

ORIGINAL

UNITED STATES OF AMERICA

DOCKETED
USNRC

NUCLEAR REGULATORY COMMISSION

SEP 28 10:46

OFFICE
FOR
ADJUTANT

Title: CONAM INSPECTION, INC.

Itasca, Illinois

License No. 12-16559-01

EVIDENTIARY HEARING

Docket No.: 30-31373-CivP

Location: Chicago, Illinois

Date: Monday, September 14, 1998

Pages: 29 - 252

ANN RILEY & ASSOCIATES, LTD.

1250 I St., N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

DS03

19570

SECY-EHD-011

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

- - - - -X
In the matter of: :
CONAM INSPECTION, INC., : Docket No. 30-31373-CivP
Itasca, Illinois :
- - - - -X

Federal Building
536 South Clark Street, Room LLA
Chicago, Illinois

Monday, September 14, 1998

The above-entitled matter came on for
evidentiary hearing, pursuant to notice, at 9:30 a.m.

BEFORE:

CHARLES BECHHOEFFER, Chairman
RICHARD F. COLE, Administrative Judge
CHARLES N. KELBER, Administrative Judge

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 APPEARANCES:

2
3 On Behalf of Nuclear Regulatory Commission:4
5 MR. CHARLES BARTH

6 MR. DENNIS DAMBLY

7 U.S. Nuclear Regulatory Commission

8 Office of the General Counsel

9 Mail Stop 0-15-B18

10 Washington, D.C. 20555

11
12 On Behalf of Conam Inspection, Inc.:13
14 MR. MALCOLM (CHIP) BROOKS

15 MR. ROBERT J. SLACK

16 MR. CLIFTON LAKE

17 McBride Baker & Coles

18 Northwestern Atrium Center

19 500 West Madison Street, 40th Floor

20 Chicago, Illinois 60661-2511

21
22 ALSO PRESENT:

23 MR. WILLIAM GEOFFREY WEST, NRC Staff

24 MR. THOMAS YOUNG, NRC Staff

25 MR. LEE DEWEY, Legal Assistant

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

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

C O N T E N T S

WITNESS	DIRECT	CROSS	REDIRECT	RE CROSS
---------	--------	-------	----------	----------

WILLIAM CHASTAIN				
------------------	--	--	--	--

BY MR. DAMBLY	52/100			
BY MR. BROOKS		103		
BY MR. DAMBLY			135/155	
BY MR. BROOKS				139/141

ROBERT SLACK				
--------------	--	--	--	--

BY MR. BARTH	158			
BY MR. BROOKS		222		
BY MR. BARTH			248	

OPENING STATEMENTS	Page
Mr. Barth	37
Mr. Brooks	40

E X H I B I T S

NUMBER	IDENTIFIED	RECEIVED
Exhibit No. 6		74
Exhibit No. 7	(2 copies submitted to reporter)	184
Exhibit No. 12		199
Exhibit No. 16		205
Exhibit No. 17		211
Exhibit No. 18		212
Exhibit No. 19		216
Exhibit No. 20		217
Exhibit Nos. 21 & 22	(2 copies submitted to reporter)	66
Exhibit No. 36	(2 copies submitted to reporter)	233
Exhibit No. 37	(videotape submitted to reporter)	215

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

P R O C E E D I N G S

[9:15 A.M.]

CHAIRMAN BECHHOEFFER: Good morning, ladies and gentlemen. This is the initiation of an evidentiary hearing in the matter of Conam Inspection, Incorporated.

The Licensing Board here, I will introduce the members. On my left is Dr. Charles Kelber, nuclear physicist. On my right is Dr. Richard Cole, environmental scientist. My name is Charles Bechhoeffer. I'm an attorney and Chairman of the Board.

For the purposes of the record, would the parties and their representatives introduce themselves, left to right, I guess?

MR. BARTH: Your Honor, I'm Charles A. Barth. I am an attorney with the Office of General Counsel of the Nuclear Regulatory Commission. With me today is my co-counsels, Mr. Dennis Dambly who is also an attorney with the Office of the General Counsel. Our office is located in Washington, D.C. The two of us together will represent the staff.

MR. BROOKS: Good morning, Your Honor. My name is Malcolm Brooks from the law firm of McBride, Baker & Coles. You can call me Chip. In case you hear people talking about Chip, it's me.

To my left, your right, is Robert Slack who is

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 the radiation safety officer from Conam Inspection. To his
2 left is Cliff Lake, as you know, who is my partner at
3 McBride, Baker & Coles. The three of us will be
4 representing Conam Inspection at the hearing today.

5 This is going to be our first witness, in case
6 you're wondering who this is. This is William Chastain.

7 CHAIRMAN BECHHOEFFER: The staff's first witness
8 as well I understand.

9 MR. WEST: My name is William Geoffrey West. I'm
10 an NRC staff member as well. To my left is Tom Young,
11 colleague.

12 CHAIRMAN BECHHOEFFER: Are there any preliminary
13 matters which any of the parties wish to raise before we
14 get into opening statements?

15 MR. BROOKS: Just a couple procedural points, if
16 I could. One, during our last telephone call, the panel
17 had asked that we be prepared to address the authority of
18 the panel to approve or adopt weighting factors other than
19 one for the dose that is ultimately assessed here. What
20 we've done is we've prepared a little memorandum on that
21 subject, which if I could, I'd just like to provide you. I
22 don't have time to argue it right now or read from it, but
23 I'd just like to give it to the panel.

24 CHAIRMAN BECHHOEFFER: Fine. Make sure Mr. Barth
25 gets a copy.

1 MR. BROOKS: Yes. Here's two copies for you.

2 The other thing is just a matter of convenience.
3 As you know, the staff and Conam have agreed on a joint set
4 of exhibits basically. We've started to create an exhibit
5 book. I have exhibit books here. They don't have all of
6 the exhibits in them, but if the panel would find it
7 useful, I could give each of you an exhibit book that has
8 space for each of the exhibits. It has all of the ones
9 that Conam proposed, that were in addition to what the
10 staff had. I just find it sort of a convenient way.

11 We'll bring in a good three-hole punch that we
12 can use for that purpose. Maybe on a break we can get all
13 the exhibits stuck into here. I've given a copy of this
14 also to the staff.

15 [Brief adjournment.]

16 [9:45 A.M.]

17 CHAIRMAN BECHHOEFFER: Good morning again, ladies
18 and gentlemen. Following our brief adjournment, I guess
19 we're ready to proceed. We're now in Room 182.

20 Were there any further preliminary matters that
21 anyone wished to raise?

22 MR. BARTH: I would like to raise one on behalf
23 of the staff, Your Honor, in response to Mr. Brooks'
24 submission of a brief. I point out that your order of
25 August 31, 1998 is conclusive of the telephone conversation

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 from my point of view and my direct recollection, the Board
2 did not ask for or authorize additional staff, additional
3 brief on the legal matters herein. This is one of the
4 reasons that the staff had requested that the telephone
5 conversation, conference be transcribed which it was not.
6 But the law, by the Appeal Board in the past has been that
7 unauthorized briefs may not be admitted.

8 I understand the situation, but I think for the
9 record we should make it quite clear that this was not part
10 of the telephone conference, nor is it authorized. Thank
11 you, Your Honor. I'm ready to proceed.

12 CHAIRMAN BECHHOEFFER: The Board will, before
13 this particular question, before we have to reach an
14 decision on whether we can make a decision on our own, we
15 had mentioned this in the conference call. We did not
16 require certainly any briefs. We did not mean to
17 discourage them either. We will permit the staff, if it
18 wishes, to file its own brief on the same question.

19 The question will have to be decided when we
20 hear, or it may have to be decided when we hear the
21 witnesses, the expert witnesses really, concerning the
22 method of dose calculation. So the staff, by that time,
23 may wish to file its own brief. We're not requiring it,
24 but we're permitting it. We're also permitting it to be
25 argued orally to the extent necessary.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 I think with that, if we've covered all the
2 preliminary matters, we'll go into opening statements. I
3 guess the staff would lead off with that.

4 MR. BROOKS: Just one matter on opening
5 statements, Your Honor. Because we're going to be
6 addressing the evidence, at least for the purposes of Mr.
7 Chastain, we might ask that he be excused during the
8 opening statements, so that his testimony isn't influenced
9 by what we have to say in our opening statement.

10 MR. BARTH: The staff has no objection, Your
11 Honor.

12 CHAIRMAN BECHHOEFFER: The Board will excuse Mr.
13 Chastain from the room. He ought to stay in the immediate
14 area. I don't know how long or short the opening
15 statements will be, but it would be appropriate for him to
16 be excused from the room at this stage. He can wait in the
17 cafeteria or some other waiting room perhaps.

18 [Short interruption.]

19 CHAIRMAN BECHHOEFFER: Back on the record. Mr.
20 Barth.

21 MR. BARTH: Good morning, Judges, Mr. Brooks, all
22 the other persons here. This is an administrative
23 proceeding convened to resolve three issues. Those issues
24 are set forth in NRC's order imposing civil monetary
25 penalties \$16,000 against Conam Inspection, Inc. The

1 issues in that order have been delegated by the Director of
2 the Office of Enforcement for your resolution.

3 Your order dated December 17, 1997 on page two,
4 again recites the authority of the Board and what the
5 issues are to be resolved. Those issues are identified as
6 violation 1-B which is that Conam employee William Chastain
7 did not perform an adequate survey as required by 10 CFR
8 34.43(b), and violation 1-C, which is that Conam did not
9 limit Mr. Chastain's radiation dose to five rems.

10 There is a third issue and that is whether the
11 civil penalty imposed by the Office of Enforcement is
12 proper.

13 The staff will conclusively prove by Mr.
14 Chastain's testimony and that of Mr. Young and Mr. Phillips
15 of NRC staff and by the sworn evidence of Conam's radiation
16 safety officer Mr. Robert Slack and by other evidence that
17 Mr. Chastain, on February 27, 1996, did not make an
18 adequate survey of the possible radiation in the room.

19 The staff will prove by its analysis and by the
20 analysis of Conam's radiation consultant's analysis,
21 insofar as that analysis complies with 10 CFR Part 20, that
22 the total effective dose equivalent to Mr. Chastain on
23 February 27, 1996 exceeded the five rem dose limit set
24 forth in 10 CFR 20.1201(a)(1).

25 The staff will further prove the third issue,

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 that the penalty assessed for these violations was
2 appropriate. The law which is applicable here to these
3 proceedings is that set forth in the Commission's
4 regulations in effect on February 27, 1996.

5 The staff is well aware that Conam argues that
6 this Licensing Board should amend 10 CFR 20.1003
7 definition, weighting factor, to permit a weighting factor
8 of other than one for whole body dose. First of all, I
9 call your attention very strongly. This is not an issue in
10 this proceeding.

11 Second, I'm sure the Law Judge Chairman has
12 advised his colleagues, the Licensing Board is without
13 authority to amend the Commission's regulations. The
14 Commission has fully briefed this matter; the staff has
15 fully briefed this matter in its August 20, 1998 response
16 to the Board's questions on the meaning of whole body dose.
17 Even any discussion along this line, of amending the
18 Commission's regulations, is error, for it is not relevant
19 to the issues before the Board.

20 The staff is also aware of Conam's pleas to
21 utilize ICRP publication number 26 which was issued in 1977
22 and ANSI 13.41 which is more recent. Neither of these
23 publications are the NRC law in 1996, nor are they the
24 regulatory law of the NRC today. Any discussion of these
25 documents is error, not relevant to the violations resolved

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 here, and must be excluded, even so some persons may have
2 an interest in their present and future structuring to
3 determine radiation dose. Such an interest is more
4 appropriate to be discussed in the social professional
5 setting rather than in this administrative proceeding.

6 Finally, I would like to say that I appreciate
7 your attention to my opening statement, and I hope that it
8 falls upon receptive ears. Thank you, Your Honor.

9 CHAIRMAN BECHHOEFFER: Mr. Brooks.

10 MR. BROOKS: Gentlemen, once again my name is
11 Malcolm Brooks for Conam Inspection. I thank Mr. Barth. I
12 think he's done a very good job of organizing for us what
13 the issues are that will come before the panel this week.
14 I'm not going to argue with him about what those issues
15 are. But what I'd like to do is just take a couple minutes
16 to give you an overview of what the evidence is going to
17 show you about the incident in question here.

18 As you know, what Conam Inspection does, among
19 its businesses, is various forms of non-destructive
20 testing. One of the forms of non-destructive testing of
21 various things is radiography, by which you can use a
22 radioactive isotope to essentially take an X-ray or picture
23 of something in order to determine its structural
24 integrity. You can do that with bridge abutments to make
25 sure the bridge is right. Or you can do it with a support

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 for a building to see if there's any cracks in it. Or you
2 can do it with a weld, such as you've got up here in the
3 ceiling on some of these pipes. You can take a
4 radiographic image of the weld to see whether the weld is,
5 in fact, stable; if it's cracked; if it's holding; or if
6 it's in good shape.

7 On February 27th, 1996 Mr. Chastain was down at
8 Eli Lilly in Indianapolis, Indiana performing radiography
9 in a vacuum pump room, located up on the second floor of
10 the building there. The vacuum pump room has a maze of
11 pipes up in the ceiling. Mr. Chastain is going to tell you
12 that it had hundreds of welds on those pipes, and he'd been
13 designated to check, to radiograph a number of those welds.

14 He started work that day at about 3:00 in the
15 afternoon, and what he's doing on those welds was, most
16 welds what he would do is take two shots of each weld at a
17 90 degree angle. Sometimes he'd have to take three. But
18 he'd do is he'd set up, he had the camera that you'll be
19 hearing about, a Amersham 660-B camera, and he had a six-
20 foot ladder set up in the room, and he had the camera set
21 up on top of that ladder. What he would do is he would
22 take, as you know, off of one end of the camera there's a
23 cable that goes back to outside the room that he could use
24 to operate, to bring the source out of the camera or to
25 bring it back into the camera.

1 Out of the other end of the camera, is what they
2 call a guide tube that leads up to a collimator head. The
3 way that camera operates is that when you crank the source
4 out of the camera, it goes up the guide tube to the
5 collimator head and that's where your radiation is going to
6 come from to take your image.

7 What he was doing on that day was climb up the
8 ladder; he would place the collimator head about 20 inches
9 to one side of the weld that he was going to radiograph;
10 take an image. He would set it up; go down; leave the
11 room; crank out the source; take the image; and then he'd
12 come back into the room; move it to 90 degrees; go back out
13 of the room; crank out the source; take that image. That's
14 the way he was taking two images per shot, per weld.

