUDGE SMITH: Was this use of the computer as
7 a consequence of the Staff's concern, or would it have
8 happened in any event, do you believe?

9 WITNESS CONNAUGHTON: I would be speculating.
10 I think it was responsive to our concern. There was an
11 audit performed subsequent to our expressing concern, which
12 also arrived at the conclusion that something like this
13 was needed.

14 JUDGE SMITH: Okay. Mr. Gallo?

15 BY MR. GALLO:

16 Q Mr. Connaughton, was Hatfield successful in
17 recreating the information on these weld travelers, so that
18 the original inspector was identified?

19 A (Witness Connaughton) I'm not sure that was done
20 in all cases. I don't know that -- I can't make a
21 categorical statement in that regard. I believe that using
22 this computer-based system, they could establish, indeed --
23 as long as the information was legible on the traveler
24 card, they could establish the inspector's identity, but
25 I don't know. Perhaps there were instances in which the
information was illegible. I don't know.

mgc18-1

1 Q Mr. Connaughton, do you know whether, for
2 purposes of the reinspection program, that only weld
3 traveler's use -- strike that.

4 Do you know, for purposes of the reinspection
5 program, whether or not only weld travelers were used for
6 Hatfield where they original inspector was clearly identified?

7 A That was the case.

8 Q So it's my understanding that if a weld traveler
9 could not be recreated to the point of clearly identifying
10 the original inspector, then that particular weld or weld
11 traveler was not included in the program; is that correct?

12 A That's correct. However, inspection of the item
13 would be required, if it couldn't be established that the
14 item had subsequently been -- if they found a traveler that
15 did not identify the welder, that information, they would
16 attempt to retrieve that information by reinspection of the
17 item, getting the welder's symbol off of the item or --

18 JUDGE SMITH: That was to assure that the welds
19 that were to have been captured in the reinspection program
20 by inspector was included in those available to be captured
21 under that particular inspector?

22 WITNESS CONNAUGHTON: That's correct. There would
23 be no basis for assigning a traveler to a given inspector
24 if his name was not included on the traveler, or some
25 identification.

mgc18-3

1 JUDGE SMITH: So they were thorough enough that
2 they tried to trace all possible welds back to the particular
3 inspector?

4 WITNESS CONNAUGHTON: Yes, where that data existed.

5 JUDGE SMITH: Had there been some errors in
6 that program? Do you have any reason to believe that there
7 would not be random errors?

8 WITNESS CONNAUGHTON: I have no reason to believe
9 that there would not be random --

10 JUDGE SMITH: One way or the other?

11 WITNESS CONNAUGHTON: That's correct.

12 JUDGE CALLIHAN: Was this bookkeeping also
13 helpful in establishing that a particular reinspector did
14 not reinspect his own work?

15 WITNESS CONNAUGHTON: It seems to me it could have
16 been used in that manner. I'm not sure that it could sort
17 the information in the system by QC inspector. Perhaps
18 Applicant illuminate that point. It could be used for that.
19 It seems to me it would expedite that kind of review.

20 JUDGE CALLIHAN: Thank you.

21 BY MR. GALLO:

22 Q Mr. Ward, returning to your document review in
23 connection with Hatfield and Hunter, I think you testified
24 that you reviewed original inspection records; is that
25 correct?

mgc18-4

1 A (Witness Ward) Yes, sir.

2 Q Is this both for Hatfield and Hunter?

3 A Yes, sir.

4 Q And why did you review the original inspection
5 records for Hatfield and Hunter?

6 A To see if I had any major problems with them.
7 I didn't, you know, look to see if the Ts were crossed and
8 things like that. If I felt they were acceptable enough to
9 be used as a good record, that's why I made my statement,
10 I thought they were acceptable.

11 Q What did you look for in terms of problems?

12 A I made sure that the correct numbers were there
13 for whatever welds they might be referring to, that they
14 were signed, all the blanks were filled in, and there was
15 sufficient paper there for whatever the purpose was, visual
16 or whatever.

17 Q Did you look at a sample of these records or all
18 of them?

19 A For those 800 --

20 Q We're talking Hatfield and Hunter.

21 A Every weld that is documented in my reports, I
22 also looked at all the documentation.

23 Q I see. What was the conclusion of your review?

24 A I found it ought to be acceptable.

25 Q I believe you testified that you also looked at

mgcl8-5

1 the reinspection record; is that correct?

2 A Yes, sir.

3 Q And what was your purpose in looking at those?

4 A Again, to make sure that everything was
5 documented correctly, the blanks filled in, signed, dates
6 and numbers right, enough information that anybody could
7 refer back to whatever they needed to if a certain number
8 was called out.

9 Q And did you look at the reinspection records
10 with respect to the welds that are documented in your
11 testimony?

12 A Yes, sir.

13 Q What was the result of that review?

14 A I found it to be acceptable.

15 Q Mr. Ward, based on your review of the visual weld
16 inspections performed by Hatfield, Hunter and PTL under
17 the reinspection program, do you have an opinion concerning
18 the qualification or competence of the QC inspectors
19 performing those examinations?

20 A I thought they were very good. They did a good
21 job.

22 Q Did you believe they were competent?

23 A Yes, sir.

24 Q Mr. Muffett, I believe you testified that you
25 reviewed the Sargent & Lundy discrepancy evaluations. Did

mgc18-6

1 you review the Sargent & Lundy evaluations of the discrepant
2 welds that were produced by Hatfield?

3 MR. LEARNER: Objection. Could you clarify, Joe,
4 whether you are referring to the reinspection program or
5 the supplemental reinspection program?

6 MR. GALLO: Yes, right, right.

7 BY MR. GALLO:

8 Q Referring to the reinspection program, Mr. Muffett,
9 did you review the weld discrepancy evaluation performed
10 by Sargent & Lundy with respect to Hatfield?

11 A (Witness Muffett) Yes.

12 Q Did you review, again for the reinspection program,
13 the discrepancy or the discrepant weld evaluation performed
14 by S&L with respect to Hunter?

15 A Yes.

16 Q Was this AWS and ASME weld discrepancies or just
17 one or the other?

18 A I believe it was both. I will state that for
19 Hunter, most of my emphasis was on the ASME.

20 Q On the ASME?

21 A Yes, sir.

22 Q Did you review the Sargent & Lundy evaluations
23 for discrepant objective attributes for Hatfield?

24 A I personally did not review the objective weld
25 discrepancies for Hatfield, because this was a documentation

mgc18-7

1 matter.

2 Q How about the non-weld discrepancies that were
3 among the objective attributes for Hatfield? Did you
4 review those?

5 A Yes.

6 MR. LEARNER: Joe, could I just ask you, are
7 you referring at all times to the reinspection program, as
8 compared to the supplemental?

9 MR. GALLO: Yes. I recognize that Mr. Muffett
10 has testified that he did not do any review of the
11 reinspection program.

12 MR. LEWIS: The supplemental.

13 MR. GALLO: I'm sorry. The supplemental report.

14 BY MR. GALLO:

15 Q With respect to Hunter objective attributes, and
16 in particular those found to be discrepant during the
17 course of the reinspection program, did you review any
18 Sargent & Lundy evaluations of those discrepancies?

19 A (Witness Muffett) Yes.

20 Q And would that include the discrepant condition
21 called pipe ovality?

22 A Yes.

23 Q When you reviewed the evaluations performed by
24 Sargent & Lundy with respect to the AWS welds and the ASME
25 welds, can you tell me what the purpose of your review was?

mgc18-8

1 A The purpose of my review was to determine if
2 these discrepencies caused the items to, one, violate
3 the applicable code, or two, which I will say is much the
4 same thing as one in my review, caused the component not
5 to be able to perform its design function.

6 Q With respect to the weld evaluations performed
7 by Sargent & Lundy, are you aware that Sargent & Lundy
8 used three different approaches to conduct that evaluation?

9 A I'm aware of what I would define as a large
10 number of approaches. I'm not sure that we are on the beam
11 as to what you mean.

12 Q Well, all right. I think my question was too
13 vague for you.

14 Were some weld discrepancies dispositioned on the
15 basis of observation because the nature of the discrepancy
16 was one of a cosmetic nature?

17 A Yes.

18 Q That's one approach.

19 A Yes.

20 Q Did you review any of those evaluations yourself?

21 A What I did in that regard was do some independent
22 study of the effects of these cosmetic things, using the
23 Handbook of the AWS and the effect on load-bearing capacity.
24 And I came to the conclusion that these were generally
25 cosmetic.

mgc18-9

1 The excess convexity could have some effect on
2 fatigue strength, but these welds we're talking about did
3 not have fatigue strength requirements. So I felt that
4 those cosmetic things really -- that's just what they were
5 in these cases.

6 Q What were the cosmetic defects that you are
7 referring to?

8 A Excess convexity and the arc strike.

9 Q Was spatter also among this category?

10 A Yes.

11 Q Are you aware that Sargent & Lundy used engineering
12 judgment as one method of dispositioning weld discrepancy?

13 A Yes.

14 Q Did you review any of the evaluations that used
15 engineering judgment?

16 A Yes.

17 Q Tell me how you conducted your review?

18 A I looked at the documentation at the weld which
19 delineated the load, the discrepancy, and the documentation
20 of the judgment, and I concurred with the judgment.

21 Q In other words, you used your own engineering
22 judgment to determine whether or not you agreed with that
23 done by Sargent & Lundy?

24 A Yes, exactly.

End18SY 25

1 Q Can you give me an example of the kind of
2 discrepancy where engineering judgment alone could be used
3 to disposition that particular matter?

4 A I can give you a hypothetical. I really can't
5 recall -- if you had a structure made out of fairly large
6 steel members with a trivial load on it, five pounds, and
7 you found that there was a discrepancy in one part of one
8 weld out of a host of them, based on your experience and
9 having analyzed you could see that with only a five or 10
10 pound load, it was insignificant.

11 Q Was that type of example among the types of
12 discrepancies that were disposed of by engineering judgment
13 by Sargent & Lundy?

14 A They were ones where the loads were very minimal,
15 yes.

16 Q Are you aware that Sargent & Lundy used
17 calculations to recalculate the capacity of welded
18 connections as a method of disposing of weld discrepancy?

19 A Yes.

20 Q Did you review those evaluations?

21 A Yes.

22 Q How did you conduct that review?

23 A I took the calculation and I did a review of
24 the technical methodology, the completeness, that I reached
25 the proper conclusion, and that the proper references -- that

1 numbers that were generated elsewhere were referenced and
2 they were tied back to some other document.

3 Oftentimes, as I stated before, I recalculated
4 a number where there was a fairly large equation. If it had
5 a lot of terms, I would recalculate the number. And I would
6 also make some kind of judgment if this was an appropriate
7 method used for the problem at hand.

8 Q When you say you reviewed the calculations for
9 technical methodology, just what does that term mean?

10 A That they're attacking the problem that they
11 had with the proper equations, the proper approach. If
12 it's the bending of a beam, you would want to make sure that
13 there were equations developed for the stresses and bending
14 of a beam.

15 Q Did you ever disagree with the methodology used
16 by Sargent & Lundy for the evaluations you reviewed?

17 A I believe there are three instances here; two of
18 them could be construed as disagreements. And I'm referring
19 to my report 84-13. This is on page 44.

20 MR. LEWIS: Let's identify that by the enclosure
21 to the testimony. Is it attached to the testimony?

22 WITNESS MUFFETT: I don't know.

23 MR. GALLO: I don't believe it is.

24 BY MR. GALLO:

25 Q Let's take the first one of those examples and

1 explain to me the nature of the methodology, and secondly,
2 whether or not -- the nature of the disagreement, if any.

side 2

3 JUDGE SMITH: Would you give the page again?

4 WITNESS MUFFETT: Page 44, the middle of the page.

5 The first one dealt with discrepancies which
6 are identified as JC-27 and 28. The inspector had found a
7 lack of fusion at the end of this weld. Sargent & Lundy
8 had done a calculation with an inherent assumption -- or
9 they had made the assumption that that lack of fusion only
10 existed in the first or last -- and last quarter inch of
11 the weld.

12 It was my position that you could not know how
13 long that lack of fusion was until you ground it out. And
14 that assumption by itself was an improper one to make.

15 Q Did you make that recommendation to Sargent
16 and Lundy?

17 A Well obviously, when I had the finding I wanted
18 to discuss this with them. It turns out that this weld had
19 been replaced, and when it was ground out there was only a
20 lack of fusion in the first or last quarter inch.

21 There was a QC inspector report that verified
22 that. Taking that into account, and reducing a weld by the
23 first and last quarter inch, it was still able to do its
24 design function.

25 This dispute or concern was based on a regulatory

1 judgment that we didn't want to endorse that assumption of
2 the first and last quarter inch being the only place for
3 lack of fusion, in a broader sense, outside this sense and
4 in all our work.

5 Q Well, did you conclude that this particular
6 evaluation was defective, for that reason then?

7 A No. Because they had ground it out and found
8 that the fusion, or the lack of fusion, was only a quarter
9 inch long, then that essentially validated their assumption.
10 And this disposition of this discrepancy was acceptable.

11 Q I believe you mentioned a second area of
12 concern or disagreement.

13 A And that is Item 3 in the list we're looking
14 at in the report.

15 Q Would you indicate what that item is for the
16 record?

17 A Welds in the Reinspection Program. Some were
18 found to have slag as a discrepancy. These were treated by
19 two different methods. One method was to reduce the length
20 of the weld by the portion which had slag. There was another
21 method which, in effect, reduced the throat dimension of
22 the weld in doing the reanalysis.

23 I believe it was proper to reduce the length
24 rather than the throat dimension as a matter of course. The
25 cases where this came to light, the weld would have been

1 acceptable using either method.

2 Q You say that the calculation or the evaluation
3 performed by Sargent & Lundy in this area was acceptable
4 using either method?

5 A For this particular weld.

6 Q And did you so find it acceptable?

7 A Yes.

8 Q I believe you mentioned a third area that you
9 characterized as something less than a disagreement or
10 concern. For clarify of the record, would you indicate that
11 one, too?

12 A Yes. This is discrepancy report HE-121, QC
13 Inspector's Report 22-19. At the time of my inspection there
14 was no calculation dealing with this discrepancy.

15 Q And how was that remedied, if indeed it was?

16 A When I had chosen these to look at, I had
17 basically used a random pattern. When I discovered that this
18 one had no calculation, they were very straightforward and
19 said yes, we appear to have made an error, and we will get
20 right on this right away.

21 My inspection lasted over a number of days, and
22 this calculation was done and presented to me before I left
23 the offices.

24 Q Did you agree with the calculation after it
25 was completed?

1 A Yes.

2 Q And you found it acceptable?

3 A Yes.

4 Q I believe you testified in response to
5 Mr. Learner's questions that you had been told -- or you
6 looked at about 200 calculations of Sargent & Lundy evaluations.
7 Is my memory correct?

8 A One hundred.

9 Q One hundred. Of the 100, were these the only
10 three where you had disagreement with respect to the technical
11 methodology?