15 At the time of the incident in question, what he
16 had done is he had taken the first image of the weld that
17 he was shooting. He had gone into the room; he had set it
18 up; gone out of the room; cranked out the source; and then
19 for the amount of exposure time, he cranked the source back
20 in. He thought he cranked the source all the way in, and
21 then he went back into the room. What you're going to
22 hear, what probably happened is he didn't quite get the
23 source all the way back into the fully shielded position in
24 the camera.

25 What the camera is, is basically, it's not really

1 a camera at all; it's just a place to put the source, a
2 place to put the radioactive source and it's full of spent
3 uranium. So when you've got the source fully retracted up
4 in the camera, no radiation can come out of it and then
5 it's safe for him to come back in the room.

6 If the source is not all the way back in the
7 shielded position, still inside the camera, but it's not
8 fully shielded, what you might have is some radiation
9 emitting from the port, the front port of the camera.

10 Now, you're going to hear that what Mr. Chastain
11 did, when he came back into the room after he did his first
12 shot; came back into the room with the survey meter; he
13 came up to the camera and you're going to hear a couple of
14 different stories about what he says here. It's the truth.
15 What he told Mr. Slack here, the day after the incident,
16 when he explained what he did, Mr. Chastain explained that
17 he did a full survey of the camera, a 360 degree survey,
18 all the way around it, up the guide tube to insure that
19 there was no radiation. He's got a survey meter, to insure
20 that there's no radiation, which he'd normally do to make
21 sure that the source has been fully retracted.

22 He told Mr. Slack that he did that. At the time,
23 he didn't know what his exposure level was. He didn't know
24 anything; he was explaining the incident. Later, when he
25 found out that he'd received a dose to his film badge of

1 4.6 rem, he started thinking and you'll hear him say this;
2 how could I have conducted a full survey, if the source was
3 not fully retracted? He starts thinking, maybe I didn't
4 complete a full survey. I don't know how we're going
5 resolve that, but that's what the testimony is that you're
6 going to hear about the survey, is that he first said that
7 he conducted a full survey, and later he started thinking
8 about it and thought that maybe he didn't.

9 Now, what he did after he completed his survey,
10 is he got around on the ladder and what he was doing is he
11 was wearing dosimetry in a fanny pack. I've got a fanny
12 pack here. He's got a fanny pack like this, and he's got
13 it strapped on in front of him. He'll testify that inside
14 his fanny pack he had his dosimetry which would include an
15 alarming rate meter which should go off, if it's exposed to
16 radiation of 500 millirems. And also that he had in there
17 a pack like this that contains a personal dosimeter which
18 will pin, at 200 millirems, and inside here is also a film
19 badge which you'll hear testimony the radiation workers are
20 issued each month. At the end of the month they turn in
21 their film badge and it's used to measure how much
22 cumulative radiation they received for a month.

23 So Mr. Chastain, you'll hear testimony that when
24 he came into the room, he had his dosimetry in his fanny
25 pack and went up the ladder. What happened then, again

1 you're going to hear a couple different versions of. The
2 day after the incident, Mr. Slack interviewed Mr. Chastain
3 and had him explain what happened. What he said he did was
4 he went up the ladder with his fanny pack in front, kept it
5 in front. He had three things he had to do when he was up
6 on the ladder. He had to take down the old film. He had
7 to put up some new film, and he had to move the collimator
8 to the 90 degree angle.

9 What you're going to hear is that he told Mr.
10 Slack, the day after the incident, that the whole time he
11 was facing the ladder, doing this, twisting, with the
12 camera in front of him, right about here. He's up on the
13 ladder. We're not sure which rung of the ladder he's on,
14 but he's up on the ladder. The camera is facing right
15 about here and he's twisting and turning and doing this
16 with the fanny pack and his dosimetry, at all times, facing
17 the source, facing the camera.

18 Now, you're going to hear another story that he
19 told the NRC on April 11th, 1996, a couple months later.
20 They did a re-enactment. You're going to hear what he told
21 the NRC at the re-enactment on April 11th, about two months
22 later, is that he went up the ladder with his fanny pack in
23 front, his dosimetry in here. He took down the old film,
24 while facing the camera. Then he spun around on the ladder
25 to put up the new film, with his fanny pack in front of

1 him, now fanny pack facing away from the camera.

2 Then you're going to hear a third story from Mr.
3 Chastain, and I'm not criticizing him. That's why I wanted
4 him to leave the room. I think you'll judge that he's
5 giving it his best shot. I don't find anything in his
6 testimony that he's trying to hide anything or trying to do
7 anything to change his story. He's giving it his best
8 shot.

9 Well, you're going to hear another story from him
10 which is that he went up the ladder with his fanny pack in
11 front and when he got to the top of the ladder, he turned
12 around on the ladder and spun his fanny pack around to in
13 back of him, and he did all his work; he took out the old
14 film, put up the new film with his fanny pack in back of
15 him, facing the camera and then he came down the ladder.
16 Three different scenarios.

17 When he came down the ladder, he went to unlock
18 the camera, which you have to do in order to be prepared to
19 crank out the source again when you leave the room. When
20 he went to unlock the camera, which should be automatically
21 locked, he noticed it wasn't locked. And when he came in
22 the room, to start this procedure, he was supposed to do a
23 manual lock. There's a redundancy on the camera; when you
24 pull the source all the way in, it's supposed to
25 automatically lock, and then when you come in the room,

1 you're supposed to do the redundant technique of manually
2 locking down that camera. He didn't do that second step.

3 Now, that's one of the violations that's been
4 alleged against Conam and we've admitted it, because Mr.
5 Chastain will tell you he did not lock down that camera
6 manually when he came back in the room.

7 CHAIRMAN BECHHOEFFER: Is that 1-A?

8 MR. BROOKS: I think it's 1-A. Correct.

9 So when he comes down from the ladder, he looks
10 and sees if the automatic, he's going to unlock the
11 automatic mechanism and he sees it's not locked which
12 leaves him to be concerned that the source was not fully
13 retracted. He leaves the room; he tries to see if he can
14 crank any more in and, lo and behold, he can crank just a
15 little bit more on the crank, third to a half a turn. He
16 says, oh, my goodness. He checks his personal dosimeter in
17 his fanny pack. It's pinned on 200MR. He says that must
18 mean that I may have received a dose in the room just now.

19 He goes out; he's got a supervisor on site, he
20 tells him, and the rest is history. How long is he up on
21 the ladder doing that, whatever he was doing? That's an
22 uncertainty. Somewhere between a minute and a half and
23 four minutes.

24 Now, what you're going to hear testimony about
25 are various calculations that were performed subsequent to

1 this incident. You're going to hear about three different
2 sets of calculations here. I have to apologize to the
3 panel in advance. I'm not a physics major, so my knowledge
4 of some of these things may be a little imperfect and the
5 way I speak about them may be a little imprecise.

6 But the basic three elements of any sort of a
7 dose calculation are you have to know the time; you have to
8 know the distance to the source; and you have to know the
9 source strength. Those are the three variables in any dose
10 calculation. As you listen to the testimony, as you can
11 tell, we don't know where in the camera the source was.
12 That's going to be one of the questions as to source
13 strength. Since the closer it is to the port, the more
14 radiation we're going to have emanating. That's what
15 you're going to hear testimony about.

16 One of the questions for our calculation is
17 source strength, and we don't know some of the answers on
18 that. One of the questions in the calculation is time
19 element. How long was he in proximity to the source, and
20 in what position? There's going to be conflicting
21 testimony on that. But the best estimate that you're going
22 to hear is a minute and a half, total time on the ladder,
23 which is going to be different than the calculation that
24 you're going to hear from the government.

25 The third element after source strength and time

1 is distance. In order to measure distance, you have to
2 know what position he was in. As you can tell from the
3 fact that you're going to hear three different stories
4 about where he was, it's going to be a little bit difficult
5 to get an accurate handle on distance.

6 A day or two after the incident, Mr. Slack
7 immediately had the film badge sent out for measurement,
8 and within a day or two after the incident, he got back the
9 film badge results. The film badge results says 4.6 rem.
10 Now, remember, that is a cumulative dose for the month of
11 February, 1996. As you'll recall, Mr. Slack had been told
12 that Mr. Chastain was at all times on the ladder when he
13 was doing his work, facing the camera, with his fanny pack
14 and his dosimetry in front of him. Mr. Slack made the
15 judgment, as he had to do within a day or two after the
16 incident, he had to make a judgment, what was his dose in
17 order to determine what is the risk to Mr. Chastain; in
18 order to determine what are Conam's reporting requirements.

19 What Mr. Slack did is he had to make a judgment
20 about that, and his judgment was that, given Mr. Chastain's
21 story, which is the only story that existed at that time,
22 his film badge was, for most of the time, closer to the
23 source than any part of his body, in which case, the dose
24 measured on the film badge would be the best measurement of
25 the dose received by Mr. Chastain. So what Mr. Slack

1 recorded, recorded in his notes, and what he reported to
2 his superiors was a dose of no more than 4.6 rems.

3 The proceeding that we are here today on is
4 primarily directed towards questioning Mr. Slack's judgment
5 in coming to that conclusion. I would like you to view the
6 evidence with respect to whether, under the circumstances,
7 Mr. Slack's judgment, if you hear all of the evidence, and
8 you hear all of the variability of the elements that go
9 into the calculations that you're going to hear about, I'm
10 going to suggest to you, at the end of the proceeding, that
11 Mr. Slack's judgment of 4.6 rems is, by far, the most
12 accurate judgment that can be made of the dose that Mr.
13 Chastain received on February 27th.

14 One last point. Mr. Barth, in his opening,
15 suggested that we're going to argue to the panel that you
16 amend the regulations in some way. That's not the case.
17 We are going to present the testimony of Carol Berger, and
18 she's going to explain to you why the most precise way that
19 we can measure a dose, an external, non-uniform dose in a
20 case like this is to use external dose weighting factors
21 that have been approved as the ANSI N13.41 standard. We've
22 addressed that quite a bit in our briefing and I'm not
23 going to go into it right now.

24 But the only point is a footnote that we've
25 talked so much about says that you can approve those

1 weighting factors on a case by case basis. I don't know
2 what this proceeding is, if it's not a case. We're only
3 going to ask you, as you hear the testimony, on the
4 relative precision of the various means of calculating a
5 dose, we're going to ask you at the end of this proceeding
6 to conclude, in addition to upholding Mr. Slack's judgment,
7 that if you've got to do a calculation, that the most
8 precise meaningful calculation that you can make is to use
9 those weighting factors. Thank you.

10 MR. BARTH: I'll go get Mr. Chastain.

11 CHAIRMAN BECHHOEFFER: Yes.

12 [Short interruption.]

13 [Witness sworn.]

14 MR. DAMBLY: Mr. Chastain, will you please state
15 your full name for the record?

16 MR. CHASTAIN: William J. Chastain.

17 MR. DAMBLY: And just so you understand, this
18 proceeding concerns an incident that you were involved in
19 on February 27th, 1996 at Eli Lilly.

20 MR. CHASTAIN: Yes, sir.

21 Whereupon,

22 WILLIAM CHASTAIN,
23 a witness, was called for examination by counsel for the
24 Nuclear Regulatory Commission and having been first duly
25 sworn, was examined and testified as follows:

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 DIRECT EXAMINATION

2 BY MR. DAMBLY:

3 Q To back up, what's your present occupation?

4 A NDE technician.

5 Q ND?

6 A NDE.

7 Q NDE. Are you a radiographer?

8 A Yes, sir.

9 Q Where are you employed presently?

10 A Elite Inspection.

11 Q Elite? And how long have you been employed
12 there?

13 A October of '96, October of '97. October of '96.

14 Q October of '96. All right. What percentage of
15 your work at Elite Inspection is radiography?

16 A Probably around 95 percent.

17 Q And are you performing at Elite roughly the same
18 functions you were performing for Conam?

19 A No, sir.

20 Q No?

21 A I'm a level two at Elite Inspection.

22 Q And for the Board's benefit, would you explain
23 the difference in levels in radiography?24 A A level one radiographer can operate the source,
25 but cannot interpret film. At Elite Inspection I was

1 always sent with a level two radiographer, when I was
2 performing X-rays that involved interpretation of welds.

3 And at Elite Inspection, I am a level two
4 radiographer, so I perform the jobs and read the film.

5 Q Just so it's clear, I think you said at Elite you
6 were always sent, you meant at Conam you were always sent
7 as a level one with a level two.

8 A Yes, sir.

9 Q Okay. We thought we heard the same thing. Okay.

10 So at Elite, do you actually perform the
11 radiography, are you like a level two in a trailer,
12 developing film and reading it?

13 A No, I perform the radiography.

14 Q Okay. You do both functions?

15 A Yes, sir.

16 Q Now, prior to joining Elite Inspection, where
17 were you employed?

18 A Conam Inspection.

19 Q Okay. Did you go directly from Conam to Elite?

20 A Yes, sir.

21 Q How long were you at Conam?

22 A From May of '93 till October of '96.

23 Q Okay. And please describe briefly what your
24 functions were at Conam and if it changed over that period
25 of time.

1 A I was a level one radiographer, and performed
2 ultrasonics, magnetic particle testing, liquid die
3 penetrant testing.

4 Q What percentage of your work at Conam was
5 radiography?

6 A I can give you a rough guess. Probably around
7 30, 30 percent.

8 Q Did the level of radiography work you did at
9 Conam change from the time you first got there until, you
10 know, as you progressed?

11 A Yes, sir.

12 Q In February of '96 you were doing almost
13 exclusively radiography?

14 A Yes, sir.

15 Q Now, we get to yell.

16 JUDGE COLE: You might want to put the microphone
17 a little closer.

18 MR. DAMBLY: Do you have any problem hearing me?

19 BY MR. DAMBLY:

20 Q Would you please briefly describe for us your
21 educational background?

22 A I'm a graduate of Crown Point High School in
23 Crown Point, Indiana. I received 40 hours of magnetic
24 particle training, 16 hours of liquid die penetrant
25 training. I'm not real sure how many hours of ultrasonics.

1 40 hours of radiation safety, and 40 hours of level one,
2 level two radiography.

3 Q Where did you get your level one and level two
4 training at?

5 A For radiography?

6 Q For radiography.

7 A I believe that was at SGS Industrial Services.

8 Q How long did you work at SGS?

9 A Approximately a year and a half.

10 Q Was that prior to you working at Conam?

11 A Yes, sir.

12 Q Prior to working at SGS, did you have any other
13 jobs in the radiography field?

14 A No, sir.

15 Q At the time you were working at Conam, did you
16 have an opportunity to observe other level one
17 radiographers in the field?

18 A Other level one radiographers?

19 Q Right.

20 A Yes, there were a few.

21 Q Did you actually observe other Conam
22 radiographers setting up films, setting up the camera,
23 moving shots, tearing it down, etcetera?

24 A Yes, sir.

25 Q And just from your observations, was the time it

1 took them to do a set up relatively the same as it took you
2 to do a set up?

3 A Yes, you could say the same, about the same time.

4 Q To your knowledge, are there any great variations
5 in time based on experience?

6 A No.

7 Q Now --

8 A Can I ask you to speak up a little bit?

9 Q I'm sorry. Did you receive training on the
10 Amersham 660?

11 A Yes, sir.

12 Q Where did you receive that training?

13 A The first time I was shown I believe it was at
14 SGS Industrial Services, because that's when we switched
15 over to that particular camera.

16 Q Did you get any training from Conam?

17 A I believe so.

18 Q Are you familiar with the Conam I guess O&E
19 procedures applicable to that camera?

20 A Am I familiar with it? Yes, we had one. One was
21 issued to everybody in the company.

22 Q We would like to provide you a copy, Mr.
23 Chastain, of what's called NRC Staff Exhibit Number 6. I
24 guess it's page 25 and 26, and also page 12 from the Conam
25 O&E procedures, and two copies have been provided to the

1 court reporter.

2 Let me ask you, are you familiar with these
3 procedures?

4 A Yes, sir.

5 Q Were you trained in these procedures at Conam?

6 A Yes, sir.

7 Q Let me also provide you with a document which is
8 marked as NRC Staff Exhibit Number 21. I'm sorry. Joint
9 Exhibit Number 21. I'm sorry. They're marked NRC Staff,
10 but apparently we have an agreement.

11 MR. BROOKS: We could stipulate to some of these.

12 CHAIRMAN BECHHOEFFER: The page numbers on Staff
13 Exhibit 6, Joint Exhibit 6, seems to be 25 and 26, as
14 advertised earlier, but the third page in mine says 12.
15 Could somebody explain that, rather than 27 as identified
16 by the staff earlier.

17 MR. BROOKS: I think what the staff did, Your
18 Honor, sometime ago, is to take excerpts from Conam's O&E
19 manual. They have the whole thing. And what they did is
20 they created their own arrangement of it, which then became
21 a part of their inspection report.

22 So what you're seeing here is simply the order in
23 which the NRC staff placed it as part of their inspection
24 report, placed it out of order. So these are pages from
25 our O&E manual, but are not in proper order.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 CHAIRMAN BECHHOEFFER: Is this page the same page
2 27 that was referenced by the staff and its list of
3 documents? I just saw a discrepancy between what the staff
4 had identified as Staff Exhibit 6 and what's here. Maybe
5 the staff could explain.

6 MR. BARTH: I can't hear you.

7 CHAIRMAN BECHHOEFFER: I'm sorry. I asked the
8 staff to explain the discrepancy, if any, between what the
9 staff identified in its list of documents that it provided
10 us which said pages 25, 26 and 27 with what we have here
11 which is 25, 26 and 12.

12 MR. BARTH: Let me explain it, Your Honor. As
13 Mr. Brooks pointed out to me, when I made him the original
14 list, items three and five were blank. When the Word
15 Perfect system, the program it has, we got rid of three and
16 five and it shifted numbers.

17 MR. DAMBLY: No. I'm sorry. But clearly on
18 Exhibit 6 there's a typo. I guess when it was done,
19 somebody figured they were in order. As you know, they're
20 not in order. Page 12 is the third page. We're not
21 providing you page 27.

22 CHAIRMAN BECHHOEFFER: Oh, that's what I was
23 trying to figure out, if we were missing something or had
24 something to expect.

25 MR. DAMBLY: You have the right something.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 CHAIRMAN BECHHOEFFER: Okay.

2 BY MR. DAMBLY:

3 Q Mr. Chastain, what I'd like to do at this time,
4 first I need to show you another joint exhibit, and I'll
5 provide that to the Board as well. Unfortunately, and I
6 didn't realize this until I just opened this package, the
7 photograph is in color and I only have two color copies,
8 the rest are black and white. I don't know if Mr. Brooks
9 has other photocopies of this or not.

10 I'll provide what's now Joint Exhibit 21.

11 CHAIRMAN BECHHOEFFER: The Board Chairman is
12 color blind.

13 MR. DAMBLY: Okay. Then please pass them on.

14 And two copies for the court reporter.

15 BY MR. DAMBLY:

16 Q At this point I'm not going to have you discuss
17 what that photo is. The purpose of that photo is that we
18 would like you, we have here a demo Amersham 660. But
19 since this is being recorded, it's on the record, you're
20 going to hook things up and show us how it works, but
21 obviously the record isn't going to know what you're doing;
22 it's not video tape. So with reference to what's Joint
23 Exhibit 21, if you can point out the various parts that are
24 seen there and show how you hook it up and what does what.
25 Okay?

1 MR. DAMBLY: If I may have your indulgence for a
2 second, I'll get the camera.

3 JUDGE COLE: This is one without a source?

4 MR. DAMBLY: Yes. Just so you can see. It's a
5 nice demo model. If you could maybe turn the mike over
6 here so that the Board can see the cut-away side, however
7 you want to do it, if you want to stand over here. Explain
8 what you're doing and just mention the pieces on the
9 photograph.

10 THE WITNESS: The object in my hand right now is
11 called a crank assembly. You can crank the source in and
12 out.

13 BY MR. DAMBLY:

14 Q That would be on that photograph, Joint Exhibit
15 21. It's the thing coming out of the left of the camera
16 and going down the ladder?

17 A Yes, sir.

18 Q All right.

19 JUDGE COLE: Now, the actual crank assembly is 25
20 plus feet long, right?

21 THE WITNESS: Yes. This is a demo model. Note,
22 that I would have a survey meter here, if it were a live
23 camera.

24 MR. DAMBLY: We'll give you one in a minute.

25 THE WITNESS: In the picture illustrated, to the

1 front of the camera or to the right of the camera you have
2 the guide tube.

3 MR. DAMBLY: In the photograph, it's the yellow
4 thing coming out of the right side of the camera and going
5 up in the air, right?

6 THE WITNESS: Yes, sir.

7 MR. DAMBLY: Thank you. Okay. You have it
8 assembled? Could demonstrate how the crank works and point
9 out for the Board, when you're unclicking that and locking
10 it, whatever, throw that mechanism and how it's supposed to
11 be operated.

12 THE WITNESS: This is the pointer mechanism which
13 actually physically locks the source, then it can't be
14 moved or cranked out.

15 MR. DAMBLY: And when it's locked, is there a
16 cover part on it?

17 THE WITNESS: There's a green slide bar up the
18 side.

19 MR. DAMBLY: If you could show that to the Board.

20 JUDGE COLE: All right. A green circle and a
21 small square.

22 THE WITNESS: Pull it to unlock it, turn it to
23 operate, dial, turn it from lock to connect to operate.
24 Turn the camera to the operate position, slide the slider,
25 it's ready to do, it will crank out.

1 MR. DAMBLY: When you turned it to operate,
2 please point out for the Board that there is a red slide,
3 red bar that comes out on the opposite side. Am I correct,
4 if the camera is open and unlocked, you should see a red
5 bar?

6 THE WITNESS: Yes, sir.

7 MR. DAMBLY: And once you crank it back in,
8 you'll see a green bar again?

9 THE WITNESS: Yes, sir.

10 JUDGE COLE: Mr. Chastain, do you physically push
11 that bar out so the red is showing? That wasn't automatic?
12 You had to push that back?

13 THE WITNESS: Yes, sir.

14 JUDGE COLE: Would you be able to crank it if you
15 had not pushed that out?

16 THE WITNESS; No, sir.

17 MR. DAMBLY; That unlocks the camera?

18 THE WITNESS: Yes, sir.

19 MR. DAMBLY: All right. Now that you have it
20 unlocked, if you would demonstrate the operation of the
21 camera itself by using the crank?

22 THE WITNESS: Yes, sir.

23 MR. DAMBLY: If we can do this. Hold on a
24 second. Turn this way for the Board, so they can see what
25 happens when you crank it back in. Okay. For the record,

1 as he cranked it back in, the green slide popped out with a
2 visible click. That now locks the camera automatically?

3 THE WITNESS: Yes, sir.

4 MR. DAMBLY: What you were talking about, the
5 Amersham 660 and the Conam O&E procedures I showed you,
6 what should you do after this?

7 THE WITNESS: Go to the survey unit.

8 MR. DAMBLY: They can't hear you.

9 THE WITNESS: The lock position.

10 MR. DAMBLY: They can't hear you.

11 MR. BROOKS: I'll hold this for you. You go
12 ahead and tell them.

13 THE WITNESS: Survey the camera. Come up to the
14 back of the camera, turn it to the lock position.

15 JUDGE KELBER: Excuse me. What do you do with
16 the survey meter?

17 MR. DAMBLY: Is this similar to the meter you
18 were using? I don't know if you have the exact same model,
19 but I think they're the same size and weight generally.

20 THE WITNESS: The survey meter will tell you how
21 many MR coming out of the camera.

22 MR. DAMBLY: I would point out for the Board, on
23 the picture you're looking at, Joint Exhibit 21, there's a
24 cart in the front lower left hand corner, and there's a
25 survey meter sitting on it.

1 THE WITNESS: Walk up to the camera, turn it to
2 the lock position, depress the plunger.

3 JUDGE KELBER: When do you do the survey, after
4 you press the button?

5 THE WITNESS: I was always taught by other
6 radiographers to do your survey, to depress the plunger, to
7 do the survey, make sure it's in the sealed position, by
8 surveying the side of the camera.

9 CHAIRMAN BECHHOEFFER: Do you do a manual lock in
10 addition?

11 THE WITNESS: Yes. The manual lock is turning it
12 to the lock position and depressing the plunger.

13 CHAIRMAN BECHHOEFFER: Do you do that before the
14 survey or after it?

15 THE WITNESS: I always do it before the survey.

16 JUDGE KELBER: You just survey the sides of the
17 camera?

18 THE WITNESS: Yes, sir. You survey down the
19 guide tube, the front of the camera, to the side of the
20 camera, to be sure it's in the shielded position.

21 JUDGE KELBER: Survey the guide tube, the front
22 of the camera and the sides?

23 THE WITNESS: To be sure it's in the shielded
24 position.

25 MR. DAMBLY: And you're required to do a full 360

1 degree survey, is that correct?

2 THE WITNESS: Yes, sir.

3 MR. DAMBLY: I guess you can sit down again for a
4 moment.

5 JUDGE KELBER: One more question. You don't
6 survey the entire guide tube, you don't go the length of
7 the guide tube?

8 THE WITNESS: Depending on the guide tube, you
9 survey from the collimator. There's actually a collimator
10 that sits on the end of this. You survey down the tube.

11 JUDGE KELBER: So you survey the entire length of
12 the guide tube?

13 MR. DAMBLY: Maybe I'll jump ahead a little bit.
14 Are you familiar with what's Joint Staff Exhibit 21? The
15 photo you have there, have you seen that before?

16 THE WITNESS: Yes, sir.

17 BY MR. DAMBLY:

18 Q Do you know what that is?

19 A Yes.

20 Q What is it?

21 A This is a set up of where I was working at Eli
22 Lilly, down in Indianapolis.

23 Q All right. And this is actually a shot of how
24 the camera, ladder, everything looked at the time you
25 discovered the possible over-exposure?

1 A Yes, sir.

2 Q You left the room and Mr. Morrill came back and
3 took a photograph?

4 A Yes, sir.

5 MR. DAMBLY: I guess I would like to move Joint
6 Exhibit 21 in, if we need to do that at this point.

7 MR. BROOKS: We don't have any objection,
8 obviously neither do you of admission of Exhibits 21 and
9 22.

10 CHAIRMAN BECHHOEFFER: 21 is all that's offered.

11 MR. DAMBLY: I'll provide 22 now, as well. It's
12 another shot from a little farther away. I'll leave it for
13 the witness.

14 Again, I would like to, at this point, move in
15 Joint Exhibit 22.

16 CHAIRMAN BECHHOEFFER: Any objection to Exhibits
17 21 and 22?

18 MR. BROOKS: No objection whatsoever.

19 CHAIRMAN BECHHOEFFER: Absent objection, they will
20 both be admitted into evidence.

21 [Whereupon, Exhibits 21 and 22
22 were admitted into evidence.]

23 BY MR. DAMBLY:

24 Q And now, while we're at it, if you'd look again
25 at Joint Exhibit 6, the Conam O&E manual. Do pages 25 and

1 26 discuss the procedures you're supposed to follow, and
2 what was just demonstrated to us on operation of the
3 Amersham 660?

4 A Yes, sir.

5 Q And they do state on page 26, paragraph 13,
6 survey camera and guide tube carefully to be sure source
7 has returned to safe position?

8 A Yes, sir.

9 Q They do also require that in addition to the
10 automatic lock, you're required to physically rotate the
11 selector ring and depress the plunger and lock it, correct?

12 A Yes, sir.

13 JUDGE KELBER: Is that what is meant by point 15,
14 turn the selector ring from operate to lock?

15 MR. DAMBLY: Mr. Chastain, could you -- I could
16 answer the question, but you don't want my answer.

17 JUDGE KELBER: Is that the last step you were
18 describing, described in step 15 of the exhibit?

19 THE WITNESS: Yes, sir.

20 JUDGE KELBER: It says on model 660 and model 533,
21 turn the selector ring from upright to lock and secure with
22 rejector lock.

23 THE WITNESS: Yes, sir.

24 JUDGE KELBER: Okay. Thank you. Your exhibit and
25 testimony are the same.

1 BY MR. DAMBLY:

2 Q Also on Joint Exhibit 21, there is a face seen in
3 the door.

4 A Which one is this?

5 Q Exhibit 21, Joint Exhibit 21. The one that
6 closer up I guess.

7 A Okay.

8 Q Do you see a face in the door there? Is that
9 you?

10 A I can't be 100 percent sure. But I think so.

11 Q These pictures were taken shortly after the
12 incident, correct?

13 A Yes, sir.

14 Q Now, with respect to that survey meter, where is
15 the sensing port on the meter?

16 A At the front of the survey meter.

17 Q Okay. So if you were to approach a source with
18 the meter turned backwards, you wouldn't get the correct
19 reading?

20 A That, I'm not sure of. I'm not sure if it would
21 read the same or if it wouldn't read the same.

22 Q So you've never done it backwards? This is good.

23 Going back to February 27th, if you could tell
24 us, February 27th, 1996, if you could tell us where you
25 were working, what you were doing for Conam on that day.

1 A I was working at Eli Lilly in Indianapolis,
2 Indiana. I was performing radiography on two-inch welds
3 that were made approximately a year before I started to
4 radiograph them.

5 Q Okay. What time did you start work that day?

6 A I believe around 3:00, between 2:00 and 3:00,
7 sometime in that time.

8 Q And how many shots did you take before the
9 incident occurred?

10 A Several, maybe three welds, maybe three or four
11 welds. I can't be sure exactly how many.

12 Q Let's see if I can find the exhibit here for you.
13 Mr. Chastain, let me show you something that's Joint
14 Exhibit 7. It's a five-page document. Now, are you
15 familiar with this document?