12 A There was one other which I believe I failed to
13 document, and it had to do with the analysis of the cable
14 pan after a cracked weld was discovered.

15 Again, we discussed that, and based on my
16 concern it was recalculated using a different methodology
17 and found to be acceptable.

18 Q All right. With the exception of those four
19 matters, did you have any disagreement with respect to the
20 technical methodology used by Sargent & Lundy with respect
21 to the 100 evaluations you looked at?

22 A No.

23 Q When you looked at an evaluation or calculation
24 for completeness, what did you look for?

25 A If it was a calculation to prove that something

1 was in the allowable stress, then at the bottom or the end of
2 the calculation you should have the stress in the object and
3 the allowable stress, and some statement showing that i.e.,
4 therefore, it is all right, acceptable.

5 Q Did you find any calculations that you reviewed
6 incomplete in that sense?

7 A Not to the best of my recollection.

8 Q When you mentioned in your testimony that you
9 also checked the calculations for references, what did you
10 mean by that?

11 A These calculations obviously have to have
12 numbers such as load and accelerations due to a seismic event
13 from somewhere else, and they're not developed in these
14 calculations. When that number appears in safety-related
15 calculations, it has to be referenced as to where it came from.

16 These safety-related calculations basically have
17 a test that they have to be recreatable by a knowledgeable
18 person. So when a number came into the calculation from
19 elsewhere, there needs to be a reference.

20 Q Could you give me an example of the kind of
21 number you're talking about?

22 A One would be an acceleration from an earthquake,
23 which could be used in calculating a load generated by that
24 earthquake. When that number enters the calculation, it
25 should reference a response spectra for some elevation of the

1 building, and some certain building.

2 Q Would the reference in that case be the FSAR?

3 A No.

4 Q What would be the reference?

5 A It would be another calculation.

6 Q Another calculation performed by Sargent & Lundy?

7 A By and large.

8 Q During your review of the Sargent & Lundy
9 evaluation, did you discover any with missing references?

10 A I believe there were a few.

11 Q Could you give me some notion as to the number?

12 A Right now, I would say maybe approximately five.

13 Q It would be five out of the 100?

14 A Yes.

15 Q What remedial action, if any, was taken with
16 respect to these five references?

17 A The way this procedure was taking place is that
18 I was going into a room with the calculations by myself, and
19 a Sargent & Lundy representative or someone familiar with the
20 work every so often would stop by to see if I had any questions.

21 When they came by -- these missing references,
22 when they were identified, I would highlight that to them
23 and say, this number isn't referenced in the way I think it
24 should be. And to my recollection in most cases they would
25 say yes, that's right. And go find out what the reference was

1 and add it to the calculation.

2 Q Did they add it to the calculations?

3 A Yes.

4 Q Based on your review of the evaluations performed
5 by Sargent & Lundy did you draw an opinion with respect to
6 the adequacy of those evaluations?

7 A Yes.

8 Q And what was that opinion?

9 A I thought they had a very -- well, I thought the
10 program was good. It was more than adequate to deal with
11 these problems. They had an excellent system of documentation
12 to track the discrepancies, the QC inspector report numbers
13 and the calculations. And they were done in a manner for
14 the most part, except for the instances mentioned, that clearly
15 demonstrated what they set out to demonstrate.

16 Q Is that your opinion despite the fact that you
17 found some areas of disagreement with the methodology, and
18 in some cases, missing references?

19 A Yes. This amount of observations or disagreements
20 in that number of calculations in my professional opinion is
21 small.

22 Q Is your opinion with respect to the adequacy of
23 the S&L evaluations -- does that still stand, despite the
24 fact that you didn't review any of the S&L evaluations
25 concerning the discrepant welds under the supplemental aspect

1 of the Reinspection Program?

2 A That's right. I would like to expand on that.
3 Our purpose in going in to look at this program was not to
4 check all the welds or do independent calculations. Our
5 purpose was to ascertain what kind of program had been set
6 up.

7 The program, we found, was dealing with -- was
8 comprised of a good documentation system, and some rather
9 straightforward engineering calculations which were showing
10 that the discrepancies didn't have safety significance.

11 So we felt very good about the program that was
12 taking place.

13 Q On page 25 of your testimony, I think you used
14 the term "safety significant." It's right in the middle of
15 the page on page 25. You say, "On the basis of this review,
16 Staff concurs in Sargent & Lundy's conclusion that none of
17 the discrepancies have safety significance." Is that your
18 testimony?

19 A Yes.

20 Q As I recall, the Sargent & Lundy witnesses used
21 the terminology "design significance." They testified that
22 none of the discrepancies had design significance. Is that
23 your understanding of their testimony?

24 A Yes.

25 Q What is the difference in your mind between design

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1 significance and safety significance?

2 A I guess the design significance wasn't my
3 terminology. I have always tried to stick with safety
4 significance.

5 I believe that they are generally the same thing,
6 the way they are being used.

7 Q And what does safety significance mean to you,
8 as you use the term in your testimony?

9 A That the component will not be able to perform
10 its desired function, and the test of that is generally
11 the applicable code, because of the discrepancies found.

End19SY

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2 Q Isn't it possible for components in a nuclear
reactor -- strike that.

3 Isn't it possible for a cable pan hanger to be
4 discrepant to the point where it is defective, doesn't
5 meet code, not adequate, it might fail during some kind of
6 a seismic event, for example, and still not lead to a
7 safety problem?

8 A Oh, certainly, that's possible. And that takes
9 a lot of study of the individual components, and that's not
10 test I held any of these discrepancies up against. I held
11 these up against the FSAR commitments, which are essentially
12 the code.

13 Q You used the term "safety significance" then as
14 the term-of-art, rather than as a layperson might.

15 A Correct.

16 Q Page 23 of your testimony, you simply indicated
17 a number of nonreinspectable items not similar to
18 reinspectable ones, and you give an example, "Soil." What
19 is that example? I don't understand it.

20 A There are certain tests required of the soil that
21 is underneath any building. These are apt to do with the
22 mechanical and physical properties of the soil.

23 Q This is not an attribute. This is the subject
24 of the reinspection program; isn't that correct?

25 A That's correct. It's just an example. You can't

mgc20-2

1 reinspect the soil under the plant now, obviously. The
2 plant is on top of it.

3 Q I understand.

4 Mr. Little, page 5 of the testimony, you referred
5 to the fact that the NRC had added additional inspectors
6 to the roster of inspectors which was subject to reinspection;
7 is that correct?

8 A (Witness Little) Yes.

9 Q Do you know how many inspectors were added by the
10 NRC with respect to the Hatfield roster?

11 A I am not sure. The number that comes to my mind
12 is three.

13 Q I am going to ask you with respect to Hunter and
14 PTL as well.

15 A I do not recall. It was two to four inspectors
16 for all.

17 Q And you testified that the selection was made by
18 the senior resident inspector?

19 A Yes.

20 Q Is that Mr. Forney?

21 A Yes.

22 Q Do you know the criterion used by Mr. Forney for
23 this selection?

24 A I don't remember the report number, but one of
25 the early reports in '83 describes that. On March 10th of

mgc20-3

1 1983, Mr. Forney reviewed the list that Blount, as well as
2 Hatfield, had drawn up for the reinspection program.

3 My understanding of what he described in his
4 report there was that he reviewed the list, then he reviewed
5 the supporting documentations for these inspectors as to
6 their certification, and then after doing that, he selected
7 inspectors based on his review of the inspector certification
8 records, as well as the list which listed the Blount and
9 Hatfield inspectors chronologically.

10 I know in that instance that he documented. I
11 understand he did the same thing for the other companies
12 involved.

13 Q Do you know just what it was he was looking for
14 when he reviewed the rosters and the certification packages
15 for these inspectors?

16 A Well, I think he was looking for any inspector
17 whose certification might appear to be weak.

18 Q And it was those types of inspectors, in his
19 judgment, that he added to the rosters?

20 A Yes. You know, I think he had personal
21 information that came from his interaction with the people
22 on site that could have influenced his selection also.

23 Q Would it be fair to say that through this process,
24 the rosters of inspectors were biased to include perhaps
25 the inspectors that most likely would be determined to be

mgc20-4

1 unqualified?

2 A Yes.

3 MR. LEWIS: Mr. Gallo, let me interrupt for a
4 moment. I'm wondering if the witness misspoke.

5 You said Blount and Hatfield. Were those the
6 two particular inspectors you meant?

7 WITNESS LITTLE: Those were the two that were
8 described in the report that I mentioned, that documented
9 what he did on March the 10th, as I recall.

10 MR. LEWIS: Thank you.

11 JUDGE SMITH: While we're on this point,
12 Intervenors' Exhibit R-3 does, indeed, demonstrate that three
13 inspectors were added. I'm not sure it's Hatfield -- yes,
14 I believe it is -- were added to Hatfield by Mr. Forney.
15 The testimony throughout this whole consideration has been
16 that he has added four, that he added four to the Hatfield
17 inspectors.

18 Are you aware of --

19 WITNESS LITTLE: I'm not aware of that testimony
20 that he added four.

21 BY MR. GALLO:

22 Q Mr. Little, on page 7 of your testimony in
23 Answer 7, you enumerate three bases for Staff's acceptance
24 of the reinspection program. And the second basis refers
25 to an extensive inspection area of program implementation by

mgc20-5

1 numerous NRC inspectors, et cetera.

2 Are you referring here to the continuing
3 inspection effort imposed and conducted by the Region with
4 respect to Byron?

5 A (Witness Little) I am specifically talking about
6 the inspection effort directed towards our monitoring the
7 reinspection program. We were doing additional inspections
8 of Byron as dictated by our inspection program.

9 Q But here in this Section 2, in Answer 7, you are
10 referring to NRC inspections of the implementation of the
11 reinspection program; is that correct?

12 A Yes.

13 Q Who conducted those inspections?

14 A As I recall, Mr. Ward did his first inspection
15 in March of '83. Mr. Love did an inspection in March and
16 April of '83. The resident inspectors also did inspections
17 where they -- or in their routine activities, monitored
18 reinspection activities which are documented in their
19 inspection reports.

20 Our major effort came in late summer and fall of
21 '83. Mr. Ward and Mr. Love, Mr. Cilimberg, Mr. Keating
22 participated, although in comparison to Mr. Ward and Mr. Love,
23 their's was minor. And of course then Mr. Muffett got
24 involved in the evaluation of the program results.

25 Q Was Mr. Forney involved in any of these on-site

mgc20-6

1 inspections that you refer to?

2 A Early, I think -- I gather from statements that
3 he wrote in his inspection reports that, yes, he did some
4 things to monitor what was going on in the reinspection
5 program.

6 Q Do you recall any particular matter that he
7 covered in his monitoring of these reports, monitoring of
8 the reinspection program rather?

9 A Well, I've already described how he did describe
10 how he picked some additional inspectors. The other
11 reports, as I recall, tended to describe the status of the
12 program.

13 Q To your recollection, did he indicate any problems
14 with respect to the implementation of the program?

15 A In none of his reports, no.

16 End 20MM

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Q Page 8 of your testimony, Mr. Little, you indicate that the Region accepted the reinspection criteria for qualification of the inspectors -- that is, 95 percent for objective and 90 percent for subjective.

Focusing in particular on the paragraph that is indicated right below numbers (1) and (2), you said, "We reviewed and accepted these criteria based on considerations of safety importance of the elements inspected, the importance of the inspections themselves, and the expected performance of inspectors in identifying deficiencies."

When you say, as you do in this testimony, that you accepted these criteria on the basis of the safety importance of the elements inspected, what did you mean?

A Well, first of all, you have to make some judgment as to their relative safety significance in order to decide how much effort is needed to determine if you have a problem.

So some of the things I asked myself first, are any of these elements that will be inspected in the reinspection program, are any of those elements such that if they failed, would they cause a reactor accident or incident? And none of them fell in that category. Their failure in themselves.

Q Sorry to interrupt you. But when you say "elements," did you mean attributes reinspected in the reinspection

mgc21-2

1 A Well, you know, the attributes covered many
2 elements of inspection.

3 Q Have you completed your answer?

4 A No. I think there are other questions that I
5 would ask myself. They would be, okay, would the failure
6 of any of these attributes or elements, in and of themselves,
7 result in a failure of a system that is designed either to
8 prevent an accident or mitigate the consequences of an
9 accident? And I think in all cases, I could see none of
10 these elements which, in and of themselves, if a single one
11 of them failed, that they would result in any of these
12 systems not doing their job. I'm talking about single
13 failures.

14 And, you know, if you have multiple failures in
15 areas, then you can have problems. You can go on down the
16 list of significance -- are you inspecting components on
17 systems which, if they fail, would result in the release
18 of fission products on-site or off-site -- those sort of
19 things. That's the sort of thinking I go through when I
20 try to evaluate the safety significance of an item.

21 I felt like in all of these items, they were
22 down in the lower echelon. You would have to probably get
23 multiple failures and in some cases, multiple failures
24 compounded by human error, before it would result in an
25 increase in the release of fission products off-site,

mgc21-3

1 on-site, failure of systems to perform or failure of one
2 of the three primary barriers to the release of fission
3 products.

4 So this is the sort of thinking I go through
5 when I talk about safety significance.

6 Q How about the importance of the inspections
7 themselves? What did you have in mind when you used that
8 criteria?

9 A In this area, I like to look at the inspection
10 activity itself and say, okay, if this inspection is not
11 done properly, does that mean that there is never a chance,
12 then, that that defect will be detected? How important is
13 the inspection?

14 There are some attributes or elements, like have
15 been mentioned in the electrical area, that if the inspection
16 is not done properly, there are many more chances to detect
17 that defect, and those are the sort of things that I take
18 into consideration when I evaluate the importance of the
19 inspection itself.

20 Q Finally, what did you mean by the consideration
21 of the expected performance of the inspectors in identifying
22 deficiencies?

23 A Well, in arriving at an acceptance criteria,
24 I take into consideration what I believe to be a fact that
25 has been demonstrated many times, that human beings, when used

mgc21-4

1 as inspectors, will only detect on the average only 20
2 percent of the defects that are out there.

3 I think Mr. Hansig -- I said they would detect
4 20 percent of the defects -- okay -- they would miss 20
5 percent of the defects. You know, this is based on a lot
6 of experience from supervising people. It is well
7 documented in the Quality Control Handbook, Third Edition,
8 I think in Section 12. I think Mr. Hansig's testimony also --

9 Q Mr. Hansel?

10 A Mr. Hansel's testimony also addressed the same
11 area. I hadn't talked to him before I wrote my testimony.

12 Q I'm trying to get -- you've explained what you
13 meant by these various considerations here in your testimony.
14 I'm trying to get an understanding of how they cut with
15 respect to safety importance of the elements.

16 I believe you testified, for the attributes or
17 elements that were the subject of reinspection, they were on
18 the lower echelon of your notion of safety importance.