16 A I'm familiar with the last four pages, but not
17 the first one.

18 Q Okay. The last four pages, would you please tell
19 us what those are?

20 A The second page of the exhibit would be the
21 drawing of the area where I was performing the X-rays. And
22 the following three would be what happened, a written
23 statement of what happened while I was performing the
24 X-rays.

25 Q All right. And just so we're clear, if we look

1 at page two of five on Exhibit 7, and then you look at
2 either Exhibit 21 or Exhibit 22, basically the camera shot
3 on those two photographs is coming from what would be the
4 top of your drawing on Exhibit 7, where it says black wall,
5 up in that area?

6 A Yes, sir.

7 Q And the double doors on the bottom that's marked
8 there on the drawing are the double doors we see behind the
9 camera on the photograph?

10 A Yes, sir.

11 Q And the reason I provided you this at this point,
12 I understand this is a long time ago, you did write down,
13 this is the day after?

14 A Yes, this is.

15 Q How did you become prepare the drawing and your
16 write-up?

17 A I came home after the incident happened that
18 evening and came into work and met with Bob Slack the next
19 day.

20 Q Met with Bob Slack the next day? Where did you
21 meet with Mr. Slack?

22 A At the Gary Lab at Conam.

23 Q And did Mr. Slack ask you to prepare a write-up?

24 A Yes, sir.

25 Q This is what came of that?

1 A Yes, sir.

2 Q And with respect to the last page here, five of
3 five, do those figures have any meaning, the density on
4 clear film versus density on exposed film?

5 A When I thought that I had been overexposed, I had
6 a piece of unexposed film in my hand, getting ready to
7 prepare the next shot. So before I actually took the next
8 shot, I took that piece of film and had the Level 2 that
9 was on the job with me, he ran that piece of film that was
10 unexposed, compared to the film that I had been X-raying.

11 Q All right. And what were the results of that?

12 A That film that I had in my hand, getting ready to
13 use the exposure, had been exposed by the radiation that
14 was in the room.

15 Q From that is it possible for you to say that the
16 set-up, this picture, the one shot, the one time you went
17 in, is that the time that in point of fact you got exposed?

18 A Yes, sir.

19 Q All right. And again, I realize it was a long
20 time ago and if you want to refresh your recollections
21 about times, this is your day after write-up and it says
22 you started at 3:30 and when the incident occurred. That
23 would be better than your recollection today, would it not?

24 A Yes, sir.

25 Q I guess I could move in Joint Exhibit 7 at this

1 time.

2 CHAIRMAN BECHHOEFFER: Don't we need someone to?

3 MR. DAMBLY: That's fine. We'll wait. Mr. Slack
4 will, I'm sure, discuss that. Did I put in Exhibit 6? Did
5 the O&E manual go in or not? Does anybody know? Exhibit
6 6, was that admitted?

7 CHAIRMAN BECHHOEFFER: It hasn't been offered
8 yet.

9 MR. DAMBLY: That's a better question. Have we
10 not offered it yet? No? Okay. I would like to offer
11 Exhibit 6 in.

12 MR. BROOKS: No objection.

13 CHAIRMAN BECHHOEFFER: Do we need to amend the
14 definition so we know what exhibit officially?

15 MR. DAMBLY: If you would like --

16 CHAIRMAN BECHHOEFFER: Because of the page
17 numbers.

18 MR. DAMBLY: All right. If you would like to
19 change the designation on the exhibit list to say pages 25,
20 26 and 12.

21 CHAIRMAN BECHHOEFFER: One further question. Do
22 you know who put the circles around numbers 14 and 15? Is
23 that notes of counsel or is that --

24 MR. DAMBLY: That is not notes of counsel. I
25 believe, as Mr. Brooks said before, this was part of an

1 inspection report and these were indications of, if you
2 look at the three circles, the first two have to do with
3 turning the selector ring and locking the project lock,
4 which was Violation 1A, and page 12, there's a circle on
5 2.2, which talks about conduct a physical radiation survey
6 in the rear, sides, top and front, 360 degrees of exposure
7 device as follows, and lays out the requirements there.
8 That was an indication of Violation 2A. That's why they're
9 in the report. These are the two procedures, Conam
10 procedures, that are alleged to have been violated.

11 MR. BROOKS: I think the answer to the panel's
12 question is that the circles are not part of the Conam O&E
13 manual, but were something that were added to those
14 documents in conjunction by the NRC staff as part of the
15 inspection report.

16 MR. BARTH: I would like to add that Mr. Brooks
17 and I discussed these exhibits. We realized that there
18 would be notes on them. Some are from the public document
19 room and have a public document number on them. It was
20 agreed to disregard these marginal notes, which are obvious
21 to the eyeball. And if any one of the six ones marked you
22 will note that it says court -- ruled on.

23 Many of the papers I obtained are public
24 documents. The public document room number on them were
25 scratched off. The things I circled really don't have

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 anything to do with the original document.

2 CHAIRMAN BECHHOEFFER: Okay. Anything for the
3 record, Mr. Brooks?

4 MR. BROOKS: I'm not sure I remember that.

5 CHAIRMAN BECHHOEFFER: Any objection to this
6 exhibit?

7 MR. BROOKS: No, with the understanding that the
8 circles are not part of our O&E manual, no objection.

9 CHAIRMAN BECHHOEFFER: All right. Without
10 objection, Exhibit 6 will be admitted.

11 [Exhibit 6 was received into
12 evidence.]

13 BY MR. DAMBLY:

14 Q All right. Now, can you tell us please,
15 Mr. Chastain, on February 27, 1996, what led you to believe
16 you had been overexposed? When did you first discover that
17 you might have received an excess of exposure?

18 A After setting up the second shot on that
19 particular weld, I reached over the back of the camera to
20 move the slide bar to the operate position and noticed that
21 it wasn't completely slid over to the locked position.

22 Q All right. You said completely slid over. Is it
23 possible that turning that crank can have it go halfway?

24 A Yes, sir.

25 Q It is?

1 A Yes, sir.

2 Q Would you do that for us?

3 A It depends on the camera and how much it's been
4 used. I mean, this is a brand new set-up, a brand new
5 crank.

6 Q Okay. Had you ever had a situation before where
7 it only turned partially?

8 A I'm sorry?

9 Q Had you ever encountered a situation while you
10 were actually working where the automatic locking device
11 did not physically work?

12 A Where the slide bar didn't slide over all the
13 way?

14 Q Right.

15 A Yes, sir.

16 Q And you caught that out?

17 A While walking up to the camera, hearing it click,
18 listening for the click.

19 Q Okay. Listening for the click. We heard the
20 click. What was the level and noise inside the room at Eli
21 Lily on February 27?

22 A There were machines running. I mean, it was
23 operating. The particular room that I was in wasn't
24 operating at the time, but the other rooms around me did
25 have machinery running.

1 Q All right. And to the best of your recollection,
2 I think your notes say you diagram, which is on the second
3 page of Exhibit 7, indicates that you estimated the ladder
4 was 10 to 15 feet from the double doors?

5 A Yes, sir.

6 Q And where were you standing when you did the
7 cranking?

8 A In the hallway.

9 Q In the hallway. With the doors closed?

10 A Yes, sir.

11 Q Was it possible, with the doors closed and
12 standing in that hallway, for you to hear the click?

13 A Was it possible?

14 Q Well, did you hear it on the other 14 or 15
15 shots?

16 A Not that I can recall.

17 Q Now, and with respect to, sounds like somebody's
18 taking a shower, with respect to the automatic locking
19 mechanism and the requirement to physically turn the
20 selector ring and push down the plunger, was it unusual for
21 you not to do that?

22 A Was it unusual for me not to --

23 Q Not to do the manual part?

24 A No, sir.

25 Q From your observations of other radiographers, is

1 it routine for radiographers to rely on the automatic
2 locking mechanism?

3 MR. BROOKS: I'm going to object to the question.
4 It calls for really what's hearsay from this witness. I
5 don't think that his understanding of other radiographers'
6 routines are something that, number one, can't testify
7 about because it's hearsay, and number two, it's not really
8 a part of the question before the panel here today, and
9 therefore, not relevant.

10 MR. DAMBLY: All right.

11 CHAIRMAN BECHHOEFFER: I think we'll uphold the
12 objection.

13 MR. DAMBLY: All right. I wanted to rephrase the
14 question if I phrased it improperly.

15 BY MR. DAMBLY:

16 Q From your personal observations, at the time you
17 were at Conam, did you see other radiographers rely solely
18 on the automatic locking mechanism?

19 A Yes, sir.

20 MR. BROOKS: I'm going to renew my objection
21 based on relevance. That again, what other radiographers
22 do or do not do is not really part of what we're here to
23 determine today.

24 MR. DAMBLY: If I could address that, part of the
25 information that the staff relied upon, and you will hear

1 from Mr. Lieberman and others, in determining the penalty
2 in this case has to do with whether it was a wilful
3 violation or not. And as I'm sure the Board is well aware,
4 careless disregard is a part of wilfulness and if there's a
5 routine practice to ignore doing a required step, then I
6 think that's relevant.

7 CHAIRMAN BECHHOEFFER: We will allow that
8 particular question, which I think has been answered
9 already.

10 BY MR. DAMBLY:

11 Q If you wish to answer again.

12 A Yes, I have witnessed other radiographers.

13 Q I think we've already covered it. You actually
14 witnessed Mr. Morrill take the photographs that our staff
15 in Exhibit 21, I mean, Joint Exhibit 21 and 22?

16 A I'm sorry?

17 Q Did you actually witness Mr. Morrill take the
18 pictures that are Joint Exhibit 21 and 22?

19 A I believe so.

20 Q And I guess it would important to ask you, who
21 was Mr. Morrill? I don't think I covered that yet.

22 A Arnie Morrill was the Level 2 that I was sent to
23 the job with that was interpreting all the film that I was.

24 Q Okay. Where was Mr. Morrill when you were
25 shooting?

1 A He was in the truck in the parking lot developing
2 the film.

3 Q Okay. So you were working by yourself up in this
4 room, doing the set-up, take-down, shooting the welds?

5 A Yes, sir.

6 Q And when did Mr. Morrill find out about the
7 incident?

8 A As soon as I realized that my dosimeter was off
9 scale, I went downstairs and notified him.

10 Q Now, if you could, with reference to those two
11 photographs, whichever one makes it easier. Maybe it's
12 No. 22, the one that's farther away. If you could explain
13 to the Board please, what it was that you had to do for the
14 shot that you were coming in to take before you discovered
15 that in point of fact the bar wasn't slid properly over?

16 A The weld that I was shooting was up in the air.
17 If you can follow the guide tube, the yellow tube coming
18 out of the front of the camera, you will see it go up into
19 the air. The weld I was X-raying was in, I guess, the
20 piping in the ceiling.

21 I would climb up the ladder and turn around and
22 set my film up behind me, because actually when you walk in
23 the room, I climbed up the ladder and turned around and set
24 my film up.

25 Q Okay. Did you have to physically move the guide

1 tube?

2 A Yes, sir.

3 Q Where was the prior shot?

4 A Prior to that it was facing, as I came through
5 the double doors, the source was in the colonater up in the
6 air, it was pointing towards the door.

7 Q And with respect to Exhibit 22, was the guide
8 tube approximately where it is, left, right, whatever of
9 the position shot?

10 A It was to the left of where it is now.

11 Q So it would be on the side of the ladder that's
12 the left side of the ladder?

13 A Yes, sir.

14 Q About how far left of where it is now?

15 A It's hard to say exactly how far. Maybe in
16 reference to the picture, six inches. Or in reference to
17 the picture, maybe a foot. I can't tell you exactly how
18 far.

19 Q All right. Now, following the incident,
20 following your discovery of the incident, what actions did
21 you take?

22 A Following the incident?

23 Q Yeah.

24 A Well, when I reached over the back of the camera
25 and noticed that it had not slid over all the way, I went

1 ahead and depressed the slide bar all the way over so I
2 could retract and make sure that the source was in the
3 shielded position. I went in the hallway, picked up the
4 crank and cranked maybe a quarter, third of a turn and made
5 sure it wouldn't come out anymore.

6 I walked back into the room, started the camera,
7 pushed the plunger and locked it, checked my dosimeter and
8 everything, checked my rate alarm to make sure that it was
9 working. And when I looked at my dosimeter, like I said,
10 it was off scale.

11 Q Now, when you did the survey, when you came back
12 in after having discovered that the automatic lock hadn't
13 worked or wasn't engaged, whatever, did you do a 360 degree
14 survey at that time?

15 A Yes, sir.

16 Q You surveyed the guide tube?

17 A Yes, sir.

18 Q You surveyed the exit port of the camera?

19 A Yes, sir.

20 Q When you approached the camera, before you
21 discovered the incident, and on coming back in to set up
22 the shot that led to your finding you may have been
23 exposed, how did you do the survey at that time?

24 A I walked into the room with the survey meter in
25 my right hand, walking up to the camera behind the camera,

1 and if any radiation were in that, if the source was in the
2 tube or in the column there anywhere within that tube, and
3 I opened the door, my meter would have pegged.

4 So I walked up to the camera, brought it down
5 probably maybe two, three feet away from the guide tube,
6 directed it to the side of the camera, which I got my
7 hottest reading, to be sure that it was in a shielded
8 position and continued working.

9 Q Okay. You did not survey the front of the camera
10 on that shot?

11 A Not to my knowledge.

12 Q To your knowledge, is it possible to have
13 surveyed the front of the camera with the source partially
14 exposed and not have seen the meter peg?

15 A No, because the way the camera was sitting to me,
16 I still had the whole length of the camera shielding.

17 Q I'm talking about, had you put the survey meter
18 in the front, pointing right at the exit point, port, is it
19 possible that you could have done that and not seen the
20 meter peg?

21 MR. BROOKS: I'm going to object to the question.
22 At this point, it may be calling for what it's going to
23 turn out in this case to be expert testimony as to whether
24 that's possible or not.

25 MR. DAMBLY: I think from his experience as a

1 radiographer and a person who routinely uses survey meters,
2 if you had a working survey meter and it's facing the exit
3 point of an exposed source, are you going to get a reading?

4 MR. BROOKS: We'll let the panel rule on the
5 objection here first.

6 CHAIRMAN BECHHOEFFER: The Board will sustain
7 that objection.

8 MR. DAMBLY: Okay.

9 CHAIRMAN BECHHOEFFER: We think you do need some
10 expertise to answer it as asked.

11 JUDGE KELBER: I believe the question that was
12 asked dealt with the specific position of the survey meter
13 indicator. And I think that requires an expert in this
14 case. If you asked, well, I am not going to tell you what
15 to ask at this point, but I don't think that, you have to
16 much more about the survey meter and it's sensitivity as
17 well as the source.

18 But if he did testify that he got a high reading
19 on the side, it doesn't really matter.

20 MR. DAMBLY: Well, now, he said, I believe, his
21 highest reading was on the side. I'm sorry. I didn't
22 follow it up.

23 BY MR. DAMBLY:

24 Q What reading did you get when you had the meter
25 along the side of the camera?

1 A The reading that it was in a shielded position
2 and 20 MR. When you check a camera out and you survey it
3 360 degrees, then you get the reading on the side of the
4 camera in a shielded position. Your hottest reading around
5 the camera, whatever that might be.

6 Q So that was the hottest. It wasn't a hot
7 reading, it's just the hottest you got was on the side when
8 you did the back and the side?

9 A Yes.

10 Q Again, maybe my second question would have been a
11 better one than the first question, but my second question
12 was, had you, from your experience as a radiographer, if
13 you took a properly working survey meter and pointed it at
14 the front if you were doing a 360 and you surveyed the exit
15 port on an Amersham 660, with 100 curie source in it that
16 was partially exposed, would you expect to see the meter
17 peg on the 100 MR scale?

18 MR. BROOKS: I'm going to still object that it's
19 opinion testimony. I may lose the objection, but I'm still
20 going to make that objection.

21 JUDGE COLE: Mr. Dambly, when you use the term
22 partially exposed, what do you mean?

23 MR. DAMBLY: Was not in the locked or shielded
24 position in the camera, which is what we know it wasn't in,
25 as he testified. It didn't have the lock. It had slid

1 over and was partially out.

2 CHAIRMAN BECHHOEFFER: Mr. Chastain, you may
3 answer the question but only based on your own experience.
4 And if you haven't had experience of that type, then you
5 probably can't answer the question. But I'm not trying to
6 put words in your mouth. It has to be based on your
7 experience, not what an expert.

8 THE WITNESS: Based on my experience with the
9 knowledge of a source and a survey meter, I mean, if that
10 source is anywhere except for a shielded position in the
11 tube, in the front of the tube, if the survey meter is put
12 there, you are going to, the meter will peg out.

13 CHAIRMAN BECHHOEFFER: Okay.

14 BY MR. DAMBLY:

15 Q Now, we talked about the survey. We've talked
16 about you found, sorry. Okay. You went down afterwards.
17 You went back out and you cranked it back in, came back,
18 did your survey, turned your plunger. You went down to
19 Mr. Morrill. What happened after that?

20 A I had then contacted my RSO at the time, which
21 for our lab was Keith Tucker.

22 Q How did you contact him?

23 A By telephone.

24 Q And tell us about the conversation?

25 A I explained to him what had happened and

1 explained that my dosimeter was off scale and he told me to
2 sit tight and he contacted Bob Slack and in turn Bob Slack
3 returned my phone call.

4 Q And what did Mr. Slack say?

5 A I told him exactly what had happened in my own
6 words, and he told me okay. I want you to go ahead and
7 come back to the shop and I'll meet you at the shop at a
8 specific time the next day.

9 Q Where was the shop?

10 A In Gary, Indiana.

11 Q And who did the carry-out of the set-up? Did you
12 participate in taking the camera and whatever?

13 A No, sir. That was Mr. Morrill.

14 Q Then the next day you met with Mr. Slack?

15 A Yes, sir.

16 Q Approximately when?

17 A Sometime between 8:00 and 10:00 in the morning.

18 Q Okay.

19 A It was in the morning.

20 Q Do you recall what happened during that meeting?

21 A I turned my film badge in and they sent it to be
22 processed.

23 Q Did you have a discussion with Mr. Slack about
24 what occurred the day before?

25 A Yes, sir. I had told him, explained everything

1 what had happened and how it had happened and what I was
2 doing.

3 Q Okay. And as I recall your earlier testimony,
4 Mr. Slack asked you to write that up?

5 A Yes, sir. Mr. Slack or my RSO at the time, which
6 was Keith Tucker. Somebody, one of the two, told me to
7 write what had happened and how it happened.

8 Q And that's how we got pages two through five of
9 Exhibit 7?

10 A Yes, sir.

11 Q And at that meeting with Mr. Slack, did you do a
12 reenactment for him?

13 A Yes, sir. I believe Mr. Young and --

14 Q No, no, no. At the first meeting, the day after
15 the incident with just Mr. Slack in Gary, Indiana?

16 A I believe so. I can't recall. I know I did do a
17 reenactment while the NRC was there.

18 Q Okay. To the best of your recollection, at the
19 time you met with Mr. Slack on February 28, did he bring
20 out a ladder and ask you to run up and down the ladder and
21 show him what you did? Or did you just orally discuss?

22 A As far as I can remember, I think we just orally
23 discussed it, asking me where I was and how far I think I
24 was away and we did the calculations.

25 CHAIRMAN BECHHOEFFER: What was the date that you

1 did this reenactment? Is that the 27th?

2 THE WITNESS: It was after the incident had
3 happened. It was sometime after that with the NRC when the
4 NRC came down. I can't recall what day exactly or the date
5 it was.

6 JUDGE KELBER: Excuse me. Are there two
7 reenactments we're discussing?

8 MR. DAMBLY: We're going to get to the second one
9 in a minute.

10 JUDGE KELBER: What are we discussing now?

11 MR. DAMBLY: We're talking the day after the
12 incident, February 28th, and this was with Mr. Slack in
13 Gary, Indiana. But we're done with that one and we'll move
14 to --

15 JUDGE KELBER: Excuse me. Is that what you were
16 discussing, on the 28th?

17 THE WITNESS: He was asking me if I had done a
18 reenactment with Mr. Slack the following day after the
19 incident, and I told him that I wasn't sure. I'm pretty
20 sure that we just orally talked about what had happened.
21 And then following that, sometime later I did do a
22 reenactment for the NRC.

23 BY MR. DAMBLY:

24 Q Now, I'd like to take you to sometime later,
25 April 11th of '96. Do you recall having a meeting with NRC

1 inspectors present and Mr. Slack in which you did a
2 reenactment?

3 A Yes, sir.

4 Q And please tell us how was that conducted?

5 A We took a ladder upstairs on top of the offices
6 inside the building.

7 Q This was in Gary, Indiana?

8 A Yes, sir.

9 Q The same place that you met with Mr. Slack
10 earlier?

11 A Yes, sir.

12 Q Okay.

13 A And we basically just did a reenactment on which
14 rung of the ladder I was standing on, how far away, how I
15 was turned.

16 Q When you say you did a reenactment, first of all,
17 were you actually demonstrating the survey you did?

18 A Yes, sir.

19 Q And did you do a demonstration that showed you
20 not surveying the front of the camera? You don't know?

21 A I can't recall.

22 Q Okay. Was the reenactment that was done on
23 April 11th, first of all, who from the NRC was there that
24 you recall?

25 A Mr. Young and another gentleman. I'm not sure.

1 A younger gentleman.

2 Q How about Mr. West?

3 A I can't be sure.

4 Q Do you recognize the gentleman sitting at the
5 table?

6 A Yeah. The two gentlemen sitting behind you do
7 look familiar.

8 Q All right. And who from Conam was there besides
9 yourself?

10 A Bob Slack.

11 Q Okay. Now, during this reenactment, was anybody
12 there with a stop watch? Did they ask you to go through
13 the motions and time your activities?

14 A Not that I can recall. They had asked me how
15 long that I had been in there and how long do I think that
16 it took me from set-up to leave the room.

17 Q And you understood this was an official NRC
18 inquiry?

19 A Yes, sir.

20 Q You gave them the best information possible?

21 A Yes.

22 Q And your recollection was a lot better six weeks
23 after the incident than it is today?

24 A Yes, sir.

25 Q Okay. Now, your estimate was, do you recall?

1 A I believe between a minute and a half and two
2 minutes, from my set-up time from shot to shot, from
3 teardown to setting up the next shot.

4 Q Okay.

5 CHAIRMAN BECHHOEFFER: Would this be a good point
6 to have a short morning break?

7 MR. DAMBLY: It works fine for me. I don't care.

8 CHAIRMAN BECHHOEFFER: What would be a good
9 breaking point for you?

10 MR. DAMBLY: We can pick it up right here. It
11 doesn't matter to me. If there's a break, there's a break.

12 CHAIRMAN BECHHOEFFER: Ten minute break.

13 MR. DAMBLY: Okay. Thank you.

14 [A short recess was taken.]

15 CHAIRMAN BECHHOEFFER: Okay. Back on the record.
16 Mr. Dambly, you may proceed.

17 MR. DAMBLY: Thank you.

18 BY MR. DAMBLY:

19 Q Mr. Chastain, can you hear me?

20 A Yes, sir.

21 Q We're back at the reenactment you did for the NRC
22 inspectors on April 11, 1996. Can you tell me to the best
23 of your recollection what they told you the purpose of this
24 was?

25 A To, I guess, to see exactly if I got any more

1 than what my film badge said that I received, the 4.6 R.

2 Q Okay. And I take it it was in your best
3 interests to find that out yourself?

4 A Yeah.

5 Q Now, they didn't do a timed reenactment to the
6 best of your recollection? You told them how long you
7 think it took, that's correct?

8 A Yes, sir.

9 Q Was there a ladder present?

10 A Yes, sir.

11 Q Did you take positions on the ladder?

12 A Yes, sir.

13 Q Reenact what you thought you had done?

14 A Yes, sir.

15 Q At the time you were doing that, did the
16 inspectors measure distances?

17 A Yes, sir.

18 Q And they recorded positions that you took on the
19 ladder?

20 A Yes, sir.

21 Q They measured from the exit port to various parts
22 of your body and your fanny pack?

23 A Yes, sir.

24 Q Again, did you give them the best information
25 possible at that time?

1 A Yes, sir.

2 Q Mr. Chastain, I'd like to show you a document
3 which is Joint Exhibit No. 10.

4 MR. BROOKS: Your Honor, before the witness reads
5 this exhibit. Mr. Chastain, can you hold off on reading
6 the exhibit? I'm not sure this witness has ever seen this
7 exhibit before nor that he played any part in the
8 preparation of the exhibit. I prefer not to have him
9 testify from the exhibit, unless there's some foundation
10 for him doing so. I'd rather have Mr. Dambly ask him
11 questions. If Mr. Dambly has foundational questions, but
12 I'm just pointing out that I don't want him reading the
13 document.

14 MR. DAMBLY: That's fine. I didn't intend for
15 him to read the document. I was only interested in the two
16 diagrams that are in the material. I don't know what page
17 they're at. I think page six and seven, which I believe
18 were shown to him during his deposition and he's seen those
19 before. But if he's never seen them, then we won't ask
20 about them.

21 BY MR. DAMBLY:

22 Q Do you recall, Mr. Chastain, ever being shown
23 what's, there's two diagrams, one says Orientation A and
24 one says Diagram of the Camera on the Ladder?

25 A Yes, sir. I remember seeing those diagrams.

1 Q During your deposition in this case?

2 A Yes, sir.

3 MR. DAMBLY: I don't know if you have an
4 objection.

5 MR. BROOKS: I mean, at this point, the fact that
6 he saw something during his deposition isn't going to have
7 any bearing on the issue before the panel. If we're not
8 going to have him testify from the document he didn't
9 prepare, unless obviously Mr. Dambly needs to impeach him
10 with it, in which case that would be appropriate.

11 MR. DAMBLY: I have no need for the document.
12 We'll have Mr. Young and Mr. West testify about it.

13 JUDGE COLE: I can't hear you, Mr. Dambly.

14 MR. DAMBLY: I'm sorry. I said I'll withdraw
15 that document and just have Mr. Young and Mr. West.

16 BY MR. DAMBLY:

17 Q Mr. Chastain, earlier you testified that you did
18 not survey the front of the camera where the exit port is?

19 MR. BROOKS: I am going to object. I'm not sure
20 that's what he testified. His answer was not to my
21 knowledge. I apologize.

22 BY MR. DAMBLY:

23 Q Well, did you survey the front of the camera?

24 A Not to my knowledge.

25 Q Was there anything that would have kept you from

1 surveying the front of the camera?

2 A Just the way the camera was sitting, not being
3 able to physically fit my body in front of the camera with
4 the cart and the way it was sitting.

5 Q Okay. Following the incident when you learned it
6 was, the slide bar wasn't completely slid over, you went
7 out, you cranked the source back in, you clicked out, you
8 came in and you did a complete survey including the front
9 of the camera, you told us, is that correct?

10 A To my knowledge, yes.

11 Q And nothing had moved between those two surveys?

12 A No, sir.

13 Q So there was nothing physically to have prevented
14 you from surveying the front of the camera the first time?

15 A No, sir. What I said, just not being able to
16 physically get my whole body in front of the camera.

17 Q And what stopped you, if you could look at either
18 photograph, Exhibit 21 or 22, from getting in front of the
19 camera?

20 A You can see the piping sticking out. There's a
21 little cart that sat directly in front of the ladder. And
22 the extended ladder when it was opened up took over
23 three-quarters of the aisle way up and then with the cart
24 in front of it.

25 Q Now, the cart's a moving cart?

1 A Yes, sir.

2 Q And from your diagram that's in Exhibit 7, second
3 page, and that's a long aisle, is that not? You estimated
4 10 to 15 feet from the double doors to the ladder and it
5 would like from your drawing that's approximately halfway
6 in the room?

7 A Yes, sir.

8 Q So you could have moved the cart any place you
9 wanted to move the cart farther away from the ladder?

10 A Yes, sir.

11 Q And if you physically climbed the ladder which
12 you had to do for the teardown and set-up, you're standing
13 up along those rungs of the ladder, would there be anything
14 to keep you from getting the survey meter in front of the
15 camera?

16 A I'm sorry?

17 Q In other words, if you were standing on the
18 ladder with the survey meter in your hand, is there
19 anything that would have blocked you from putting the meter
20 in front of the camera?

21 A No, sir.

22 Q Okay. The last area, and I'm sure you're glad to
23 hear this, that I would like to discuss with you is what
24 I'll call auditing that was done by Conam of your
25 performance over the time you worked for them.

1 How often did somebody from Conam check out your
2 ability to safely use the camera?

3 A We had a personal audit that we did in the shop.

4 Q How often was that?

5 A Every six months, a year. I'm not really sure.

6 Q And how did the personal audit in the shop, what
7 were you asked to do?

8 A To set up the source, to disconnect the source,
9 show all the surveys.

10 Q Something similar to what you did this morning?

11 A Basically, yes, sir.

12 Q Were you ever asked to, as part of that, actually
13 shoot an X-ray, shoot a weld there in the shop?

14 A No, sir. Not that I can recall.

15 Q Okay. During the time you worked for Conam, did
16 anybody from, I'll use the word headquarters, you can use
17 whatever word you want, somebody, an auditor, an inspector,
18 whatever, from Conam come and physically observe you
19 shooting welds on the job?