19 A Right.

20 Q Does that mean that if the elements had more
21 safety importance, in your judgment, that you might have
22 increased these acceptance criteria of 90 percent for
23 subjective attributes and 95 for objective attributes?

24 A Yes, if a -- you know, if an element or an
25 attribute, if its failure would result in an accident, yes,

mgc21-5

1 I would definitely look at the acceptance criteria, you know,
2 not just myself. I would want a lot of other people to
3 look at it to see if that acceptance criteria is good enough.

4 Q You found no such case among the attributes that
5 were subject to reinspection; is that correct?

6 A That's correct.

7 Q Now with respect to the importance of the
8 inspections, you indicate in your testimony that the
9 importance was gauged by the number and likelihood of
10 other means for determining the adequacy of the matters that
11 were the subject of reinspection.

12 A That is one gauge. And I should have mentioned
13 for things that are designed by code that require that
14 certain things be inspected, it's very important that we
15 do what the code says and inspect those items. So I'm talking
16 about beyond those sort of things.

17 Q How important are these inspections, given
18 the gauge or the criterion that you have just described?

19 A I would say in the electrical areas for
20 terminations and such, I would put them in the lower echelon,
21 and I believe there are many more chances to detect problems --
22 the construction acceptance test, the pre-op test, the
23 surveillance tests then that are run. I think, to me,
24 a visual weld inspection would be more important from this
25 aspect, in that if the visual weld inspection was not done

mqc21-6

1 properly, well, then, you may not know whether that weld
2 is defective until it cracks and fails to support whatever
3 it is supposed to support.

4 I think as far as conduit installation, pan
5 installation and such things, you know, they may fall between
6 the two extremes that I have described.

7 I'm saying, these are the sort of things I
8 consider in arriving at that judgment as to whether an
9 acceptance criteria is adequate or not.

10 Q And based on this particular consideration, did
11 you find the acceptance criteria adequate?

12 A Yes.

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2 Q How did the final consideration cut? That is, the
3 expected performance of inspectors in identifying
4 deficiencies, did that cause you to increase the acceptance
5 criteria?

6 A I think when you look at human behavior, as
7 inspectors, I would say that both the 90 and 95 were very
8 conservative. You could argue for a lower acceptance
9 criteria -- I'm not saying I would, but I say you could --
10 and have data to back it up.

11 And, I might also say that one of the things that
12 influenced me is that in the weld area -- and those were the
13 visual weld inspections, were the subjective inspections --
14 I relied on mensuch as Mr. Ward in asking him if he went out
15 and did visual inspections, if he would have a difficult
16 time meeting the acceptance criteria. And his input to me
17 was, yes, he would have a difficult time meeting the 90
18 percent.

19 So, I think taking all of these things into
20 consideration, it was our judgment that the acceptance
21 criteria were conservative.

22 Q The top of page 8, Mr. Little, there is a
23 reference to a Region III position that from the inception
24 of the reinspection program until this time, the 90 and
25 95 percent acceptance criteria are acceptable.

And I believe you testified in response to counsel

mm2

1 questions from Mr. Lerner, with respect to the letter dated
2 March 22, 1983 I believe signed by Mr. Spessard. Do you
3 recall that letter and that testimony?

4 A Yes.

5 Q Frankly, Mr. Little, just to cut across all this and
6 get at the point, my reading of that letter indicated, at
7 least to me, that Mr. Spessard was qualifying the position
8 of Region III with respect to designating visual weld
9 inspection as a subjective attribute.

10 Now I believe you testified to the contrary. Is
11 that correct?

12 A Yes.

13 Q If you can follow my line, can you explain why?

14 A Well, if I put myself and the Licensee -- in
15 the Licensee's position reading that statement, I wouldn't
16 know what to do.

17 And, in retrospect, when I ask myself the
18 question, "Would we as NRC require anyone to do inspections
19 of elements or attributes that did not affect the quality of
20 the weld?" we would not require them to inspect something
21 that didn't affect the quality of the weld.

22 I think it is obvious today that that statement
23 is not what we meant. Otherwise why were we requiring them
24 to do the visual weld inspections.

25 Q Is it your testimony that the statement is no

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1 longer important because the Staff accepted the
2 Reinspection Program in part based on a 90 percent
3 acceptance criterion for a visual weld inspection?

4 MR. LEARNER: I will object. I don't believe
5 at this point that this witness can override what
6 Mr. Spessard has said. He can give his interpretation of
7 what the letter is, but I don't think he is in a position
8 to say the position of the Staff overriding this letter.
9 Mr. Spessard can do that. I don't believe it is appropriate
10 for Mr. Little to do that.

11 JUDGE SMITH: That wasn't the question.

12 MR. GALLO: The question was whether or not the
13 whole controversy surrounding the Spessard letter was now
14 moot because the Staff has accepted the results under the
15 reinspection program which includes the 90 percent
16 acceptance criterion for visual weld inspection.

17 I didn't phrase it quite like that, but that
18 was the thrust of the question.

19 As the head of the Staff panel on this issue, I
20 think it is an appropriate question.

21 JUDGE SMITH: With that clarification --

22 MR. LEARNER: With that clarification, I am fine.

23 WITNESS LITTLE: Would you repeat that so
24 I can make sure I can give you a precise answer.
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1 BY MR. GALLO:

2 Q I will use the same phraseology.

3 Is the controversy in this proceeding concerning
4 what Mr. Spessard meant in his letter of March 22,
5 essentially moot because the Staff has accepted the
6 Reinspection Program, which in part includes the 90 percent
7 acceptance criterion for visual weld inspection?

8 A (Witness Little) Yes.

9 Q Is Mr. Spessard among the Region III members
10 who endorsed the acceptance of the Reinspection Program?

11 A Yes.

12 Q Page 13 of your testimony, Mr. Little. I
13 believe that is your testimony. Yes. At the bottom of
14 the page you refer to a circumstance where PTL had
15 essentially accepted -- strike that. Let me start again.

16 You refer to a situation that was uncovered in
17 an audit report performed by Commonwealth Edison where
18 PTL had overridden the reinspector's conclusion as to a
19 discrepancy in the weld, without first requiring and obtaining
20 third-party inspector concurrence.

21 Is that correct?

22 A Well, as I understand it, the welds were
23 rejected by PTL, reviewed by the required third party who
24 concurred in the rejection. But then later on PTL reversed
25 that or wanted to reverse that.

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1 Q Or wanted to reverse that.

2 Thanks for the clarification.

3 With respect to this particular matter, how
4 familiar are you with respect to this particular matter as
5 you described it here?

6 A The technical details I am not familiar with.

7 Q Do you know whether or not PTL made any effort
8 to conceal the fact that they were undertaking to override
9 the third-party inspectors?

10 A To my knowledge, no. As described in the report,
11 it did not appear that way.

12 Q Do you believe that PTL was intentionally
13 attempting to alter the results of the reinspection program
14 as it applied to themselves by this action?

15 A Based on my knowledge, no.

16 Q Mr. Little, Mr. Learner asked you a long series
17 of questions concerning the conclusion reached by you with
18 respect to your primary or original purpose of the
19 Reinspection Program.

20 I don't want to revisit that whole discussion.
21 But, I must confess that I am having a little difficulty in
22 reconciling the original purpose as stated by you in your
23 testimony with what Applicant's witnesses indicate is the
24 stated purpose.

25 Do you recall Mr. Del George's testimony that the

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1 original purpose of the Reinspection Program was to
2 determine whether or not the inspectors of interest were
3 qualified?

4 A Yes.

5 Q Now I believe you testified that the original
6 purpose was whether or not the inspectors of interest
7 overlooked significant safety-related hardware deficiencies
8 in their inspection.

9 Is that correct?

10 A Yes.

11 Q I believe you testified yesterday that you believed
12 those two formulations were essentially the same thing. And
13 if that is true, I will stop right now.

14 Is that your testimony?

15 A I believe that with the data that we obtained, we
16 can draw some important inferences about their capability.
17 I think we were saying things that were very close to the
18 same, but with that modification.

19 Q The purpose of the Reinspection Program was to
20 recreate the original inspection so that it could be
21 reinspected, wasn't that correct?

22 A Right.

23 Q So, when a reinspector looked at an original
24 inspector and agreed, then you had two inspectors in
25 agreement, is that correct?

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1 A That's right.

2 Q Wouldn't one conclude from that if the reinspector
3 had been properly qualified, that both inspectors were
4 qualified?

5 A Yes, I think you can draw that conclusion?

6 MR. GALLO: May I have a moment?

7 (Counsel for Applicant conferring)

8 MR. GALLO: Judge Smith, I have a number of questions
9 that have been prompted by the questions asked by Mr. Learner.
10 I wonder if it might not be time to take a short recess so
11 I can consolidate those questions and not waste the time of
12 the Board and the Parties.

13 JUDGE SMITH: Just for scheduling, the cross-
14 examination plan, have you completed your questions that
15 you have planned?

16 MR. GALLO: I have a few minor questions of
17 Mr. Love and Mr. Connaughton. But the reason I paused at
18 this point is because the questions that I have I believe
19 will be for Mr. Little.

20 I can continue with Mr. Love and Mr. Connaughton
21 and return to Mr. Little.

22 JUDGE SMITH: It does seem to me that our
23 discussion earlier -- the scheduling I do not believe is
24 realistic. I do not believe we will be done with this
25 panel this afternoon.

End T22

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In any event, let's take our mid-afternoon

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break.

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We will return at 3 o'clock.

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MR. GALLO: Thank you, sir.

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(Recess)

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1 JUDGE SMITH: On the record.

2 BY MR. GALLO:

3 Q Let's return to the subject of Mr. Forney.
4 There is some confusion in my mind with respect to the
5 various positions of Mr. Forney as you understand them.

6 At the time the Reinspection Program was
7 approved by the Staff, the March-February timeframe, 1983,
8 were you aware of any disagreement that Mr. Forney had with
9 with respect to the Staff's approval of that program?

10 A (Witness Little) Not as far as the Staff's
11 approval of the program. I knew that he had concerns. I
12 knew that possibly his concerns had not always been complied
13 with. But my impression was that the program as presented
14 and as accepted in our March 22nd letter, that he was
15 satisfied with it.

16 That does not mean that he was happy with all
17 aspects of it, but he was satisfied.

18 Q Did he ever file, in accordance with NRC
19 procedures at that time, a dissenting opinion? What I will
20 call a dissenting opinion?

21 A No. And I never did feel like he was even close
22 to that point.

23 Q What is the terminology that you use at the
24 NRC for characterizing what I called a dissenting opinion?

25 A A differing professional opinion.

1 Q At the time of the Staff's acceptance of the
2 results of the Reinspection Program in roughly April 1984,
3 did Mr. Forney indicate to you any disagreement with the
4 conclusions or results as indicated in the Staff report
5 84-13?

6 A As I recall that report, 84-13, I wrote the
7 summary and conclusions section of that report. It was
8 reviewed by all interested parties in the office through
9 the Regional Administrator. So I can't say that each word
10 was my exact word, but I wrote it.

11 And then it was reviewed by all of the people
12 in the office. Mr. Forney, as I recall, reviewed it. He
13 had some minor comments, and as I recall, he also expressed
14 his concern about the ability to conclusively infer things
15 about inspector capability.

16 As I recall, he did express his concern.

17 Q Did he memorialize his concern in the context
18 of filing a differing professional opinion within the
19 NRC Staff at the region?

20 A No, not to my knowledge.

21 Q At the time of the filing of your testimony in
22 this case, did Mr. Forney indicate any disagreement with the
23 statements made in the testimony?

24 A Again, before my testimony was filed, Mr. Forney
25 reviewed it. He had some comments. Again, the main one

1 I remember was that of how much you can infer about the
2 capability of the original inspectors. And also, he, at that
3 time, still had some questions about the acceptability of
4 90/95 percent acceptance criteria.

5 Q This was at the time of the filing of your
6 testimony?

7 A Yes.

8 Q Had he indicated those concerns with respect
9 to the 90/95 percent acceptance criterion at the time of
10 the April 1984 report issued by the Staff accepting the
11 Reinspection Program results?

12 A I don't recall him mentioning that; he could have.

13 Q Did Mr. Forney file a differing professional
14 opinion at the time of filing your testimony?

15 A No.

16 Q Has he filed one to this date?

17 A No.

18 Q Did Mr. Forney take part in any evaluation of the
19 discrepancies discovered under the Reinspection Program?

20 A To my knowledge, he did not.

21 Q Harkening back to the March-February timeframe
22 1983, I believe you testified yesterday that in response to
23 some of Mr. Learner's questions, during the formulation of
24 the Staff's position with respect to the Reinspection Program
25 a number of suggestions were made, that Mr. Forney in particular

1 had been in favor of a 100 percent reinspection. Do you
2 recall that testimony?

3 A That's my recollection, yes.

4 Q Do you know what he meant by 100 percent
5 reinspection? Was he talking about a 100 percent reinspection
6 of all the attributes covered by the Reinspection Program?

7 MR. LEARNER: Objection. I think at this point
8 with Mr. Forney coming on to testify, to ask the witness
9 what did Mr. Forney mean is pure hearsay.

10 MR. GALLO: Well, this witness testified at
11 length with respect to questions asked by Mr. Learner about
12 this witness's understanding of Mr. Forney's objections.
13 And whether or not this witness, in his position as being
14 branch chief in charge of this particular area, -- that is,
15 the Reinspection Program -- whether or not this witness took
16 those concerns into account.

17 He testified yesterday that Mr. Forney was in
18 favor of a 100 percent reinspection. I'm trying to find out
19 what it was that we were going to reinspect, or that
20 Mr. Forney was recommending to be reinspected at a 100 percent
21 level.

22 MR. LEARNER: I believe there's a critical
23 difference in what Mr. Gallo just said. There was testimony
24 yesterday from Mr. Little as to what Mr. Forney said to him.
25 This question goes beyond that. It's, what did Mr. Forney mean.

1 At that point, we're probing into the state of mind of
2 Mr. Forney. Especially with Mr. Forney going to be here to
3 testify, I think that's more appropriately directed to
4 Mr. Forney, and not a secondhand mental interpretation by
5 Mr. Little.

6 JUDGE SMITH: Well, Mr. Forney will be here and
7 the question can be put to him. However, the question is
8 what Mr. Little's perception was and what actions did he
9 take, and what the judgments were, as I understood it.

10 MR. GALLO: I will withdraw that question and
11 ask it in a different way and remove any cloud from the
12 answer.

13 BY MR. GALLO:

14 Q Did Mr. Forney tell you, when he suggested a
15 100 percent reinspection, just what was to be reinspected at
16 a 100 percent rate?

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1 A No. And I would like to clarify it. I think
2 you have drawn a stronger conclusion from what I said than
3 I intended.

4 In responding to the Intervenors' lawyers'
5 questions, I was describing the discussions that went back
6 and forth, that there were those who were on the very
7 conservative side of wanting more inspections, up to 100
8 percent, questioning the acceptance criteria.

9 I remember Mr. Forney being in that category.
10 We had so many meetings and discussions in that period of
11 time, I do not recollect any specific words that Mr. Forney
12 stated.

13 Q When you were discussing in these meetings
14 various degrees of reinspection, were you talking about
15 the reinspection of hardware?

16 A Yes.

17 Q And you say there was a range from 100 percent to,
18 I believe you testified yesterday, no reinspection?

19 A Yes.

20 Q And you believe that Mr. Forney was among those
21 who favored close to the range of 100 percent reinspection?

22 A Yes. I think he was at least toward that end
23 of the spectrum.

24 Q When you were having these discussions and you
25 were talking about 100 percent reinspection versus little

mgc24-2

1 or no reinspection, what was the subject of reinspection.
2 What hardware did you have in mind?

3 A I don't recall those sort of details.

4 Q Who was in favor of little or no reinspection?

5 A One that I'm sure of, Mr. Ward in the welding
6 area thought that, based on his inspections of the welding
7 area, he didn't see any need for any reinspection in the
8 welding area. Of course, he couldn't offer judgments on
9 other areas.

10 Q This would be the reinspection of hangers and
11 cable pans and other welded hardware provided by Hatfield?

12 A Right.

13 Q And Hunter, too, for that matter.

14 A Yes.

15 Q Mr. Ward, why didn't you think any reinspection
16 was necessary in the areas indicated in my last question?

17 A (Witness Ward) Because for the past approximately
18 six and a half years, I have been going to Byron, looking
19 at various welding and NDE, including preservice -- the
20 filing of preservice, which included Ebasco ultrasonically
21 examining several hundreds of the critical welds. I have
22 various trip reports documenting this. I looked at several
23 -- I don't know -- dozens, I guess I would say, radiographs
24 of various welds in different periods of time. In general,
25 just walking through the plant, looking at welds as I am

mgc24-3

1 walking. I just automatically look at various welds. And
2 my experience at other sites.

3 I just couldn't see Byron as any different as
4 anyplace else where that was really needed.

5 Q Did you participate in the meetings that Mr. Little
6 refers to?

7 A I went to some. We had so many meetings. There's
8 some I would be and some -- as an example, I have been on 44
9 trips this year, and this is the 30th week, and last year
10 I went on over 50 trips. I'm not in the office much.

11 Q Did you attend any of the meetings where Mr. Forney
12 was present in suggesting 100 percent reinspection?

13 A I don't remember if I was ever at a meeting with
14 him.

15 Q Are you aware of whether or not Mr. Forney ever
16 suggested that 100 percent reinspection be performed of the
17 Hatfield welding on the cable pan hangers -- cable pans
18 and hangers for Byron?

19 A No, sir. I wasn't aware of that. I knew he didn't
20 think too much of what was happening, but I didn't know
21 exactly what. I didn't have conversations with him.

22 Q All right. Thank you.

23 Mr. Little, I'm going to try this one more time.
24 You had these meetings in the February/March timeframe, 1983,
25 and these were Staff meetings internal to your organization

mgc24-4

1 at Region III; is that correct?

2 A (Witness Little) Well, I think possibly the
3 majority of them were with Commonwealth Edison. And
4 starting in December of '82, I recall going to a meeting at
5 the site where Commonwealth made a presentation in this area.

6 Following that, we had several meetings
7 internally, and I think many telephone conversations. I
8 didn't keep a daily log or anything. So there were several
9 internal meetings, several meetings with the Licensee or else
10 telephone discussions with them. I recall the December
11 meeting. I recall the meeting early in February. I know
12 there were a lot of meetings. There was also a lot of
13 personal discussion between myself, my inspectors, and
14 between Duane Danielson, my Section Chief, who was the team
15 leader on the Construction Assessment Team assessment that
16 identified the original item of noncompliance. He has
17 also had eight or nine years of supervisory experience, of
18 supervising inspectors like Mr. Ward and other welding NDE
19 type inspectors. I asked his opinion on what he thought
20 was needed.

21 I had many conversations with Mr. Norelius, who
22 at that time was the -- or back in '82, he was the Director
23 of our division. We had many discussions about the
24 reinspection program, what was needed and whether to go,
25 you know, 100 percent inspection, no inspection, how much

mgc24-5

1 inspection.

2 Q Wouldn't those meetings have been -- the
3 internal meetings at Region III, wouldn't those subjects
4 have been discussed in internal meetings in Region III,
5 whether to impose 100 percent or 0 or somewhere in between?

6 A Yes.

7 Q And when you were considering whether to impose
8 100 percent reinspection or no reinspection or somewhere
9 in between, didn't you all give thought to what it was you
10 were going to reinspect?

11 A Yes.

12 Q Well, what was that?

13 A Well, as far as what it was, we were going to
14 reinspect inspection records, because our concern was over
15 the certification of the original inspectors. And I think
16 that at least was my primary concern from the beginning,
17 that we got a good sample of inspectors to reinspect their
18 inspection work and try to make some determination as to
19 their initial capability.

20 Q And was Mr. Forney in favor of 100 percent
21 inspection of those inspection records? Is that what it was
22 he was in favor of, as opposed to hardware, which I thought
23 was your earlier testimony?

24 A Again, I would like to state that I do not recall
25 Mr. Forney verbally saying, "I think 100 percent of all

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1 inspectors' work should be reinspected."

2 Q All right. But you said he was in a group that
3 was in that direction or favored that view.

4 A I say, to me, he was definitely leaning in that
5 direction.

6 Q All right. And what was it that was being
7 considered to be reinspected at that time? Was it
8 inspection records or hardware?

9 A In my mind, it was inspection records.

10 MR. GALLO: Could I have a moment?

11 (Discussion off the record.)

12 WITNESS LITTLE: I just recalled something in
13 this area that I could just volunteer.

14 Mr. Norelius and I did go back and discuss the
15 item of noncompliance and the proposed corrective actions
16 for 8205-19 with people in IE Headquarters. As I recall,
17 Jim Taylor was in on the discussion and others from the
18 Quality Assurance Branch, I think a Branch Chief of the
19 Quality Assurance Branch, and I do recall in that meeting
20 also, we discussed 100 percent reinspection versus a sample
21 or doing nothing.

22 BY MR. GALLO:

23 Q Once again, you are talking about inspection
24 records?

25 A (Witness Little) I'm talking inspection records,

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1 but you have got to go out and inspect the hardware to get
2 this comparison. So you really can't -- you really can't
3 disassociate the two.

4 Q But am I correct in my understanding that any
5 hardware reinspection was to be tied to the inspection
6 records which were the subject of the program?

7 A Yes.

8 Q Mr. Hayes' memorandum, did I understand your
9 testimony correctly that whatever Mr. Hayes' concerns were
10 on the date of his memorandum, he no longer has those
11 concerns today; is that correct?

12 MR. LEARNER: Objection, and for the same reason
13 as before. I think the witness can testify as to what
14 Mr. Hayes has told him, not to what Mr. Hayes' concerns
15 are.

16 MR. GALLO: I am again attempting to elicit
17 this witness' understanding of Mr. Hayes' concerns that
18 apparently were made known to Mr. Little in February of
19 1984. And it is my recollection of his testimony -- and I'm
20 not absolutely clear -- that he testified yesterday that
21 as of today, his understanding of those concerns is that
22 they are no longer a matter of record.

23 JUDGE SMITH: His perception of those concerns
24 is relevant, and since Mr. Hayes will be here, I see no
25 conceivable injury to you.

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1 MR. LEARNER: If the question is his perception
2 of the concerns, I have no trouble with the question. But
3 that wasn't the question, as I heard it.

4 MR. GALLO: I will emend the question.

5 BY MR. GALLO:

6 Q Do you have the question, Mr. Little?

7 A (Witness Little) Would you please ask it again?

8 Q Yes.

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1 Q Do you have the February 13 memorandum in
2 front of you?

3 A Yes.

4 Q The very first paragraph under Part 1, Mr.
5 Hayes writes, "Even if it was available, I'm not sure how
6 germane it would be to other inspectors whose work was not
7 reinspected." Now, I believe the "it" refers to the results
8 of the reinspection. Is that correct?

9 A I guess I haven't found where you're reading.

10 Q Under Part 1, Item I, it starts out, "As
11 suggested by the Byron resident inspectors..."

12 A Yes.

13 Q And the very last sentence in that paragraph
14 says, "Even if it was available, I'm not sure how germane
15 it would be to other inspectors whose work was not reinspected."

16 Do you see that sentence?

17 A Yes.

18 Q To what -- what is your understanding as to
19 what Mr. Hayes is referring to there?

20 A Give me a moment to read the paragraph here.

21 Q Sure. Take your time.

22 (Pause.)

23 A As I understand it, the "it" is referring to
24 the information in the first sentence where he says
25 "information may be available to allow a subjective

1 characterization of the selected inspector's ability."

2 Q And in the next paragraph, does he indicate
3 that in his opinion, the Reinspection Program "would tell
4 us little about the capability and effectiveness of the
5 selected inspector's..." et cetera?

6 A Yes.

7 Q Is it your understanding that Mr. Hayes holds
8 the view indicated in the paragraph I just read, today?

9 A I would like to clarify some things here. And
10 I guess first of all, let me answer your question. I believe
11 that Mr. Hayes agrees with the conclusions that we have
12 drawn as expressed in my testimony.

13 When I was testifying on this letter yesterday,
14 I failed to read the whole thing, and I think if you go back
15 to the introductory paragraph, Mr. Hayes talks about the two
16 parts of his letter. Then the second sentence in the first
17 paragraph says, "The first part is a list of those issues
18 which I feel the NRC must be in a position to address in any
19 subsequent hearing or inquiry relative to the ASLB decision
20 to withhold authorization for an operating license for
21 Byron."

22 Now then he went on in Part 1 to express his
23 concerns. I agreed with him that yes, we should be prepared
24 to address his concerns, and we were very responsive to his
25 letter, and we had started preparing ourselves to address

1 these concerns prior to our receiving the letter.

2 But I think his suggestion in this letter is
3 that we start preparing to address the concerns in Part 1,
4 and I agreed with him, yes, at that time, that we should
5 start preparing. And those that we hadn't already started
6 preparing on, we did subsequently.

7 I don't know of any that we started preparing on
8 just as a result of his letter.

9 Q Are these -- oh, I'm sorry. Go ahead.

10 A The second part is a list of suggestions that
11 he had relative to Region III's inspection and independent
12 verification efforts to address these issues.

13 Now, I took the second part as being things that
14 Mr. Hayes felt strongly about that we should go out and do
15 something about as far as inspection or analysis or
16 verification. And I think in all cases, in Part 2 we did
17 address all of his suggestions and either took action on
18 each of his suggestions that satisfied him. or else satisfied
19 him as to why we felt like no action was required.

20 But I would just like to clarify that. I think
21 we were very responsive to his letter, especially in the
22 context that he defined the first part, Part 1, as being an
23 area where we just needed to prepare ourselves to address
24 concerns, some of which he had.

25 Q All right, Mr. Little. How did you satisfy

1 Mr. Hayes with respect to his notion that the Reinspection
2 Program would not indicate much with respect to the
3 capability and effectiveness of the selected inspectors?

4 JUDGE SMITH: Excuse me, may I interrupt here
5 before he answers? I think that the line of questioning
6 to determine what Mr. Little's perception of Mr. Hayes'
7 memo is is appropriate, and what he did about it is
8 appropriate. But I don't think we want Mr. Little sitting
9 here today, reading Mr. Hayes' memorandum and interpreting
10 it today.

11 MR. GALLO: I agree with that, Your Honor.

12 JUDGE SMITH: Yes. So I just wanted to clarify
13 that that's not what you're seeking from him now.

14 MR. GALLO: No. I believe in his last answer he
15 indicated that he took into account the concerns and issues
16 listed in Part 1, and he testified that he had, in his
17 judgment, satisfied those issues and concerns as held by
18 Mr. Hayes. And I asked him in particular how he accomplished
19 that with respect to the matter that I just brought his
20 attention to; that is, the second paragraph under Item 1
21 in Part I. Whether or not the Reinspection Program indicates
22 little with respect to the capability and effectiveness of
23 the selected inspectors.

24 WITNESS LITTLE: Well, we had many discussions,
25 and certainly from my viewpoint, stressing the fact that I --

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1 even though I agree that we cannot draw conclusions with
2 100 percent certainty about the initial capability of the
3 inspectors, I will agree that we can't do that with 100
4 percent certainty, that I thought that the very fact that
5 179,000 and some odd elements were reinspected, and in a
6 very large majority of those, the reinspector agreed with
7 the original inspector, and so we discussed these things
8 back and forth.

9 I think some of his arguments were, "Well, we
10 didn't know how many defects were out there for the original
11 inspectors to find, so how can you say that they are
12 capable and that they can detect defects?"

13 I think myself and others have the opinion that
14 the craftsmen at Byron probably make as many mistakes as
15 comparable craftsmen at other sites. There are not perfect
16 craftsmen. They make mistakes in their work.

17 So I have a very difficult time substantiating
18 in my own mind that those inspectors were inspecting a
19 perfect plant so there were no defects for them to find.
20 I can't justify that assumption at all.

21 We had a lot of discussions back and forth like
22 that, considering those things, as well as many others.

23 As I wrote my testimony, I had him as well as
24 others review it, and my understanding is that he did come
25 to the point of agreeing with our conclusions.

End25SY

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2 Q Mr. Little, if the buddy system had been working
3 at Hatfield and Hunter, in your opinion, would Mr. Ward have
4 found all these conservative calls by the reinspectors?

5 A No. I think he would have found some calls --
6 at least some calls that would have gone in favor of the
7 original inspectors' inspection results.

8 JUDGE SMITH: Give us an example of how that would
9 work.

10 WITNESS LITTLE: Well, if the reinspector was
11 trying to favor his body who had done the initial inspection
12 in these gray areas, as I think Mr. Ward has already testified,
13 you can call them either way. It's a weld say, that may
14 or may not be rejected. And you can find knowledgeable people
15 that will support you in saying that the weld is good or the
16 weld is bad.

17 So if he was trying to favor his buddy, I would
18 think rather than saying it was rejectable weld or a
19 deficient weld, he would have said the weld was okay.

20 JUDGE SMITH: And in 90 percent of the cases plus,
21 he did exactly that.

22 WITNESS LITTLE: Yes. And we concentrated on the
23 rejectable ones and those in the gray areas, and we found
24 no decisions in the original inspectors' favor, or no
25 tendency to go in that direction.

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1 BY MR. GALLO:

2 Q Let's cover that ground again. Mr. Ward was
3 looking at populations of discrepant Hatfield welds, right?

4 A (Witness Little) Right.

5 Q And among that population of discrepant Hatfield
6 welds that Mr. Ward looked at, he found what, in his opinion,
7 were some welds that indicated to be discrepant that in his
8 judgment were not; is that correct?

9 A Yes.

10 Q Now my question was, if the buddy system had been
11 working for Hatfield, is it likely he would have found those
12 kinds of conditions when he reviewed the Hatfield welds?