20 A No, sir. Not me personally that I can recall.

21 Q Mr. Slack ever visit the site where you were
22 working?

23 A No, sir.

24 Q How about Mr. Tucker?

25 A Not, like I said, not me personally did he ever

1 come out and check a job that I was doing personally or
2 audit me.

3 Q So the audits that were done basically, I'm sure
4 it was a little different environment, but similar to this,
5 but you knew you were being tested? There were no like
6 surprises?

7 A Yes, sir.

8 MR. DAMBLY: That's all I have. Thank you very
9 much.

10 JUDGE KELBER: Before Mr. Brooks starts, I am
11 confused about some questions here and about some things
12 here in Exhibit 7, Mr. Chastain's written report. We'd
13 appreciate if Mr. Chastain could clear it up for me.

14 EXAMINATION

15 BY JUDGE KELBER:

16 Q In your written report you say at approximately
17 6:30 p.m. I cranked in an exposure and proceeded into the
18 room holding the survey meter in my right hand and an
19 unexposed piece of film in my left. Again, doing my survey
20 of the camera, note the camera's about a 60 degree angle
21 pointed away from me, I started at the source. Now, that's
22 the piece of, that's the tip of the guide tube that's
23 attached to the light?

24 A Yes.

25 Q So that was about what elevation from the floor,

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 about 13 feet or so?

2 A Approximately.

3 Q Your hands would be stretched way up, right?

4 A Like I said, I was maybe three feet from it.

5 Q Yeah. You were fully extended. Okay. Then
6 worked my way down to the camera. That's following the
7 guide tube?

8 A Mm-hmm.

9 Q Where I received my hottest reading of 20 MR.
10 Now, the guide tube attaches to the camera at the front?

11 A Yes, sir.

12 Q So if you did what you said, then you must have
13 been in front of the camera. That's what I don't
14 understand.

15 MR. DAMBLY: I think if you recall the testimony,
16 the picture that you're looking at now is after he moved.

17 JUDGE KELBER: I'm not looking at the picture.
18 I'm looking at his report.

19 MR. DAMBLY: I know.

20 MR. BROOKS: I'm interested in the answer to the
21 question.

22 JUDGE KELBER: Yeah, I mean, I don't understand.
23 If you started at the source tip and worked my way down to
24 the camera?

25 THE WITNESS: Like I said, the camera, it was up

1 in the air. So when I took my reading, I came down.

2 BY JUDGE KELBER:

3 Q Here?

4 A Went directly to the side of the camera.

5 Q You didn't follow the guide tube all the way
6 down?

7 A I started at the source as it came down, but I
8 can't recall ever going directly in front of the source
9 itself.

10 MR. DAMBLY: If I can try and clear that up.

11 DIRECT EXAMINATION (Continued)

12 BY MR. DAMBLY:

13 Q Mr. Chastain, at the time that you came into the
14 room, where was the guide tube, looking at the photograph?

15 A It was in the air.

16 Q And to the left of the picture?

17 A Yes, sir.

18 Q So it was on the back side of the camera?

19 A Yes, sir.

20 Q So as you came down on the back side of the
21 camera, you would have hit the camera not in the front but
22 in the back?

23 A Yes, sir.

24 JUDGE KELBER: Wait, wait. Now you've got me
25 more confused. The guide tube has got to be the front of

1 the camera.

2 MR. DAMBLY: The testimony is the weld that he
3 was shooting, he had to tear down and he moved it. You're
4 seeing it in the moved position.

5 JUDGE KELBER: This picture had nothing to do
6 with the incident then?

7 MR. DAMBLY: It has to do with where the camera
8 was and the positioning of the camera, not the positioning
9 of the guide tube. It's the guide tube after he moved it
10 before he found out he'd been exposed.

11 The guide tube, as he's testified, when he walked
12 into the room was coming up the left side of the camera.

13 JUDGE COLE: Facing in.

14 MR. DAMBLY: It would be to the right side facing
15 in.

16 THE WITNESS: This is the way the guide tube was
17 coming up when I entered the room.

18 JUDGE KELBER: All right. The guide tube was
19 coming up and you followed it all the way down.

20 THE WITNESS: I followed it down to the side of
21 the camera. Whether or not I went directly in front of the
22 camera, like I was saying, if it was sticking out of the
23 front of the camera, if I would have been all the way to
24 the source, I would have showed the high reading.

25 JUDGE KELBER: So you're deciding that you must

1 not have done a 360 degree reading survey because you
2 didn't get a high reading, is that correct?

3 THE WITNESS: Yes, sir.

4 JUDGE KELBER: Okay. That's your deduction?

5 MR. DAMBLY: It's also, you know, if I could
6 comment, it says down to the camera. It doesn't say down
7 to the front of the camera.

8 JUDGE KELBER: All it says is I worked my way
9 down to the camera. And I'm assuming, and I was asking
10 whether he followed the guide tube all the way.

11 BY MR. DAMBLY:

12 Q And Mr. Chastain, when you were doing that coming
13 in from what's behind the set-up here, the double doors,
14 where in relation to the camera were you standing?

15 A I was standing behind the camera.

16 Q Could you physically have reached around and
17 surveyed the front of it from where you were standing?

18 A From where I was?

19 Q Yes.

20 A To my knowledge, probably, yeah. I could have
21 reached my arm around the front of the camera.

22 MR. DAMBLY: I have no further questions.

23 CHAIRMAN BECHHOEFFER: Mr. Brooks, would you
24 prefer to start cross-examination now or would you like to
25 wait until after lunch? We could have an early lunch if

1 that would be preferable.

2 MR. BROOKS: I'll go either way. Probably have
3 enough, but we're going to have to take a break at some
4 point.

5 CHAIRMAN BECHHOEFFER: Yes.

6 MR. BROOKS: I can take a break now or we can do
7 a half hour now and then take a break.

8 CHAIRMAN BECHHOEFFER: Yeah. Let's do that then.
9 Why don't you start. When there's a good break, why don't
10 we take it.

11 MR. BROOKS: Let's see if I can discern a clear
12 breaking point.

13 CROSS-EXAMINATION

14 BY MR. BROOKS:

15 Q Mr. Chastain, we'll keep you here just a little
16 bit more. In your training with respect to the use of the
17 camera, were you trained to do a complete survey?

18 A Yes, sir.

19 Q Were you trained to do a complete 360 degree
20 survey of the camera?

21 A Yes, sir.

22 Q Were you trained about the importance of why to
23 do a complete survey of the camera?

24 A Yes, sir.

25 Q That is to protect yourself in case anything had

1 gone wrong, right?

2 A Yes, sir.

3 Q Now, wholly apart from what the panel has said
4 your deduction, and I understand you're trying to make a
5 reasonable deduction about what happened, wholly apart from
6 that, do you sitting here today have a clear recollection
7 as to whether or not you went and surveyed the front of the
8 camera at the time of that incident on February 27, 1996?

9 A No, sir.

10 Q Now, was it your practice as of February 27,
11 1996, to do a complete 360 degree survey of the camera
12 every time you went up to it?

13 A Yes, sir.

14 Q And if it was physically possible for you to do a
15 360 degree survey of the camera, is it correct that you
16 would have done so?

17 A Yes, sir.

18 Q Now, let's get out, if you will, what was marked
19 as Exhibit 22, the picture. Do you have that one in front
20 of you?

21 A They don't have any numbers on them.

22 Q All right. Let me just identify and mark these
23 exhibits here.

24 MR. DAMBLY: Whatever. Yeah.

25 BY MR. BROOKS:

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 Q Okay. Looking at Exhibit 22 of your two
2 pictures, that's the one from the farther perspective, is
3 that correct?

4 A Yes, sir.

5 Q And before we get too far into this, can I also
6 have you take a look at Exhibit 7, which is there on your
7 left, and turn back to the second page, which is your
8 drawing. Just to be clear, the door that you came, where
9 you were coming into and out of the room is located at the
10 bottom of the second page of Exhibit 7?

11 A Yes, sir.

12 Q Okay. And that's where you were standing in that
13 place at the bottom of Exhibit 7 when you were cranking the
14 source in and out?

15 A Yes, sir.

16 Q Okay. From the perspective of the camera, that
17 is the location where Arnie Morrill must have been standing
18 when you took the picture, is that at the top of your
19 drawing toward where it says black wall?

20 A Yes, sir.

21 Q Okay. So he's standing back there where it says
22 black wall at the top of the picture and pointing backwards
23 toward the door?

24 A Yes, sir.

25 Q And that's what we're looking at in Exhibit 22

1 here, correct?

2 A Yes, sir.

3 Q And you've pointed out that there's a cart
4 standing here next to the ladder. And is your survey meter
5 shown in the corner, the front left corner of the cart?

6 A Yes, sir.

7 Q And did you put it there from the position you
8 were standing ready to go up on the ladder?

9 A Yes, sir.

10 Q And from that position in front of the ladder,
11 it's true that you could physically reach easily to the
12 front of the camera?

13 A Yes, sir.

14 Q There was nothing to prevent you from reaching
15 and surveying the front of the camera?

16 A Yes, sir.

17 Q Now, let me just ask you, looking at Exhibit 22,
18 the camera shown in Exhibit 22 is a little bit different
19 than the camera that we have sitting here in front of you,
20 is that correct? In the sense that the exit port on the
21 camera you were using is located at the bottom of the
22 camera, correct?

23 A The exit port?

24 Q Oh, I'm sorry. I'm wrong. I'm wrong. I was
25 looking at the wrong side. Okay. In surveying the front

1 of the camera on February 27, is it possible that you
2 passed the survey meter in front of the camera toward the
3 top half of it?

4 A It's possible.

5 Q You don't recall one way or the other?

6 A No, sir.

7 Q Now, I think you testified that you were wearing
8 a fanny pack when you worked on February 27th?

9 A Yes, sir.

10 Q Is that your custom to use a fanny pack?

11 A Yes, sir.

12 Q And inside that fanny pack you had a tape measure
13 probably?

14 A Yes, sir.

15 Q What did you use that tape measure for?

16 A Measuring the difference from the colonater to
17 the part I was shooting.

18 Q What's the distance that you had to set that?

19 A Approximately 20 inches.

20 Q So inside your fanny pack you had a tape measure.
21 Did you have a film badge in there?

22 A Yes.

23 Q Did you have a personal dosimeter in there?

24 A Yes.

25 Q And did you have an alarming rate meter or a RAD

1 meter?

2 A Yes, sir.

3 Q Now, the film badge, is that something that Conam
4 gives you every month?

5 A Yes.

6 Q And then at the end of the month you turn it back
7 in?

8 A Yes, sir.

9 Q And then sometime, and then Conam gives you a new
10 film badge?

11 A Yes, sir.

12 Q And then sometime the following month there are
13 results posted at Conam that show the results on your film
14 badge?

15 A Yes, sir.

16 Q And so on a normal month of doing radiography,
17 did you check your results of your film badges?

18 A Yes, sir.

19 Q And what normally was the range of results that
20 your film badge showed for a month of radiography?

21 A Anywhere between 50 to 150.

22 Q Millirams?

23 A Yes, sir.

24 Q Now, you also carried a personal dosimeter which
25 you testified was pinned after this incident?

1 A Yes, sir.

2 Q Okay. What's the point at which a personal
3 dosimeter pins?

4 A They read from 0 to 200 MR scale and off scale is
5 meaning totally off. You can't even see the pin on the
6 dosimeter whatsoever.

7 Q All right. So if it's off scale, it means it's
8 somewhere above 200 millirams?

9 A Yes, sir.

10 Q And what you saw on yours after this incident was
11 that it was off scale somewhere above 200 millirams?

12 A Yes, sir.

13 Q And so you carried both a personal dosimeter and
14 a film badge in your fanny pack and an alarming rate meter.
15 Can you explain what that is?

16 A It's an alarm that goes off at 500 MR an hour.

17 Q When you say it goes off, what does that mean?

18 A It makes a high pitched alarm.

19 Q And did you have your alarming rate meter turned
20 on?

21 A Yes.

22 Q Prior to working on February 27th?

23 A Yes, sir.

24 Q How do you know?

25 A Because I turned it on in the dark room truck,

1 loaded all my equipment onto the cart you see in
2 Exhibit 22, proceeded into the room and they had a two-inch
3 valve hanging from another valve with wire. I pushed the
4 LED button with that wire before I started X-raying.

5 Q When you say you pushed the LED button, that's a
6 way of testing to make sure it's working?

7 A Yes, sir.

8 Q Was it working?

9 A Yes, sir.

10 Q So you had in your fanny pack when you went to
11 start work the alarming rate meter, your personal dosimeter
12 and your film badge and your tape measure, right?

13 A Yes, sir.

14 Q When you went into the room at the time of the
15 incident, you had already made one shot on the weld?

16 A Yes, sir.

17 Q And you were ready to make your second shot on
18 the weld?

19 A Yes.

20 Q So when you came into the room, you were wearing
21 your fanny pack where?

22 A Around my waist to the front.

23 Q To the front?

24 A Yes, sir.

25 Q At the time when you were conducting your survey

1 of the camera, where was your fanny pack?

2 A In front of me.

3 Q Okay. When you were conducting your survey, were
4 you facing the camera the whole time?

5 A Yes, sir.

6 Q So your fanny pack was always in a position that
7 it was between you and the camera?

8 A Yes, sir.

9 Q Now, once you were done doing your survey, I take
10 it you were standing, looking at Exhibit 22, somewhere
11 between the front of the cart and the bottom of the ladder,
12 is that correct?

13 A Yes, sir.

14 Q Because you put your survey meter down on the
15 cart?

16 A Yes, sir.

17 Q Now, did you then climb up the ladder?

18 A Yes, sir.

19 Q And as you climbed up the ladder, was your fanny
20 pack still in front of you?

21 A At the point of climbing up the ladder, yes.

22 Q When you got to the top of the ladder, how far up
23 the ladder did you climb? Do you know exactly?

24 A I made it to the third, fourth rung. I'm not
25 sure. About two from the top.

1 Q Okay. Let's take a look at Exhibit 22 and count
2 down together so at least we have a uniform way of calling
3 rungs.

4 A I climbed approximately from between the second
5 rung from the top.

6 Q Okay. The place where the camera is sitting,
7 we'll call that the top. Okay? And we'll call the next
8 rung under that, we'll call that the top rung, is that all
9 right?

10 A Mm-hmm.

11 Q Okay. And then down from that, I think you see
12 that top rung has got a little sticker on it you can see in
13 the picture?

14 A Mm-hmm.

15 Q And then under that we'll call that the second
16 rung, is that right?

17 A Yes, sir.

18 Q And under that we'll call it the third rung.

19 A Yes, sir.

20 Q So you were standing somewhere either on the top
21 rung, the second rung or the third rung, is that correct?

22 A Yes, sir.

23 Q And sitting here today, do you know which of
24 those rungs you were on?

25 A No, sir.

1 Q Is it fair to say that you climbed up on the
2 rungs far enough, however far it was so that you could
3 reach the work that you were going to do?

4 A Yes, sir.

5 Q Now, at the point when you got up to wherever it
6 was that you were doing to do your work, at that point did
7 you turn around on the ladder?

8 A Yes, sir.

9 Q And at that point did you also stick your fanny
10 pack around in back of you?

11 A Yes, sir.

12 Q Mr. Dambly asked you a question about some
13 measurements that were taken in your reenactment with the
14 NRC on April 11th?

15 A Yes, sir.

16 Q So you got up to the top of the ladder. Did you
17 have them take measurements of you from the position facing
18 inside of the ladder before you turned around on
19 April 11th?

20 A Yes, sir.

21 Q Okay. So that was the measurement they took of
22 the position you were in just before you turned around?

23 A Yes, sir.

24 Q So you climbed up the ladder and then right away
25 turned around, is that right?

1 A Yes, sir.

2 Q Okay. As I understand it, there were three
3 things that you needed to do once you were turned around on
4 the ladder. You needed to take down your old film, is that
5 right?

6 A Yes, sir.

7 Q And you needed to put up some new film?

8 A Yes, sir.

9 Q And you needed to move your colonater?

10 A Yes, sir.

11 Q Is that everything?

12 A Yes, sir.

13 Q And as you're doing that, are you moving back and
14 forth to perform that work?

15 A Yes, sir.

16 Q The whole time that you were performing that
17 work, when you were taking down the old film, putting up
18 the new film and moving the colonater, you were facing
19 outward on the ladder with your back to the camera?

20 A Yes, sir.

21 Q Okay. And the whole time you were performing
22 that work, is it true that your fanny pack was in back of
23 you toward the camera?

24 A Yes, sir.

25 Q And the whole time that you were performing that

1 work, is it true that the dosimeter was still in your fanny
2 pack behind you between your body and the camera?

3 A Yes, sir.

4 Q So during the entire time that you were
5 performing this work, is it true that your film badge was,
6 as far as you remember, closer to the source, closer to the
7 exit port of the camera than was your body?

8 A Yes, sir.

9 Q Let me ask you a question again about the
10 reconstruction you did on April 11th at Conam. That was
11 done upstairs at Conam?

12 A Yes, sir.

13 Q And there was a ladder present?

14 A Yes, sir.

15 Q And it was a room where there were pipes overhead
16 sort of like this room?

17 A Yes, sir.

18 Q And as I understand it, the NRC staff people
19 there had you climb up the ladder, is that right?

20 A Yes, sir.

21 Q And you used the pipes in doing your reenactment,
22 right?

23 A Yes, sir.

24 Q Okay. You used those pipes to show the NRC on
25 April 11th what you had done in Indianapolis on

1 February 27th?

2 A Yes, sir.

3 Q And I take it that on April 11th you climbed as
4 high on the ladder as you needed to to work on the pipes at
5 Conam?

6 A Yes, sir.

7 Q Do you know, I take it you don't know sitting
8 here today that the pipes at Conam were the same height as
9 the pipes that you were working on at Eli Lily in
10 Indianapolis?

11 A No, sir.

12 Q Now, Mr. Chastain, when you were done doing your
13 work, you said that took somewhere between a minute and a
14 half and two minutes?

15 A Yes, sir.

16 Q When you were done doing your work, you came down
17 the ladder, is that right?

18 A Yes, sir.

19 Q And were you still on the ladder when you
20 remembered to check the locking device?

21 A Yes, sir. I was on my way down for my set-up and
22 reached over to the back of the camera to unlock it.

23 Q You reached over with your right hand?

24 A Yes, sir.

25 Q Okay. So you were still facing away from the

1 camera at the point when you were coming down the ladder,
2 is that right?

3 A Yes, sir.

4 Q Okay. So you came down the ladder as if they
5 were in a sense a set of stairs?

6 A Yes, sir.

7 Q So and at that time was your fanny pack still
8 behind you?

9 A To my knowledge, yes.

10 Q So even as you came down the ladder, your
11 dosimeter, including your film badge, was still between you
12 and the camera?

13 A Yes, sir.

14 Q Now, on February 28th, you went and met with Mr.
15 Slack in Gary and Mr. Tucker in Gary, right?

16 A Yes, sir.

17 Q And you told Mr. Slack what happened?

18 A Yes, sir.

19 Q Do you recall that you told Mr. Slack on
20 February 28th that you had done -- strike that.

21 At the time when you met with Mr. Slack, you
22 didn't know what your film badge results were?

23 A No, sir.

24 Q You didn't get those until a day later or
25 so?

1 A Sometime. I'm not sure.

2 Q So at that point you had no idea whether you'd
3 received any dose at all other than your 200 MR on your
4 personal dosimeter?

5 A Yes, sir.

6 Q Do you remember that you told Mr. Slack on
7 February 28th that you had done a 360 degree survey of the
8 camera?

9 A No.

10 Q You don't remember one way or the other?

11 A No, I don't remember.

12 Q Did you receive any discipline as a result of
13 this incident?

14 A Yes, sir.

15 Q You were laid off for two weeks?

16 A Yes, sir.

17 Q Without pay?

18 A Yes, sir.

19 Q Were you ordered to take a refresher course on
20 radiation safety?

21 A Yes, sir.

22 Q Did you do that?

23 A Yes, sir.

24 Q And after you had done the refresher course, were
25 you asked to give any sort of a presentation to Conam

1 radiographers?

2 A Yes, sir.

3 Q About what?

4 A Just about radiation safety in general when using
5 a source.

6 Q Why were you chosen to do that?

7 A I guess because of what had happened.

8 MR. BROOKS: Gentlemen, could I just take a
9 minute? I don't want to take up anybody's time, but I'd
10 like to have just a minute to talk to my cohorts here.

11 JUDGE KELBER: Oh, okay. While you're doing
12 that, I'd like to get the geography just a little bit more
13 straight in my mind. Mr. Chastain, the pipes at Eli Lilly
14 were about how high off the ground?

15 THE WITNESS: Ten feet, ten, twelve feet,
16 somewhere around there.

17 JUDGE KELBER: In other words, if I look at the
18 photograph, they look to be about 14 feet, but you're
19 saying 10 feet?

20 THE WITNESS: Right around there, between 10 and
21 12 feet, as I said.

22 JUDGE KELBER: So you'd be comfortable standing
23 on the, I believe we've discussed it as rung number
24 two?

25 THE WITNESS: Yes, sir.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 JUDGE KELBER: Reaching the pipes. You didn't
2 have to stretch or didn't have to use that higher step?

3 THE WITNESS: No, sir.

4 JUDGE KELBER: Then the photograph must have been
5 taken from a rather misleading angle, I would gather.

6 JUDGE COLE: Mr. Chastain, how long is the guide
7 tube on that device, do you know?

8 THE WITNESS: Approximately three feet.

9 JUDGE COLE: How long? Three feet?

10 THE WITNESS: Yes, sir.

11 MR. DAMBLY: If the Board wishes, we have
12 measured those and we can put in measurements.

13 JUDGE KELBER: At Ely Lily?

14 MR. DAMBLY: At Eli Lily. We went and took
15 measurements, Mr. Young and Mr. Brooks can testify to
16 that.

17 JUDGE KELBER: All right. They'll present that
18 later? Okay. Fine. Okay. That'll help greatly in
19 understanding the geography.

20 CHAIRMAN BECHHOEFFER: One follow-up. Who or
21 where did you take the refresher course?

22 THE WITNESS: At Conam Inspection.

23 CHAIRMAN BECHHOEFFER: Oh, okay. So it was
24 in-house?

25 THE WITNESS: Yes.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 JUDGE COLE: I assume you still need your time?
2 That's what we were saying up here.

3 MR. BROOKS: Yes. A couple things I still need
4 to do. If I can just take a minute here.

5 MR. DAMBLY: Could I have an answer clarified?
6 How long did he say the guide tube was?

7 CHAIRMAN BECHHOEFFER: Three feet.

8 JUDGE COLE: He said about three feet. Is that
9 correct?

10 THE WITNESS: Yes, sir.

11 MR. BROOKS: I'm wondering if we can take a lunch
12 break. I've got just a few more things to do, but I need
13 to set things up. Mr. Chastain, would that be all right
14 with you? You need to get out of here?

15 THE WITNESS: Whatever. I just want to get this
16 over with.

17 MR. BROOKS: I've got just ten more minutes after
18 the lunch break, but I need a few things set up. I thought
19 we might as well just use the time to have lunch and then
20 I'll be done quickly.

21 CHAIRMAN BECHHOEFFER: How much time do you need?
22 Should we take a lunch?

23 MR. BROOKS: About 45 minutes or an hour. No
24 more than an hour.

25 CHAIRMAN BECHHOEFFER: Why don't we come back at

1 1:00 o'clock.

2 [Whereupon, at 12:11 p.m., the
3 hearing was recessed, to
4 reconvene at 1:00 p.m. this same
5 day, Monday, September 14, 1998.]
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

A F T E R N O O N S E S S I O N

[1:05 P.M.]

CHAIRMAN BECHHOEFER: Okay, back on the record.

Mr. Brooks?

CROSS EXAMINATION (Continued)

BY MR. BROOKS:

Q Mr. Chastain, just a few more questions for you here. How tall are you?

A Approximately 5'10".

Q Now, in your training were you taught to manually lock the Amersham 660 gate in addition to having the automatic locking mechanism used?

A Yes, sir.

Q With respect to Conam's procedures, were you required to manually lock the camera?

A Yes, sir.

Q When you were audited, you said you were audited on several occasions by Conam, with respect to your operation of the camera?

A Yes, sir.

Q Okay, on each of those occasions did you demonstrate that you were manually locking the camera?

A Yes, sir.

Q Have you ever demonstrated in front of any Conam Radiation Safety Officer an operation of the camera where

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 you did not manually lock the camera?

2 A Not that I'm aware of.

3 Q Did you ever report to any Conam Radiation Safety
4 Officer that you did not manually lock the camera?

5 A No, sir.

6 Q Did you ever report to any Conam Radiation Safety
7 Officer that any radiographer did not manually lock the
8 camera?

9 A No, sir.

10 Q Do you know of anyone who ever reported to a
11 Conam Radiation Safety Officer that a radiographer did not
12 manually lock the camera when using it?

13 A No, sir.

14 Q Mr. Chastain, what I'd like to do, we've set up a
15 ladder here, and just ask you a couple questions, have you
16 just show us as best you can recall what you did, and
17 that'll be the end of my questions here.

18 First of all, is the ladder that we've set up
19 here about the same size as ladders that you were using at
20 Ely Lily on February 27, 1996?

21 A Yes, sir.

22 Q Okay. And, what we've put is another
23 demonstration camera at the top of the ladder and
24 we've...is that about at the attitude that your camera was
25 at on February 26th, or 27, 1996?

1 A Approximately. From the way the pictures show,
2 maybe a little...yeah, about like that.

3 Q Like that?

4 A Yes, sir.

5 Q Okay. Now, there's a, right here, we've got an
6 orange cable tie around it. You didn't have one of those
7 on February 27th, did you?

8 A Yes, sir.

9 Q You've got a demonstration camera here, that
10 doesn't have any specter radium in it, I take it?

11 A No, sir.

12 Q Okay, was your camera that you were using on
13 February 27th heavier than that camera?

14 A Yes, sir.

15 Q Now, would you...let me just get that fanny pack
16 here. Is this...I'm showing you a fanny pack. Is this
17 approximately the kind of fanny pack that you were using on
18 February 27th?

19 A Yes, sir.

20 Q Okay, and putting in here...did you use a
21 dosimeter and a film badge approximately like this?

22 A Yes, sir.

23 Q Okay, and an alarm and rate meter?

24 A Yes, sir.

25 Q Put those in here. And could I ask you to come

1 out here and strap the fanny pack on and just put it in
2 whatever way it was that you had it on that day?

3 If we need to tighten it up, we can tighten it
4 up. I hate to say this but I had it on my waist.

5 A That's pretty much around it there.

6 Q Is that too loose? Is that looser than what you
7 had?

8 A Yeah. It's a little bit looser than what I had.

9 Q Well, then let's look at how you had it. There.
10 Is that too loose?

11 A No, it's about right.

12 Q Okay, now we've got the fan going so you and I
13 are going to have to try to talk loud as we do this.

14 Now, you take...you've got a survey meter in your
15 right hand now, and where you would have come from would
16 have been...your door would be back here, in back of where
17 you're now standing now?

18 A Yes, it is.

19 Q You would have come along this side of the
20 camera?

21 A Yes, sir.

22 Q Around where Mr. Lake is sitting?

23 A Yes, sir.

24 Q Show the panel, if you would, about where the
25 cart was that we showed in the picture?

1 A About right here. Right in front of the --.

2 Q When you were surveying the camera, you had the
3 survey meter in your right hand?

4 A Yes, sir.

5 Q Can you reach the front of the camera with your
6 survey meter here?

7 A I --

8 Q Now, when you were done surveying the camera, you
9 put your survey meter down?

10 A Yes, sir.

11 Q Now, did you have anything else in your hands at
12 that point?

13 A A piece of film.

14 Q Okay, I just have to do something to represent a
15 piece of film. Now, I'll had you a piece of paper to
16 represent a piece of film.

17 Okay, now if you can show the panel how high, as
18 best as you recall, you went up on the ladder when you went
19 up there?

20 A Climbing directly on the side of the camera where
21 I placed my film.

22 COURT REPORTER: I'm sorry, I can't hear you.

23 BY MR. BROOKS:

24 Q Okay, now did you spin around on the ladder?

25 A Yes, sir.

1 Q Okay.

2 A I placed my film on the I-beam.

3 Q On the I-beam.

4 A And while turning around, like this, for my work.

5 Q Okay. Now, were you up that high?

6 A To the best of my knowledge.

7 Q So you're about standing on the second rung here.

8 A Yes, sir.

9 JUDGE COLE: He's also standing on the first
10 rung.

11 MR. BROOKS: Right.

12 BY MR. BROOKS:

13 Q Okay. Now where was your first piece of work
14 that you did?

15 A The elbow, the one coming down, would have been
16 somewhere in this area right here, and my source, when I
17 walked into the room, was right here. I then took it down,
18 went over here, took my piece of film off, grabbed my film
19 with my ID, my penny, to the other side of the well, set my
20 film on there, and then proceeded to set up my next shot.