13 MR. CASSEL: Objection. Asked and answered,
14 Judge. That's the same question we had five minutes ago.

15 JUDGE SMITH: That's right. However --

16 MR. GALLO: In view of your question, Judge
17 Smith, you said 90 percent of the time. 'I thought we ought
18 to try to clarify the witness' answer.

19 JUDGE SMITH: Yes. Overruled.

20 Or you withdraw it?

21 MR. CASSEL: I withdraw it.

22 WITNESS LITTLE: In my opinion, no, he would not.

23 BY MR. GALLO:

24 Q I guess I don't understand your answer. Maybe
25 you should explain it.

mgc26-3

1 A (Witness Little) Maybe I should get you to
2 repeat the question.

3 Q All right. If the buddy system had been working,
4 would Mr. Ward have found that the reinspector had made
5 conservative calls in the direction of indicating what he
6 thought to be discrepancies and really weren't, in Mr. Ward's
7 opinion.

8 A Just by looking at discrepant welds, he would not,
9 because the reinspector would have made a decision in favor
10 of the original inspector, and therefore it wouldn't show
11 up in looking at the list of discrepancies. He did look at
12 a lot of other welds that were considered to be acceptable.
13 He also looked at welds which, in his judgment -- and I value
14 his judgment considerably -- would be welds where they might
15 fudge on by not going to the great amount of trouble that it
16 would take to get to and look at.

17 He found none of those sort of things.

18 On the buddy system, I guess I would like to at
19 least express my own opinion. You know, if an individual
20 reinspector wanted to make the buddy system work -- in other
21 words, if he wanted to protect his buddy who had been one
22 of the original inspectors -- it would be difficult for us
23 to detect what an individual reinspector overlooked.

24 However, if this was an effort by Hatfield and
25 Hunter to get their people to overlook discrepancies, I feel

mqc26-4

1 confident, based on my thirteen years of inspection
2 experience, that somenow in some way we would have come
3 across something that would have indicated that a buddy system
4 on a large scale was being operated. We found nothing like
5 that.

6 Q And if a buddy system was in operation for
7 Hatfield, would you expect those conservative overcalls to
8 appear in the population of discrepant welds that were so
9 designated by the reinspector?

10 A We would not expect to find the conservative
11 overcalls.

12 Q Mr. Connaughton, not to slight you, page 16 of
13 the testimony --

14 JUDGE COLE: You make him sit behind a pillar,
15 Joe.

16 BY MR. GALLO:

17 Q Mr. Connaughton, page 16 of the testimony,
18 second paragraph in Answer 12 --

19 A (Witness Connaughton) Yes, sir.

20 Q You refer to an example where a QC inspector was
21 identified, who had been hired and certified after
22 September 30, 1982, and who did not meet the experience
23 requirements for certification purposes.

24 Do you know how this particular matter was
25 discovered?

mgc26-5

1 A It was in follow-up of an allegation received
2 by Region III, the results of that inspection and the notice
3 of violation that was issued pursuant to this matter. I want
4 to sah 8309. I'm not real sure of that, but I can find out.

5 Q All right.

6 MR. GALLO: May I have a moment, Your Honor?

7 (Applicant's counsel confer.)

8 BY MR. GALLO:

9 Q Mr. Love?

10 A (Witness Love) Yes, sir.

11 Q Answer 9 of your testimony, you say, "The
12 implementation of the reinspection program for Hatfield
13 was verified through the review of these reports," as you
14 indicate here.

15 Are you talking about Hatfield objective
16 attributes at this point?

17 A Yes, sir.

18 Q And your reference to inspection reports in
19 Answer 9, are you referring to inspection reports prepared
20 by Commonwealth Edison and/or Hatfield?

21 A The one exhibit is the CECO report; the 8337,
22 the Staff report.

23 Q So it's both of those documents; is that correct?

24 A Yes, sir.

25 Q You refer to observing work activities, including

mgc26-6

1 in-process inspections.

2 Did you do the observation of these activities,
3 you in person?

4 A Yes, sir, as well as several other inspectors.

5 Q Was this on more than one occasion?

6 A Yes, sir.

7 Q What work activities were you observing?

8 A Inspection of cable pans as to their location,
9 inspection of conduit, inspection of equipment, and although
10 not part of the reinspection program, observed cable pulls,
11 terminations.

12 Q I believe you testified yesterday that your
13 review of the attributes, equipment setting, and equipment
14 modification, which were covered by the supplemental
15 reinspection program, were still open?

16 A Yes, sir.

17 Q Do you draw any conclusion in your testimony with
18 respect to the adequacy of the Hatfield work, Mr. Love?

19 A Yes, sir. I think I do.

20 (Pause.)

21 Q Well, instead of trying to find it under these
22 pressured circumstances, do you remember what that opinion
23 was?

24 A Yes, sir. I believe that based on the reinspection
25 program and my personal knowledge of the Hatfield inspectors,

mgc26-7

1 that they were, in fact, qualified to do the inspections,
2 and I would like to make the distinction between qualified
3 and certifiable.

4 Certificable from, for example, an educational
5 standpoint, he may not have the high school -- may not be
6 a high school graduate, but still be capable of performing
7 the inspection.

8 Q Do you have any opinion with respect to the
9 adequacy of the work itself performed by Hatfield?

10 A Yes, sir. I would say that the areas that I have
11 looked at, I think CECO has a safe plant.

12 Q That's not what I asked. Do you have an opinion
13 as to the adequacy of the Hatfield work?

14 A Yes, sir. I'm referring to the Hatfield work.
15 If it wasn't adequate, then you would have to do something
16 else for CECO to have a safe plant.

17 Q Is that opinion that you just stated likely to
18 change, in view of the fact that you haven't completed your
19 review of equipment setting and equipment modification
20 attributes?

21 A No, sir. I have went to the point of -- I reviewed
22 100 percent of the inspection reports on those, observed what
23 discrepancies were identified, what I lack in the closure
24 of those items as to reviewing the analysis on those two
25 particular inspections.

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Q So you don't expect any surprises?

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A No, sir.

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2 MR. GALLO: Judge Smith, that completes my
3 cross-examination of these witnesses. I would like to make
4 one reservation.

5 Mr. Forney is going to testify, I believe,
6 tomorrow. Depending on the nature of that testimony, I may
7 wish to recall this panel with respect to matters covered
8 by Mr. Forney, and I would like to make that reservation
9 at this time.

10 MR. LEARNER: Judge Smith, with respect to that
11 as well, if that's going to be the scope of Mr. Forney's
12 testimony, if this panel is going to be on again, perhaps
13 called by Mr. Gallo in reaction to Mr. Forney's testimony,
14 I think Intervenors would like to have that similar right.

15 JUDGE SMITH: Why don't we consider this approach?
16 We also have the problem of the portion of Mr. Hayes' time
17 on the other panel, which will be set aside for exploring
18 his views. Could we not perhaps have a panel made up of
19 Mr. Forney, Mr. Hayes, and Mr. Little, in which at one time
20 differences of opinion, differences of memory and that
21 type of thing are resolved without the back and forth of
22 recalling witnesses?

23 MR. MILLER: Judge Smith, that would be
24 satisfactory to the Applicant, assuming as always that
25 questions directed to individual members of that panel are
26 answered by the person to whom the question is directed.

mgc27-2

1 JUDGE SMITH: Yes. It just seems to me the
2 most direct and reliable way, and also we produce a more
3 efficient record.

4 MR. LEWIS: Mr. Chairman, Staff would have no
5 objection to structuring it that way. I will say that I
6 had asked Mr. Little to remain after this panel is excused.
7 I had asked Mr. Little to remain and to be available, should
8 he need to respond to any questions raised by Mr. Forney.
9 I have not asked the other members of this panel to
10 similarly remain. They have other duties.

11 But I believe that any of the matters that
12 Mr. Forney may raise can be quite competently addressed by
13 Mr. Little.

14 MR. GALLO: No objection to that.

15 JUDGE SMITH: All right. That seems to work out
16 quite well.

17 MR. CASSEL: If we do it that way, Judge, then,
18 when we do what has been referred to as the allegers's panel,
19 we can just ask Mr. Hayes about that testimony and differ
20 any questions on these issues until the panel of Hayes,
21 Little and Forney?

22 JUDGE SMITH: Right, yes. The Hayes/Connaughton
23 panel on allegers will follow. That will be a discrete item.

24 MR. LEWIS: Yes. It's probably going to happen
25 in the opposite order of the way you expressed it.

mgc27-3

1 MR. CASSEL: I see.

2 MR. LEARNER: Fine.

3 JUDGE COLE: Just a few questions, gentlemen.
4 You've been on the stand for a long time, and I'm surprised
5 that you're still here.

6 (Laughter.)

7 BOARD EXAMINATION

8 BY JUDGE COLE:

9 Q Information question: On page 7, the answer to
10 Question 7, in Items 2 and 3 of your response, you talk about
11 a previously referenced report, and I think I know which
12 report you are referring to, but is it the report which is
13 associated with the NRC inspection number listed on line 5?

14 A (Witness Little) Yes. 8413.

15 Q Mr. Ward, on page 10, the bottom of the page,
16 referring to weld inspections, you state in one of your
17 sentences there, sir, that you examined the welds themselves
18 to determine whether they had been reinspected.

19 And I guess I don't know how you do that. How do
20 you do that, sir? How can you tell if they've been
21 reinspected?

22 A (Witness Ward) That's a good question.

23 (Laughter.)

24 Q Why don't you tell us what you did, then, sir?

25 A I examined the welds along with -- well, by

mgc27-4

1 myself, several welds. I examined the welds along with the
2 third party and other people that were doing the reinspection
3 programs.

4 Q You were there with them while they were
5 conducting their inspections?

6 A Yes, sir. Sometimes I was, to satisfy myself that
7 I was satisfied in the way they were conducting their
8 inspections. Then I also independently examined various
9 welds on my own, approximately 800.

10 Q All right, sir. So when you were accompanying them
11 in their inspection, what did you actually do? Did you let
12 them do their work and then just observe them performing
13 their work and watch what they wrote down?

14 A Yes, sir.

15 Q And then do your own inspection to see if it was
16 in conformance with what they had done?

17 A I observed every move they made as they inspected
18 to make sure that I was satisfied that they hadn't overlooked
19 any discontinuities or anything.

20 Q All right, sir. Now you indicated that you had
21 inspected 800 welds.

22 A Yes, sir.

23 Q 300 of which were welds that were associated with
24 this reinspection program; is that correct?

25 A No, sir. Approximately 330 were Hatfield, PTL and

mac27-5

1 Hunter. The rest of the welds were of the other companies
2 which were involved in the reinspection program.

3 Q All right, sir. Approximately of that 800 that
4 you inspected, how many of those were of the type where
5 you looked at what they did and then inspected the welds
6 yourself? Ten percent? Half?

7 A I would say approximately -- ten percent would
8 be a good number.

9 Q All right, sir. Did you find any differences
10 at all in your view of their inspection, other than your
11 comments about overconservatism?

12 A That was the only thing.

13 Q That was the only thing?

14 A Yes, sir. We had various conversations on being
15 overconservative.

16 MR. LEWIS: Kavin, keep up your voice.

17 BY JUDGE COLE:

18 Q A question just for my personal information, sir.
19 We have one of the exhibits in this hearing, is a weld
20 traveler card. How does one associate a weld traveler
21 card with a weld?

22 A (Witness Ward) The weld traveler card has
23 actually the weld number. It should have the system, the
24 welder who possibly performed the weld, the NDE, and it
25 could have other documentation. I don't remember right off

mgc27-6

1 exactly what it does have.

2 Q Where are these weld traveler cards kept?

3 A At Hunter, they are kept in the various file
4 cabinets.

5 Q Okay. Now if someone is going to conduct an
6 inspection, what does he do with respect to the weld traveler
7 card? Say he is going to both make a records check and
8 actually then take -- make a visual inspection of the weld
9 or do some other test in addition to that.

10 A Well, he would get the weld traveler card, and
11 then if he didn't know exactly where this weld was in the
12 plant, he would have to probably get some drawing, get all
13 the documentation that was associated with this weld
14 traveler card -- ordinarily they have other packages
15 different places, which tells how it was possibly -- how it
16 was welded, what NDE was performed. It has a whole history
17 on these welds. And he would look to verify that he could
18 really find this weld, that the weld number is there and all
19 the --

20 Q Hatfield was in the process of computerizing these
21 weld cards, were they not, sir?

22 A Yes, sir.

23 Q Did you use the Wang system that they had in any
24 of your work?

25 A I did not.

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1 Q Do you know how far along they are in that?

2 A They should be completed, but I don't know for
3 sure.

4 Q Do you know if any of the reinspectors utilized
5 that system in their work?

6 A No, sir, I do not.

7 Q On page 11 in the first full paragraph on page 11,
8 Mr. Ward, you say, "In many cases, the reinspections were
9 overly conservative, and inspectors were classifying welds
10 as unacceptable when they were, in fact, acceptable."

11 I'm not sure whether you answered the question
12 as to the quantification of that. Could you make an estimate
13 of how many of those cases where you -- I don't want to say
14 disagreed with their evaluation, but in what percentage of
15 the cases do you think they were being overly conservative,
16 of those total number of cases where you were able to make
17 a comparison and an observation?

18 A Well, there were two situations: one where the
19 individuals who were performing the inspection, I would
20 say -- you know I'm just guessing -- approximately ten percent
21 where they were -- where I felt that unacceptable welds, that
22 they called unacceptable, were acceptable. But then
23 Sargent & Lundy, their Level III, the third-party reexamined
24 the unacceptable welds and caught most of them.

25 So in guessing again, I would say that I would

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1 disagree with maybe two percent of theirs, meaning that
2 they were being overconservative.

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1 Q All right, sir.

2 A They found most of them.

3 Q This is also you, Mr. Ward, on page 18, top of
4 the page you indicated you visually examined 330 welds and
5 found that the company did an acceptable job.

6 What is your basis for saying that? What
7 criteria did you apply in making that conclusion, sir,
8 about the acceptability of the work that they did?

9 A Again when I reviewed these welds, when I
10 visually examined these welds, I used the criteria of AWS.
11 And being I found no problems, that is the reason for me
12 making that statement.

13 Q All right, sir.

14 I believe you testified before that all of these
15 welds that you were involved with were AWS welds.

16 A Yes, sir.

17 Q Page 23. I guess this is Mr. Muffett. The
18 middle of the page. I guess that is the second paragraph
19 on that page.

20 Mr. Muffett, in that first sentence you say:

21 "As for PTL, there is still a fair degree
22 of correlation between reinspectable and
23 nonreinspectable work."

24 I guess I don't know what you mean by that, sir.

25 A (Witness Muffett) Well, at the very basic level

1 there is a fair degree of correlation in that a lot of
2 these things require measurements. And the measurement,
3 reading a ruler or reading a gauge or reading a torque
4 wrench, they are similar on that level.

5 Also, there are many inspections that are
6 essentially identical, although they would be nonreinspectable,
7 as a visual weld inspection that would be out in space, or
8 one that would be poured in concrete later. There is
9 essentially no difference between those types of inspections.

10 Q Are you saying, sir, that you personally would
11 feel comfortable in extending conclusions as to one,
12 extending it to the other because you say they are similar?

13 A Yes.

14 Q I guess I would like to ask this of each of you,
15 and I think Mr. Connaughton has already responded to a
16 similar question, and Mr. Ward has commented, at least in
17 his area.

18 I guess my question is, are you gentlemen
19 satisfied that the NRC Staff has taken a critical look in
20 evaluation of the reevaluation program -- of the Reinspection
21 Program of the Applicant, and are satisfied that the
22 inspectors are qualified and that the quality of the work is
23 adequate to protect the public health and safety?

24 Do any of you have any comments to make as to
25 that?

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1 A (Witness Ward) Yes, sir.

2 I believe -- it is my opinion because of this
3 reinspection program now, that Byron is probably the
4 safest plant there is because of all this reinspection
5 that the rest of the plants have not gone through. And
6 we, the NRC did a very good job as far as I am concerned
7 in establishing the -- you know.

8 Q Thank you, sir.

9 Mr. Muffett?

10 A (Witness Muffett) First I would like to agree
11 with Mr. Ward, and I would like to elaborate a little bit.

12 Our review of the calculations in this program
13 is much more than we would typically do in the matter of
14 design calculations. So we have looked at those discrepan-
15 cies -- the engineering evaluations of the discrepancies --
16 with a more critical eye than usual.

17 From my discussions with the other inspectors,
18 informal discussions, they generally felt that Byron was
19 a good plant. I think that the Reinspection Program has
20 added another level of assurance to that.

21 Q Mr. Little?

22 A (Witness Little) I'm satisfied that the Byron
23 Reinspection Program accomplished our purposes.

24 My conclusion that the plant is, therefore, safe
25 to operate, is not just based on the Reinspection Program,

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1 it is based on our, Region III, inspection activities
2 throughout the construction of the plant.

3 The Reinspection Program gives us additional
4 assurance, and I am satisfied with the program as carried
5 out that it met the requirements of the program. But, I
6 see the program as something that gives us additional
7 assurance that the plant is safe to operate.

8 Q Mr. Little, you referred to some studies that
9 indicate -- human response studies had indicated that
10 in a typical inspection that you would expect a failure rate
11 of 20 percent in the identification of discrepancies.

12 Does this apply to welding discrepancies?

13 A I think it is a very general application to all
14 inspections where human beings are involved.

15 Q Okay.

16 My question is, if it applies, how could we
17 possibly come up with the results that you came up with
18 if that kind of criteria would apply in this case?

19 A Well, I think first of all this is at least the
20 second inspection of these activities. We know that
21 throughout the life of the plant there have been many
22 deficiencies identified and corrected. So, I also know
23 that in the nuclear industry we try much harder. And I
24 say we, the NRC, and I am sure the Licensee would say
25 themselves -- we try to see that they do much better than the

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1 average inspector would do, say out in industry. And I
2 would take that statement made in the Quality Control
3 Handbook to be representative of industry as a whole,
4 including the nuclear industry. But, I expect we do better
5 than that in the nuclear industry because of all of the
6 additional things that we do.

7 Q So because of your feeling that the nuclear
8 industry does better with respect to quality control, and
9 because of multiple inspections, you think that 20 percent
10 figure does not apply?

11 A I would say that still the average individual
12 will make mistakes and not detect things a large percentage
13 of the time. We do many additional checks, rechecks,
14 reverifications, reinspections which results in my believing
15 that the performance in the nuclear industry would be better
16 than -- we should be able to go out there and find fewer
17 mistakes than you would be able to find out in industry,
18 whatever average is out in industry.

end T28

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1 Q There is still a big difference between 80 percent
2 and over 90 percent; do you agree?

3 A Yes, yes.

4 Q (Witness Muffett) There is an important
5 distinction in those numbers. That's saying that the
6 inspector finds 80 percent of the defects. The 95 percent
7 number is an agreement between two inspectors, and there's
8 a slight difference there in those numbers.

9 A (Witness Little) I guess my factoring of the
10 80 percent into my judgment anyway is based primarily --
11 you know, it is a proven fact that human beings make mistakes.
12 I think those mistakes show up, or can show up, when you are
13 comparing their inspection results.

14 To make a direct correlation to the acceptance
15 criteria, I don't think I can. I say that enters into the
16 judgment of whether 90 percent is good enough. That, along
17 with the other things that I mentioned.

18 Q All right, sir, thank you.

19 Mr. Love, did you want to make any additional
20 comments as to the quality of the work and the quality of
21 the inspections? I believe you did make some comments.

22 A (Witness Love) Yes, sir, I did. I think that
23 the work as installed by Hatfield is adequate to provide a
24 safe operating plant.

25 Q Mr. Connaughton?

1 A (Witness Connaughton) I think the program
2 accomplished what has been called its primary objective by
3 Staff, in demonstrating that despite possible deficiencies
4 in the certification practices, QC inspectors -- that may
5 have occurred, they didn't overlook any significant hardware
6 deficiencies.

7 There are several schools of thought on what
8 it did to establish inspector capability, and you have yet
9 to hear from some of the various schools of thought.

10 But as I perceive it, the various views are
11 reconcilable.

12 To the extent that the program provides evidence
13 that, viewed in isolation, doesn't allow you to conclusively
14 state that every single inspector was capable of discerning
15 acceptable work from rejectable work. But we have a wealth
16 of information from our own experience and inspection history
17 that suggests that inspectors were capable, have been
18 historically capable, of identifying genuine deficiencies.

19 I think when you view the Reinspection Program
20 results in the light of that additional information, which
21 no one has really attempted to quantify or put in the
22 record, that the inferences that can be drawn regarding
23 inspector capability are fairly significant.

24 But I think the variations in views on what
25 the program is capable of doing is ultimately going to hinge

1 upon this restraint of the inferences to be drawn.

2 Q Most of your comments, or virtually all of your
3 comments had to do with the inspectors. Do you have anything
4 to say about the quality of the work? Not the inspection
5 work; I'm talking about the plant itself.

6 A I think with regards to the quality of the work,
7 this program was quite rigorous, and I would be very
8 interested to see the results of a similar program applied
9 with the same rigor at any plant in the country. I think
10 Byron fared very well in this program, and it's further
11 evidenced in the quality of the work.

12 Based on our views expressed in the earlier
13 hearings, I don't think -- and I shared those views then and
14 do now -- that the plant overall can and will be operated
15 safely.

16 Q Thank you. Mr. Little?

17 A (Witness Little) If I could make an additional
18 statement, inspection is very important, but it is not the
19 primary thing that we hang our hat on in saying that a system
20 is safe to operate, or that a plant is safe to operate.

21 Theoretically, if it is designed properly and
22 constructed properly, you could have a very safe plant with
23 no inspection. I am not saying that that's advisable or
24 anything that I would even suggest. But inspection is just
25 one piece of the pie.

1 If a pressurized system is designed correctly,
2 such that the materials are selected properly, such that
3 under irradiation they will not be susceptible to brittle
4 fracture, then the fact that you have a defect in the
5 weld -- and I'm saying it is very important -- but if you
6 are sure that regardless of what that defect is you will not
7 get a brittle fracture and you will not get the instantaneous
8 and complete displacement of piping that the Licensee is
9 required to analyze for in his accident analysis, all of
10 these pieces fit in and give us assurance that the plant
11 is safe to operate.

12 The question of is it constructed properly, you
13 know, -- a welder before he can do safety-related welding
14 must be tested. He must demonstrate that he can do that
15 type of welding. He has a procedure that tells him how to
16 do the welding.

17 The weld itself is inspected during the process
18 of making the weld for fit-up, it's inspected to make sure
19 he is using the right weld rod.

20 After the weld is inspected, after the initial
21 pass and final pass and these sort of things, after the
22 completed weld is made and it's in the reactor coolant
23 pressure boundaries, you have a radiograph of that weld.

24 There are many things that are done to give us
25 the assurance that the plant is safe to operate. And I guess

1 I just want to say inspection is one part of that.

2 Just because we have problems with inspections
3 doesn't necessarily mean the end of the world or that a
4 plant isn't safe to operate.

5 Q Well, in rendering your conclusions as to the
6 quality of the work and safety of the plant, do you consider
7 all of these factors?

8 A Yes.

9 Q Okay, thank you.

10 JUDGE SMITH: Off the record.

11 (A short recess was taken.)

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JUDGE SMITH: On the record.

2 Before we begin Dr. Callihan's questions, I wish
3 to explain the circumstance of the hearing site tomorrow.
4 As it turns out, we have no public space available, a
5 development which came up rather late. So Commonwealth
6 Edison has arranged for a conference room in a hotel. It was
7 too late for us to do that and arrange for a contract, an
8 NRC contract, for the hearing space.

9 So we will be the guests of Commonwealth Edison
10 in a hearing room tomorrow. However, we will undertake to
11 reimburse them if possible. I don't know if that's going
12 to be possible.

13 In any event, no inference is drawn from the fact
14 that Commonwealth is paying for the hearing space. We have
15 discussed it with the counsel for the Intervenors, and they
16 recognize that that is not an inappropriate way to proceed.

17 Gentlemen, is that your view?

18 MR. CASSEL: Yes, Judge. We certainly have no
19 objection to making sure that the hearings move along and
20 all the various witnesses who are in from out of town,
21 and the Judges for that matter, are not inconvenienced by
22 any delay for lack of space.

23 JUDGE SMITH: And we will certainly hear objections
24 from Mr. Lewis, if he will undertake to contract for this
25 space.

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1 MR. LEWIS: Not personally, I won't. But we
2 have no objection to the arrangement you stated.

3 JUDGE SMITH: All right. That's fine. We only
4 have on thing to decide, and that is, we could return in
5 the afternoon to the main courtroom. I think even that
6 may be doubtful. I think it would be inefficient. So I
7 think we should plan to stay for the entire day, and I
8 understand we have to conclude by five tomorrow.

9 MR. MILLER: Yes. I might just state for the
10 record that we are not certain which of the conference
11 rooms at the Clock Tower Inn is going to be made available.
12 It will be posted on their board, and the only problem is
13 that they have a function beginning at six p.m. in the same
14 conference room, and therefore we must be out by five.

15 JUDGE SMITH: All right. Off the record.

16 (Discussion off the record.)

17 JUDGE SMITH: Back on the record.

18 BY JUDGE CALLIHAN:

19 Q I am fully cognizant of the structure of the
20 panel tomorrow on many of the items in which I have interest
21 which have been discussed already; however, I have a hint
22 from Mr. Lewis that some of you gentlemen will not be
23 available tomorrow; is that true?

24 A (Witness Little) That's correct.

25 Q Whereas I have some what may seem to be general

mgc30-3

1 questions that might be delayed, I want to take advantage
2 of your presence.

3 As a result of my custom, I expect a group such
4 as you to serve as a panel and speak up. In fact, I charge
5 you to do so if I misdirect a question, or if you as a
6 member of the panel disagree with an answer that one of
7 your colleagues has given, I trust you will have your say
8 as well.

9 In your testimony, there are paragraphs bearing
10 the identity of one of you. I interpret that to mean that
11 you prepared the words. Also in this area of specialization,
12 I recognize that not only did you prepare the words for
13 those particular paragraphs, but those paragraphs represent
14 your areas of expertise, and it may be that you don't
15 crosstalk from paragraph to paragraph because of those
16 areas of expertise.

17 But it seems to me, there must be someplace up
18 the line, looking at the NRC organization chart, you, within
19 your own group, where there are some commonalities which
20 your knowledge and your opinions and your testimony
21 converge.

22 I trust that is somewhere below the Office of the
23 Treasurer of the United States.

24 (Laughter.)

25 Do you consider yourselves as speaking as

mrc30-4

1 individuals? And let's start this off with Mr. Little,
2 because you have been sort of the lead person here.

3 Do you believe your colleagues and yourself
4 have spoken here and in your testimony as individuals? And
5 let me go ahead with the next question, so you will get a
6 flavor for what I'm seeking.

7 Do you feel that you are speaking for the Nuclear
8 Regulatory Commission? If so, how far up your organization
9 chart do you go as such a group?

10 I doubt if anyone of you feels that he is speaking
11 for a Commissioner. Are you speaking for Region III? Are
12 you speaking for whatever or whoever you report to in the
13 Washington area?

14 Have I just identified my problem?

15 A (Witness Little) Yes, I think so.

16 Where I have drawn conclusions, I am speaking
17 for Region III. That is only after the words that I have
18 written have had many and extensive reviews by everyone
19 within the Region who were directly related to the subject,
20 and those reviews start with the inspector, and they ended
21 with the Regional Administrator.

22 So I would not say that I was speaking for
23 Region III, if I was just stating my opinion. Where I have
24 drawn conclusions that I expressed in my testimony, yes, I
25 am speaking for Region III. But that is only after careful

mgc30-5

1 review by everyone else in Region III who had responsibilities
2 in this matter.

3 Q Have you just said, then, that within this
4 group or within this group plus others within Region III,
5 there has been input into the various bits of testimony
6 which are here identified with an individual?

7 A I think there are pieces of testimony, like
8 where Kavin Ward says, "I went out and looked at so many
9 welds," he is stating what he has done. Now I don't think
10 you'll find any disagreement in Region III. It's the
11 Region III position that Kavin Ward did go out and look
12 at those welds, although he is describing what he individually
13 did, what he individually saw.

14 Q But as an employee of Region III and with the
15 confidence that you have in him, Region III will accept what
16 he says as a Region III statement; is that what you just said?

17 A We never accept anyone's opinion, including my
18 own, without its being challenged. In the regulatory
19 business, you will find that we challenge one another on a
20 daily basis as to our conclusions.

21 So, no, we would never just take at face value
22 what Kavin Ward tells us.

23 Now personally, I would, but I say in the way
24 we handle things in arriving at a Region III position,
25 even though I have the utmost confidence in what he tells me,

mgc30-6

1 before we adopt that as a Region III position, we will
2 analyze it, and we will discuss it.

3 Q And have you done so in the several cases
4 represented at the table?

5 A Yes. I think we have in all cases.

6 Q So I repeat my statement, which I guess I didn't
7 make clear, there is within Region III a thread of
8 continuity and confidence in the collection of information
9 which you have presented.

10 A Yes.

11 Q So is, then, the answer to my question that you
12 are going up to and including the top of Region III in your
13 discourse?

14 A Yes.

15 Q Is that generally true, do you think, of panels
16 in general, structured out of Region III personnel?

17 A I think we normally expect the panel to be
18 representing the Region III position. Not all panel
19 testimony gets the same degree of review. It definitely
20 gets reviewed, but not all of it gets the same degree.

21 Q There appeared before this Board some eleven
22 months ago or thereabouts and earlier in preceding sessions
23 in these hearings other panels out of Region III. There is,
24 as I have observed, and I think correctly, one bit of
25 continuity overlap, and that is Mr. Connaughton, I think,

mgc30-7

1 and either of the four remaining members of this panel --
2 or heard in that context, at any rate, in 1983.

3 Did members of the present group --
4 Mr. Connaughton excepted, of course -- participate in any
5 of the testimony that was presented a year ago, to the
6 best of your knowledge, where the discussion of the
7 testimony -- did, in your opinion, that testimony also
8 represent the Region III position as contrasted to
9 individuals?

10 A I think each panel member must answer that for
11 themselves. It was not discussed with me. It was not
12 discussed, to my knowledge, with people in my branch. My
13 branch did have the primary responsibility for monitoring
14 the program and evaluating its results. To my knowledge,
15 that testimony, like I say, was not discussed with me or
16 with people within my branch.

17 But like I say, Kavin was here at the time, Ray
18 Love was here at the time, and I think they should answer
19 that for themselves.

End 30SY

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T31 MM/mml

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Q Will they, please?

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A (Witness Ward) I was not involved in that.

3

Q Mr. Muffett?

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A (Witness Muffett) I was not with them at the

5

time.

6

Q Mr. Love?

7

A (Witness Love) Yes, sir. As far as Cordell

8

Williams who testified in the August hearings, he and I did

9

in fact discuss some of his testimony.

10

A (Witness Little) Was that related to the

11

Reinspection Program?

12

A (Witness Love) Not the Reinspection Program, to

13

his testimony.

14

Q Yes, of course, because the Reinspection Program

15

hadn't gotten very far then.

16

It is obvious what I am getting at. I sense,

17

perhaps erroneously, and that is what I want to clear up and

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we are going no further than this today so far as I am

19

concerned, but I sense some differences between the various

20

bits of testimony that came out, particularly in August of

21

'83, and what has come out in the last few days.

22

I think that is an appropriate question for the

23

group yet to appear --you, Mr. Hayes. So, I don't want

24

to go with it today, but I wanted to get this little bit

25

of background established.

mm2

1 If any of you have more to say on this subject
2 at this time, we would be delighted to listen.

3 A (Witness Little) I think I have told you
4 everything I know.

5 Q Thank you.

6 I have a few specifics that we might look at.
7 Nothing very shattering. Just for some clarifications.

8 Somewhere in my computer I regret to say, I have
9 lost a point and I want to come back to it, even though it
10 be repetitious.

11 There has been much conversation in the last
12 week to ten days about welds prepared to and inspected to
13 American Welding Society Standard D1.1. And what I have
14 lost is a similar consideration -- and I don't want any
15 lengthy discussion, I just want a few words to alert me --
16 what I have lost is similar consideration and reviews
17 and whatnot of welds under ASME Boiler Code.

18 Let me ask a question to which I think I know
19 the answer, but this is just an illustration. Were any
20 of those in the reinspection program?

21 A (Witness Muffett) ASME welds?

22 Q Yes.

23 A Yes.

24 Q Were they handled in the same way as the AWS D1.1
25 welds?

mm3

1 A In generally the same way. The only reason I
2 say generally, the ASME Code is significantly different
3 and more stringent. But they were followed according to the
4 pertinent code. And where discrepancies were found, a
5 number of those were evaluated and they were essentially
6 treated in the same way.

7 Q Was the population of discrepancies, irregularities
8 there about the same as in the AWS?

9 A It is my feeling -- and I regret that I am so
10 cloudy on the exact numbers -- that the population was much
11 smaller. And I believe that in the ASME welds, that they were
12 all specifically evaluated instead of categorized and
13 enveloped. That is in inspection report 8413, a section
14 dealing with the ASME welds.

15 Q Is that the report that was given to us today?
16 8413 you said?

17 A Yes.

18 Q Thank you.

19 A Page 42 essentially starts, the section that
20 deals with those welds.

21 Q All right. So they are there.

22 A Yes, there were 30 small bore fillet welds,
23 three large bore butt welds, 14 NF support welds, four
24 ASME class ND or MC, and one calculation that developed a
25 stress intensification for a discrepant weld.

mm4

1 MR. LEWIS: Please keep your voice up,
2 Mr. Muffett, we are having trouble hearing you.

3 BY MR. CALLIHAN:

4 Q Thank you.

5 Mr. Ward, is not Enclosure 1 your document?

6 A (Witness Ward) Pardon?

7 Q Is not Enclosure 1 of the Staff's prefiled
8 testimony your document?

9 A Yes, sir, it is.

10 Q Thank you. It saves me seeking.

11 Now, let me say welcome, Mr. Ward. We have talked
12 for days now about inspectors, and it is good to have a live
13 one with a warm body in our midst so we have got first-hand
14 information.

15 And, in that spirit may we look at the top of
16 page 28 of Enclosure 1 to the Staff's prefiled testimony.
17 And, let's look at the captions to the columns first.

18 Why don't you just tell us very simply and very
19 briefly what the column headings say.

20 A The first one, package or traveller. In most
21 cases it was the traveller, and that is the traveller
22 number underneath.

23 Q Fine, thank you. That sort of short statement
24 is all I was seeking.

25 A Yes, sir.

mm5

1 Q Now go ahead.

2 A The next one, weld ID is weld identification.
3 The numbers below are various welds.

4 Contractor results. ACC stands for acceptable.
5 And, where you see the X's under that, that means that the
6 reinspection people found that particular weld to be
7 acceptable.

8 The next one, reject defects, means that they
9 found the welds to be unacceptable for various reasons.

10 Q May I interrupt you at that point.

11 A Yes, sir.

12 Q Contractor results. This is the results of the
13 contractor reinspection program?

14 A Yes, sir.

15 Q All right, thank you.

16 A The next area, third-party results. Below that
17 where it states "agrees," that means that the third-party
18 agrees with the contractor results. For instance, he agreed
19 that there were various defects.

20 The next area, disagrees. Like it says, for the
21 various X's, means that the third party disagrees, and
22 then the items to the right are the areas in which--

23 Q Let me with that information read to you that
24 first line, which has a couple of identifications.

25 In the reinspection program, the contractor

mm6

1 reinspector -- if I may speak to the nomenclature that I
2 defined last week -- the contractor's reinspector found that
3 the weld in question had excessive leg. True?

4 A Yes, sir.

5 Q That's what it says?

6 A Yes, sir.

7 Q On the other hand, when the third party who
8 might have been who? Who might the third party have been?

9 A I'm sorry, S and L. Sargent and Lundy is the
10 third party.

11 Q Now, what do they find?

12 A They disagreed with excessive leg.

13 Q Did they accept the weld then, in effect?

14 A Yes, sir.

15 Q What was done about that particular weld from
16 that point on?

17 A Being the third party overruled, then that weld
18 was found to be acceptable according to the reports.

19 Q There was some conversation earlier today about
20 Pittsburgh, PTL overriding some third party. Am I correct
21 about that?

22 A (Witness Little) Yes.

23 A (Witness Ward) Yes. But I am not familiar with
24 that.

25 Q Are you familiar with that, Mr. Little?

mm7

1 A (Witness Little) Yes.

2 Q How might that have applied to this case?

3 No doubt it didn't, don't misunderstand me, but
4 how might it have applied? How would PTL have gotten into
5 the act after the third party?

6 Of course I think this is probably in reverse. It
7 has been accepted by the third party, everybody would
8 be happy to let sleeping dogs lie. But, suppose this had
9 been reversed, how would PTL have gotten into the act?

end T31

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1 A I guess I don't know if I really understand
2 your question or not. I can't think of anything that would
3 keep them out of the act.

4 Q On their own?

5 A Mr. Muffett says he understands.

6 A (Witness Muffett) My picture of this is that
7 the contractor results would have come in as a reject.
8 PTL's own Level III would have said that it's acceptable.
9 And therefore, before the third party could rule on it,
10 it would have been judged acceptable.

11 A (Witness Connaughton) The way I understand it
12 occurred --

13 (Laughter.)

14 Q All right, Mr. Connaughton.

15 A The circumstances under which it occurred was
16 that PTL rejected a weld. This happened on a number of
17 occasions. PTL rejected a weld.

18 Q Was PTL a third party in that?

19 A No. This was on reinspection of their own
20 work.

21 Q So that's a contractor result.

22 A Right. They rejected a weld. That was a
23 contractor result. The third party agreed that that was
24 rejectable. He concurred in that. Subsequent to that, at
25 some point in time after an interpretation, one of 27-some-odd

mgc32-2

1 interpretations given by Commonwealth Edison, was issued
2 to PTL, and they felt compelled to rereview inspection
3 results against this interpretation, which modified the
4 criteria for reinspection.

5 Upon rereview -- and it's not clear to me whether
6 it was rereviewed by the original contractor, reinspector,
7 or whether it was a different individual -- but in any event,
8 upon rereview, in light of this interpretation, they reversed
9 their original call and called it acceptable.

10 Q Excuse me. Who is "they" there?

11 A PTL. So now you have contractor rereview of his
12 results.

13 The problem was that he did not forward that to
14 the third party again for concurrence. So the final
15 disposition was based upon the contractor's rereview that
16 considered it acceptable, when, in fact, the third party
17 had not been called in to concur in that recall.

18 Q All right. So that in that case, in your heading
19 "Contractor" here, would have been PTL in Mr. Ward's table.

20 A That's correct.

21 Q And then the third party might have been Sargent &
22 Lundy.

23 A That's correct.

24 Q And then there was a challenge of that third-party
25 inspection. In this case, the contractor, PTL, came back.

mgc32-3

1 A Right.

2 Q All right, fine. Thank you.

3 Mr. Ward, a trivial matter, but looking at
4 page 19 of your enclosure, we can't let Mr. Gallo not quite
5 complete his lengthy inquiry.

6 What is undersize of the throat?

7 A (Witness Ward) Undersize of a throat was the
8 same as a leg, which was the area in a corner. Say they
9 are welding a brace to a building, and that first pass --

10 Q Is it a fillet weld?

11 A Yes, sir. And some people call it a leg. Some
12 people call it a throat. Various terms are used for that
13 undersize pass.

14 Q All right. Thank you.

15 Now I take it there are some close calls here.
16 For example, from your remarks earlier today, excessive
17 convexity and overweld sound about a like.

18 A Yes, sir. Those are terms that Hatfield and the
19 site used. From site to site, they are different. And so
20 being this is what they had, this is what I had to go by in
21 looking at their work.

22 Q With any necessary apology, may I share with
23 you a useful mnemonic. Concavity is like looking at caves.

24 A Thank you very much. I really appreciate that.

25 Q Mr. Connaughton, on page 3 -- and I'm still having

mgc32-4

1 trouble with the nomenclature -- on page 3 in your Answer 5,
2 you speak of first-line inspections and overinspections.

3 Can you tell me the difference between those,
4 on the one hand, and how it fits into the reinspection
5 categorization, if at all.

6 A (Witness Connaughton) Okay. Individuals
7 employed by PTL as QC inspectors may have performed
8 throughout the course of plant construction, may have performed
9 inspections for two reasons: one, that they were directed
10 by the Applicant's QA organization to perform
11 overinspections of contractors' work, or they may have
12 performed -- when I use the phrase "first-line inspections,"
13 they were, in fact, providing the QC inspections for those
14 items.

15 So first-line inspection is the quality control
16 inspection that is required.

17 Q Suppose we make a weld. It is fresh. Somebody
18 comes and looks at it. An inspector comes and looks at it.
19 Is that the first-line inspector

20 A That's correct.

21 Q There was a question immediately preceding this
22 series from Dr. Cole where, Mr. Ward, you were asked about
23 how you knew that something hadn't been inspected.

24 Was that at the bottom of page 10?

25 A (Witness Ward) Yes, sir, the second line from

mgc32-5

1 the bottom. I examined the welds themselves to determine
2 if they had been reinspected, and that the reinspection
3 did not overlook the discrepancy.

4 Q Could you have made that determination from
5 a traveler card?

6 A No, sir. This is what I believe. When I
7 was observing the individual, I was making sure that he
8 did not miss anything while he was visually examining the
9 weld.

10 Q On such occasions as you, yourself, as you say,
11 individually went out in the field to look for this and that,
12 wouldn't you have had issued to you, if that's the proper
13 term, the traveler card so you could take it along with
14 you and see what's been done in the past?

15 A Yes, sir. I picked various -- a lot of those
16 welds in areas that were very hard to get to for the main
17 purpose just to make sure that people had been in corners
18 and hard-to-get areas. Very few of them were easy to get to.

19 JUDGE SMITH: Is there a mark on them when
20 they're inspected?

21 WITNESS WARD: Yes, sir. For instance, the
22 unacceptable ones will have -- just as I have in my report,
23 undercut will be UC, adjacent to whatever area that might
24 have it. So when you have the documentation stating this,
25 it should be up there also.

End32MM

T33 Mm/mml 1

BY JUDGE CALLIHAN:

2 Q The reference in a number of pages, like on page
3 26, which I don't want to talk about specifically, alludes
4 to calculations performed by S and L.

5 Were you perchance in the waiting room last
6 week when the gentlemen from Sargent and Lundy,
7 Mr. McLaughlin and Mr. French and so forth were here?

8 A (Witness Ward) No, sir.

9 Q With apologies to a number of people, I come
10 back to a question, and I think you as an inspector or a
11 former inspector, are eminently qualified to address this.

12 What we learned is that in this Reinspection
13 Program a number of deficiencies were reported by the
14 reinspector. And then these were reconciled in a number of
15 ways; one of which was to refer it to the architect/engineer
16 and he recalculated and in effect said, yes, we have got
17 enough safety factor in here. We don't have to worry about
18 that one now.

19 Are you with me thus far?

20 A Yes, sir.

21 Q My question was a bit philosophical, I'll admit.
22 But, on the basis of your experience, if you can
23 carry yourself back in time to when you were an active
24 inspector, when situations like that arise, how does an
25 inspector feel? If I were an inspector I'd say, "Gee, nobody

mm2

1 is paying any attention to this anyhow. They just do a
2 calculation, and there goes all my work down the drain."

3 How do inspectors in the field meet that?

4 A They accept it, because that is part of the job.
5 But, it doesn't happen really, too often. Like the reason
6 it happened now, day ne Commonwealth Edison started to
7 repair these welds as the people found them unacceptable.

8 And then, as time went on they found out there
9 are so many, ~~that~~ they will try to analyze it away.

10 But ordinarily, they take this case by case.
11 And the only time that maybe something will be analyzed
12 away is if it is on a large stainless valve, or some
13 component that might have to be heat treated if it was
14 welded, and then maybe some companylike S and L, Nutech
15 or someone will be hired to come in and analyze it away.

16 But it is upsetting to just the plain inspector,
17 sometimes when he sees the work that he does, and it
18 remains that way because somebody came up with some nice
19 numbers and said, that's okay.

20 You know, I have been in that situation.

21 Q Mr. Muffett?

22 A (Witness Muffett) I would like to make one
23 comment. In most cases, as Kavin said, due to economic
24 factors, these things are repaired. It turns out in the
25 construction of a plant, that in most cases it is much

mm3

1 cheaper to repair these defects -- discrepancies identified
2 by the inspectors, rather than taking the time to send it
3 back to an engineering office and the attendant delay while
4 it is disposed of. A lot of times, because the craftsmen
5 are in the plant and it is the cheapest way to deal with it,
6 they just are repaired.

7 So, in general, the inspectors don't see this.

8 Q That to me is a straightforward way.

9 Are you speaking generally now in the industry?

10 A Yes.

11 Q Not necessarily at Byron?

12 A Yes, correct.

end T33

1 Q Mr. Love, in your testimony and also, in your
2 written testimony, also in your oral testimony today, there
3 was reference to some cable grips.

4 A (Witness Love) Yes, sir.

5 Q And I think your statement was that the utility
6 is re-evaluating --

7 A Yes, sir.

8 Q What is the schedule on that? Do you have any
9 idea? Have they done it yet, or are they going to?

10 A At the present time, the senior resident
11 inspector has a copy of their analysis that was provided
12 him, if you will, informally.

13 Whenever I complete my testimony here I will
14 be going out, reviewing that analysis, going out in the plant
15 and inspecting some of the cable grips that they're talking
16 about, and at that time, will make the decision as to, if
17 you will, whether we can live with the analysis provided by
18 the Applicant.

19 Q So it's ongoing?

20 A Yes, sir.

21 Q All right, that's all I wanted, thank you.

22 (Pause.)

23 JUDGE CALLIHAN: I think that's all I have.
24 Thank you very much.

25 JUDGE SMITH: I have none, but I don't believe

1 it's going to be possible to complete this panel this
2 evening, but let us inquire.

3 MR. LEWIS: I have five minutes of redirect.

4 JUDGE SMITH: Yes, but how about additional
5 cross?

6 MR. LEARNER: I don't believe that our
7 additional cross is any longer than 15 minutes.

8 MR. GALLO: I have nothing so far.

9 JUDGE SMITH: Okay.

10 REDIRECT EXAMINATION

11 BY MR. LEWIS:

12 Q Mr. Little, you had earlier testified in response
13 to questioning by Intervenors' counselor approximately to
14 the following effect. I don't have the citation right in
15 front of me, or the transcript right in front of me. But
16 to the effect that a rigorous statistical program could have
17 provided greater assurance of safety than the Reinspection
18 Program sampling plan that was used at Byron.

19 Did you believe that a statistical program
20 was necessary to address the inspector qualification and
21 certification issues at Byron?

22 A (Witness Little) No.

23 Q Were you satisfied that the sampling plan
24 included in the Reinspection Program was adequate to address
25 the issue?

1 A Yes.

2 Q Mr. Little, you were asked some questions
3 regarding whether you were aware of similar reinspection
4 programs -- that being similar to the Byron Reinspection
5 Program -- and the questions directed your attention in
6 particular to whether you were aware of any other reinspection
7 program that used the first three months of inspectors'
8 work as the period to be sampled.

9 Let me ask you this question. Were any of the
10 other reinspection programs that you referred to reinspection
11 programs of inspectors' work -- of inspectors?

12 A Not in the sense that we're talking about here
13 with the Byron Reinspection Program.

14 Q Would the types of other reinspections which
15 you were referring to necessarily have chosen any particular
16 timeframe of an inspector's work to look at, as opposed to
17 other periods of time?

18 A To my knowledge, they would not.

19 Q Mr. Little, there was discussion with you
20 regarding the audit finding of Commonwealth Edison Company
21 regarding PTL overriding the third party's rejection of
22 a particular weld. And at that time, I believe you gave
23 testimony that the program performance of PTL could have
24 been improved by PTL determining on that additional review
25 that a particular weld was acceptable.

1 Isn't it correct that the original difference
2 between the opinion of the original inspector and the
3 reinspector would have already been documented in the
4 Reinspection Program as a discrepancy?

5 A Yes, that's my understanding.

6 Q Mr. Ward, in response to a question from
7 Dr. Callihan, you used the term "analyze away a discrepancy."
8 In the use of that term, were you making any implication
9 with respect to the quality of the analysis done by an
10 architect engineering firm?

11 A (Witness Ward) Not at all.

12 MR. LEWIS: Those are all my questions.

13 JUDGE SMITH: Mr. Learner?

14 RE CROSS EXAMINATION

15 BY MR. LEARNER:

16 Q Mr. Muffett, you were asked earlier a series
17 of questions by Mr. Gallo respecting your relationship
18 with the Sargent & Lundy engineering evaluations. Did you
19 make your own independent review to determine whether
20 discrepancies that were under Sargent & Lundy's evaluation
21 had design significance, or were you more verifying the
22 reasonableness of Sargent & Lundy's judgment?

23 A (Witness Muffett) I was reviewing their
24 techniques for dealing with discrepant welds, and their
25 procedures -- well, I shouldn't say discrepant welds. I was

1 reviewing their procedures and how those procedures were
2 implemented for dealing with these discrepancies. And I
3 hope that answers your question.

4 Q Did you independently review any of the
5 discrepancies to determine whether they had safety
6 significance?

7 A I don't understand what you mean by independently
8 review in that sense.

9 Q Did you take a look at the discrepancies and
10 exercise your own judgment with respect to that discrepancy
11 as to whether it had safety significance?

12 A Yes.

13 Q Was that through verifying the procedures that
14 Sargent & Lundy had used?

15 A It was through reviewing the calculations.

16 Q Mr. Little, you were asked a minute ago by
17 Mr. Lewis -- strike that.

18 Isn't it correct that you have testified that
19 you did not believe that the Reinspection Program needed a
20 statistical component, and that the sampling methodology was
21 adequate?

22 A (Witness Little) Yes, I believe the sampling
23 methodology was adequate. I do not wish to discredit any
24 statistical methods that anyone may want to use to substantiate
25 that.

1 Q Do you know if the sampling methodology itself
2 was statistically valid?

3 A We did not evaluate it to determine that it was
4 statistically valid. We evaluated it based on our
5 collective engineering expertise, and we did want to make
6 sure that we had an adequate size sample. We wanted to
7 make sure that there was randomness in the selection of
8 those inspectors. We did not evaluate the randomness using
9 statistical methods.

10 Q Do I take it from your answer that the NRC
11 never made an expert statistical determination that the
12 sampling methodology was valid?

13 MR. GALLO: Objection. Beyond the scope of
14 recross and this whole subject matter was gone into at
15 length by Mr. Learner yesterday. The testimony is clear
16 that these witnesses relied on engineering judgment and did
17 not use statistical methods in reaching their conclusions.

18 MR. LEARNER: If Mr. Little will stipulate to
19 Mr. Gallo's characterization that will be fine with me and
20 I'll move on. I'm responding to a series of questions asked
21 by Mr. Lewis.

22 MR. GALLO: Mr. Lewis asked one question in this
23 area. He got a yes or no; I forget which.

24 JUDGE SMITH: What is your position, counselor?
25 Do you believe it was covered yesterday? My memory is that

1 it was. But what do you believe?

2 MR. LEARNER: I thought it was. I also believe
3 he may have said something slightly different with respect
4 to the sampling methodology now. I simply want to pin down
5 whether it's Mr. Little's view that the sampling methodology
6 was not designed with statistical expertness in mind. If
7 that's his view, that's all I need to ask.

8 JUDGE SMITH: Is that your view?

9 WITNESS LITTLE: Yes.

10 BY MR. LEARNER:

11 Q Mr. Little, you discussed earlier various
12 letters that were not received from Mr. Forney with respect
13 to dissenting professional opinions. Are you aware of
14 Mr. Forney's testimony in the August 1983 hearings?

15 A (Witness Little) I'm not aware that I discussed
16 other letters.

17 JUDGE SMITH: Excuse me. I wonder if I might
18 interrupt your cross examination. If you would defer questions
19 of that nature and address your questions the rest of this
20 evening to those that have to be handled by the panel in its
21 entirety, and then you have leave to cover that on that
22 special panel.

23 BY MR. LEARNER:

24 Q Fine. Mr. Little, you also referred earlier to,
25 I think to use your term, a wide spectrum of NRC Staff

1 positions and elements of the Reinspection Program. As I
2 recall, you said that Mr. Forney was toward the range of
3 a 100 percent inspection, and Mr. Ward was toward the much
4 lower range.

5 Were these, in your view, -- first, is that
6 an accurate characterization of your view?

7 A (Witness Little) Yes.

8 JUDGE SMITH: Along that line, too, I think
9 that also could be -- do you have much more along that line?

10 MR. LEARNER: I think it's properly wrapped up
11 with this panel.

12 JUDGE SMITH: Oh, excuse me. You said Ward and
13 I heard Hayes. Excuse me.

14 BY MR. LEARNER:

15 Q Were these, in your view, differing engineering
16 judgments of NRC Staff people?

17 A (Witness Little) You could define it as that.
18 I think wherever I used engineering judgment as being used
19 in arriving at a position, I am speaking of collective
20 engineering judgment, not my isolated engineering judgment,
21 not Forney's isolated engineering judgment, not any -- but
22 the collective engineering judgment of knowledgeable and
23 experienced people.

24 So if you want to call the technical opinion of
25 an engineer engineering judgment, yes, I'm aware that he had

1 opinions that were different, and other people had opinions
2 that were different.

3 Q Mr. Ward, do I understand your view to be that
4 there was really no need to conduct the Reinspection Program
5 to insure the qualifications of the inspectors?

6 A (Witness Ward) Yes, sir.

7 A (Witness Little) I would like to qualify that.
8 Just in the weld area.

9 A (Witness Ward) Right. It's just in the welding.

10 Q And you are referring to that as being an
11 expert on welds, and not an expert on all aspects of plant
12 construction?

13 A Right. Just the welding part.

14 Q So when you drew your conclusion earlier that
15 he safest plant there is, I take it you were
with respect to the weld attributes.
sir.

Thank you. You also testified, if I'm correct,
that the reinspectors were over-conservative in
, approximately, of the Hunter, Hatfield and
that you visually inspected.

22 MR. GALLO: Objection, that was not his testimony.
23 He said 10 percent for the reinspectors, 2 percent for the
24 third party inspectors.

25 MR. LEARNER: Excuse me.

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BY MR. LEARNER:

Q Is it correct to say that you view the reinspectors as having been over-conservative in 10 percent of the Hunter, Hatfield and PTL welds that you visually inspected?

A (Witness Ward) Approximately. I don't really know.

Q And you only visually inspected 330 Hunter, Hatfield and PTL welds; is that correct?

A Yes, sir.

Q And isn't it also true that there were a total of 36,000 approximately Hunter, Hatfield and PTL welds that were subject to the Reinspection Program?

A I don't know. That sounds about right.

end 34

1 Q If I referred you to your testimony, could you
2 confirm that?

3 MR. GALLO: Mr. Chairman, the hour is late.
4 I'm sorry -- Judge Smith. The hour is late and the record
5 is what the record shows. Do we really need to confirm that
6 fact?

7 JUDGE SMITH: I think that is the judgment that
8 Mr. Learner will have to make.

9 BY MR. LEARNER:

10 Q The testimony at page 6.

11 Mr. Little, do I understand correctly that the
12 subjective elements that are mentioned there are welds?

13 A (Witness Little) Yes. These would be visual
14 weld inspections.

15 Q Mr. Ward, you referred earlier to -- as a basis
16 for over-conservatism, that occurred in what you characterized
17 as the grey areas, am I right?

18 A (Witness Ward) All of these welds were originally
19 acceptable, so in my view, these welds that were found --
20 all of them that were found to be unacceptable were in the
21 grey areas, except for cracks.

22 Q Isn't it correct that you referred to these
23 over-conservative judgments as perhaps the reinspectors being
24 gun shy?

25 A Yes, sir.

1 Q Is it possible that one explanation for them
2 being gun shy was that these were welds at a nuclear power
3 plant, not at a construction facility that posed less
4 potential safety hazards?

5 A No, sir. In speaking to the people on why they
6 did this, from inspectors up to supervisors, they informed
7 me that they wanted to make sure that they caught everything.
8 They would rather be criticized for being over-conservative
9 than not finding -- than having me find something that was
10 unacceptable. And that's just the way it was.

11 Q And just to confirm, with respect to your overall
12 conclusions in response to Dr. Cole's questions, you were
13 referring earlier just with respect to the welding areas;
14 is that correct?

15 A Yes, sir.

16 MR. LEARNER: Thank you very much.

17 MR. CASSEL: Could we have one moment? Something
18 has come up.

19 (Pause.)

20 MR. CASSEL: Judge Smith, it might be simpler
21 if I ask it rather than try to explain it to Howard.

22 BY MR. CASSEL:

23 Q Mr. Ward, while Mr. Learner was out of the room
24 earlier in your testimony, I thought I heard you say that
25 at least during the Reinspection Program, when a defect was

1 found on a weld such as undercut U/C, that U/C was written
2 up right on the wall or the beam or whatever next to the
3 weld.

4 A (Witness Ward) Yes, sir, adjacent to whatever
5 area was found to be in their mind, unacceptable.

6 Q Was that a special practice adopted just for
7 the Reinspection Program, or is that normal practice with
8 respect to all of the welds in which defects are found
9 at Byron?

10 A I'm not sure. It seems to me that is their
11 normal practice. They are painted, they are covered, you know.
12 I know it was for the Reinspection Program. I'm not sure
13 if that's their regular practice for the visuals or not.

14 Q And then if the weld at some point is repaired,
15 there's no need to change the marking because by that time
16 or soon thereafter, it gets painted over?

17 A Yes, sir.

18 Q If there are several defects, they will all be
19 noted alongside the weld?

20 A Yes, sir.

21 Q And you don't know whether that function is
22 taken care of by the original inspectors, as opposed to the
23 reinspectors?

24 A No, sir, I'm not sure.

25 MR. CASSEL: Thank you

1 MR. LEARNER: Thank you very much.

2 JUDGE SMITH: Any additional questions?

3 MR. GALLO: No questions.

4 JUDGE SMITH: All right, gentlemen, you're
5 excused. Thank you very much.

6 We will meet tomorrow at 9:00 a.m. at the
7 Clock Tower Inn.

8 (Whereupon, at 5:50 p.m., the hearing in the
9 above-entitled matter was recessed, to reconvene at
10 9:00 a.m. the following day, Wednesday, August 1, 1984.)

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CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NRC COMMISSION

In the matter of: Commonwealth Edison Company
Byron Nuclear Power Station, 1 & 2

Date of Proceeding: Tuesday, July 31, 1984

Place of Proceeding: Rockford, Illinois

were held as herein appears, and that this is the original
transcript for the file of the Commission.

Mimie Meltzer

Official Reporter - Typed

Mimie Meltzer
Official Reporter - Signature

Suzanne Young

Official Reporter - Typed

Suzanne Young
Official Reporter - Signature