21 Q Okay, and where is your next shot? How did you
22 set that up?

23 A It would be here to the right of the camera, as
24 you see in the picture.

25 Q Okay. Okay, and then when you were done setting

1 up your next shot what did you do?

2 A When I was done setting up, I come down, reached
3 over the back of the camera to unlock it, basically, when
4 you come around the back of the camera you can see which
5 position this light bar is in right here, the way it is
6 now.

7 Q Can you speak real loud so the panel can hear
8 you?

9 A The position that this light bar is in right now
10 is the same position that it was in when I reached over the
11 back of the camera where you can see a little bit of the
12 red, but you can still push it to click it.

13 Q Okay, so that's where you were standing when you
14 stood and saw the bar wasn't all the way in the locked
15 position?

16 A Yes, sir.

17 Q And then what did you do?

18 A That's when I proceeded back down the ladder,
19 then walked out of the room.

20 Q Now, what I'd like to do, if I could, is put you
21 back up where you were doing your work. Now can I
22 measure...can you move your leg so that it's over this way
23 a little bit more, so it's ten inches, right there, okay?
24 And just hold that position. The reason I'm having you
25 move your leg ten inches there is because that's the

1 measurement that the NRC took on April 11th.

2 Now I'm going to measure the bottom of the fanny
3 pack from the port, which is ten and-a-half inches. Can
4 the panel see that? So it's the very bottom of the fanny
5 pack, ten inches.

6 Okay, now move down again, now, to the position
7 where you were when you checked the locking mechanism. Is
8 that where you were?

9 A Approximately.

10 Q Okay. And the distance from the film badge to
11 the port is five inches and to his thigh here is about
12 three and-a-half inches.

13 And then what did you do?

14 A Proceeded down the ladder.

15 Q Now, you said your time on the ladder was about
16 one-and-a-half to two minutes?

17 A Yes, sir.

18 Q Was most of that in that position that you showed
19 up at the top of the ladder?

20 A Yes, sir.

21 Q Now, could you measure for me how high the pipes
22 are that you were...pretending we're the pipes at Ely Lily?
23 The pipes in this room that you just were acting in
24 reference to.

25 A Measure the pipes up there?

1 Q Yeah, just how high these pipes are off the
2 ground. Can we get a, as -- you can give us a measurement.

3 A About 120 inches.

4 Q Go ahead, have a seat Mr. Chastain.

5 No further questions of the witness, Your Honor.

6 JUDGE KELBER: I have just one.

7 EXAMINATION

8 BY JUDGE KELBER:

9 Q When you were...you said you went up to, into the
10 room with your survey meter in your right hand and an
11 unexposed piece of film in my left. I began doing my
12 survey of the camera...now, you would have had to get up
13 the ladder with the survey meter in your right hand?

14 A Yes, sir. When I come in the room, I come in
15 from behind the camera with my survey meter up like this.

16 Q Okay. Okay, and you went up the ladder to, into
17 the guide tube, is that the...is that right?

18 A No, sir. I just stood next to the ladder and
19 reached my arm up in a manner...

20 Q To the guide tube?

21 A Yeah, reached my arm up in a manner that surveyed
22 the guide tube and back down to the side of the camera.

23 Q In a manner that surveyed the guide tube, I guess
24 I understand. All right. Thank you.

25 EXAMINATION

1 BY JUDGE COLE:

2 Q Just a couple of questions, Mr. Chastain. You're
3 familiar with this Joint Exhibits 21 and 22, the two
4 pictures?

5 A Yes, sir.

6 Q You have copies of them in front of you?

7 A Yes, sir.

8 Q Is that the position that the ladder and the
9 device was in when you made the two measurements?

10 A Yes, sir.

11 Q So, when you came in the room, after you took
12 your first shot, you did not move the ladder or the device
13 at all? It stayed in the same position for your first and
14 second shot?

15 A Yes, sir.

16 Q All right. So, the sketch that you made in
17 Exhibit No. 7, Page 2?

18 A Yes, sir.

19 Q You have the...on that sketch you have A and B
20 and then X and then some emanating rays from that. Is that
21 the approximate direction of the shot you were taking?

22 A Yes, sir. That's, like I said, the end of the
23 collimator, it goes on the end of this tube here, and
24 that's the direction in which it was facing, one being this
25 way.

1 Q So your first shot was facing...you were inside,
2 you were outside the closed doors?

3 A Yes, sir.

4 Q And you were taking a shot towards your
5 direction?

6 A Yes, sir.

7 Q Okay. You indicated that when you found that the
8 device, the radioactive device was not completely inside
9 the holder, how did you know that? You said a small
10 portion of the red was still showing?

11 A Just by reaching over the back of the camera you
12 could feel how far it clicks over.

13 Q Okay.

14 A I don't know, just over the many times...

15 Q You didn't see any red, you just felt that it
16 wasn't all the way over?

17 A Yes, sir.

18 Q Was it over any at all?

19 A Yeah, it was partially. It was partially clicked
20 over.

21 Q Okay. And then you...

22 A Cause that's how I slid it the rest of the way
23 over.

24 Q You physically pushed it over till the green was
25 showing.

1 A Yes, sir. Till the red was showing.

2 Q Till the red was showing?

3 A Yes, sir. So I could crank the source back in to
4 put it in a locked position. Because of the position it
5 was at, which was, I didn't know if it could be cranked out
6 or cranked in...

7 Q Okay, so you had to move it out all the way to
8 the red so you could then crank it back?

9 A No. No, it was like I showed you.

10 Q Right now the green dot is showing.

11 A You can see that position right there is slide
12 bar.

13 Q Okay, and I can see the red dot in the slide bar.

14 A So when I reach back over the camera to push it..

15 Q Yes?

16 A It only went so much, I mean, and then if
17 you...just over the many times of this and form of this you
18 could feel how much farther it goes, you have to slide it
19 in order to engage it.

20 Q So what you did then, is you backed down the
21 ladder and went out and then turned it, how far?

22 A A quarter of a turn or a third of a turn.

23 Q Do you know what the travel pass is associated
24 with east revolution?

25 A Yes, sir. It's nine cranks in, nine cranks out

1 and nine cranks in for it to be totally exposed and
2 totally...

3 Q Do you know what distance was associated with the
4 third crank or a quarter of a crank?

5 A No, I don't know the exact distance.

6 Q So, wouldn't that give you an indication to how
7 far the radio isotope was towards the outlet and how far
8 away it was from complete closure?

9 A Yeah, that's why I come to the assumption that it
10 was at the front of the tube. Right at the front of the
11 port, because it only went, like I said, maybe a quarter or
12 a third of a click. Like, if you see here, if I can turn,
13 you can see the pill itself inside there.

14 Q So take a quarter turn. So it moved about two or
15 three inches.

16 A Yeah. And I just clicked it back.

17 Q All right. Are you going to be on the second
18 step or the first step before you can get up to that?

19 A In order to reach the I-beam? It's 131 inches to
20 the top.

21 REDIRECT EXAMINATION

22 BY MR. DAMBLY:

23 Q One question I didn't ask you before, and I guess
24 it's an important question. When you were doing your
25 survey, you demonstrated the survey meter before, and it's

1 got three scales on it, is that correct?

2 A Yes, sir.

3 Q What scale did you have it set on?

4 A Ten scale.

5 Q Ten scale, so the maximum reading, then, on that

6 meter would be?

7 A One hundred.

8 Q Okay. One hundred millirem?

9 A Yes, sir.

10 Q Was that in, is that in millirem per hour?

11 A It's in millirems per hour.

12 Q All right. Now, when you did the reenactment for

13 the NRC inspectors on April 11th, '96, who chose the

14 position of the ladder?

15 A Who chose the position of the ladder?

16 Q Right.

17 A I did.

18 Q And who chose which pipes you would be working

19 on?

20 A I did.

21 Q They didn't try and position you in any

22 particular place? It was totally your choice?

23 A Yeah. They asked me about how high I was on the

24 ladder and where I was in reference to the ladder or the

25 source.

1 Q Okay. And so you picked pipes that you thought
2 were appropriately the same height as the ones you had been
3 working on?

4 A Yes, sir.

5 Q Now, again, your recollection, when Mr. Brooks
6 was standing up a while ago and saying, and then you turned
7 this way and you turned your fanny pack that way and did
8 whatever, is that your present recollection of what
9 happened, or, I mean, do you really remember today, sitting
10 here, what you did on February 27, 1996 in terms of turning
11 your fanny pack and turning your body and all that?

12 A Not 100 percent, but for the most part as far as
13 turning my fanny pack in the direction I was working off
14 the ladder, yes.

15 Q Would your recollection have been better on
16 February 28th than April 11th?

17 A Yes, sir.

18 Q And if on February 28th you told Mr. Slack you
19 didn't turn the fanny pack at all, in fact you didn't turn
20 around on the camera...or on the ladder, I'm sorry. And on
21 April 11th you didn't demonstrate any fanny pack turning,
22 would those have been better recollections than today?

23 A Yes, sir, to my knowledge.

24 Q Also, in terms of your time estimates, I think
25 you said a minute and-a-half to two minutes. If you told

1 Mr. Slack four minutes, and you told the NRC people four
2 minutes, would those be better estimates back in April and
3 February of '96 than the estimate today?

4 A Well, I know at the time my shot time was right
5 around a minute, little over a minute for shooting a two
6 inch weld, and the time I was getting out of there was
7 roughly, with my watch still running, was about three
8 minutes, showing on my watch.

9 Q Now, I believe in your statement, in fact it is
10 and you started at, this is...I'm sorry. This is Joint
11 Exhibit 7. It says you began shooting at 3:30, and the
12 problem occurred at about 6:30 and in between you had done
13 15 exposures.

14 A Yes, sir.

15 Q And that would be a three hour period and that's
16 five exposures an hour. So it's roughly 20 minutes a shot.

17 A Twenty minutes a shot?

18 Q I'm sorry, 12 minutes a shot.

19 A Okay. That's about right for shooting two inch
20 welds, as far as moving around, moving from weld to weld
21 depending on where the welds were in the room.

22 Q Okay.

23 A Cause you, I mean you have to consider when
24 you're changing positions on welds, you're marking the
25 weld. You're changing your ID, you're moving your pennies,

1 you're moving ladders, you're moving a source, you're
2 moving the cart.

3 BY JUDGE COLE:

4 Q You said moving your penny?

5 A Yes, sir.

6 Q What's that?

7 A That's a penetrometer. It's for sensitivity on
8 film.

9 Q Oh. All right.

10 MR. DAMBLY: No further questions.

11 MR. BROOKS: Can I ask a couple on recross,
12 unless the panel has more questions first?

13 CHAIRMAN BECHHOEFFER: Yeah, I'll let you do some
14 recross, but I have a few myself that if you haven't
15 resolved by then.

16 REXCROSS EXAMINATION

17 BY MR. BROOKS:

18 Q First of all, Mr. Chastain, you said that when
19 Mr. Dambly told you that the I-beam was 131 inches from the
20 floor, he asked if you could reach it standing on the
21 second rung. And you said, if I understood you, no, you'd
22 have to stand one rung up?

23 A Yes, sir. I don't believe that he's measuring
24 the same I-beam that I'm talking about.

25 Q Could you go, just for a moment, and stand up

1 under, you might kill yourself here...could you just,
2 without killing yourself, stand up on that platform, the
3 one that you talked about that would have had to stand on
4 to reach an I-beam 131 inches tall?

5 A Yes, sir.

6 Q The first one from the top? Now, is it fair to
7 say, Mr. Chastain, that at that point, if that's where you
8 were on the ladder to hit that I-beam, that the exit port
9 on the camera is adjacent to the middle of your calf?

10 A Yes, sir.

11 Q Now, would you come down one step there for me,
12 please? Let me give you the old fanny pack one more time.
13 There's one other measurement that might be useful to take.
14 If you'd strap it on.

15 EXAMINATION

16 BY JUDGE COLE:

17 Q Could I just ask a question here? You were
18 measuring two inch welds, correct sir?

19 A Yes, sir.

20 Q They were pipes?

21 A Yes, sir.

22 Q They were not flanges of I-beams?

23 A No, sir.

24 Q What was the relative elevation of the pipes with
25 respect to the ceiling and the top flange of the I-beam?

1 A Well, in the illustration on the picture of
2 Exhibit 21, the I-beam, I can show you, I can point to
3 where the I-beam that I'm talking about is where I placed
4 my unexposed piece of film. And then replaced it with the
5 exposed piece that I had just shot, and then proceeded
6 setting up the next shot.

7 Q Referring here to the top portion, top flange of
8 the I-beam?

9 A Yes, sir.

10 Q The pipe, then, was relatively close to that
11 seam?

12 A The I-beam was about right here, and the pipes
13 were up here.

14 Q Thanks for -- the I-beam.

15 A Yes, sir.

16 REXCROSS EXAMINATION (Continued)

17 BY MR. BROOKS:

18 Q How far below the I-beams were the pipes that you
19 were working on? Below the top flange of the I-beam?

20 A The pipes were above the I-beam. That's what I
21 was saying that I could show you. If you see the blue
22 object in the photo in Exhibit 21. I mean, I say I-beam.
23 Whether it's an I-beam or what it is, there's a flat part
24 up there where I placed my film.

25 EXAMINATION

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 BY JUDGE COLE:

2 Q Okay. One last thing, from the panel. Mr.
3 Dambly had marked an Exhibit 10, which has a picture on it.
4 Exhibit 10 is the Conam dose calculation. Mr. Chastain,
5 I'm just going to ask you if you would take a look at this
6 picture which is called Orientation A, and just put
7 yourself as best you can in that position with your fanny
8 pack in front of you. Okay. How about if you're one step
9 up.

10 Now what I'm going to do is, again, I'm going to
11 try to get you to position where this leg is, whatever we
12 can do to get it ten inches from the...can you
13 move...okay...just a little bit...okay. Now, your film
14 badge is in the bottom of this fanny pack?

15 A Yes, sir..

16 Q I'm going to measure from the -- point of the
17 exit port from the bottom of the film badge. The panel can
18 see that's ten inches. Come on back.

19 No further questions.

20 BY CHAIRMAN BECHHOEFFER:

21 Q Mr. Chastain, I'm a little confused about one
22 series of answers you gave. And that relates to the timing
23 and how we get both the one and a half and four minute
24 calculations. Is, are there, do they all have the same
25 starting point and are they all calculated at the same

1 termination? I mean, are these apples and oranges or are
2 they just different recollections because it's confusing to
3 me.

4 A Basically, it's just set up time from one shot to
5 the next shot once I enter the room. And at that, my set
6 up time was roughly maybe two, two minutes, right around
7 there, to set the next shot up for each exposure. So, I
8 crank out an exposure, I crank it in. From the time I
9 crank it in from walk into the room and set the next shot
10 up and leave the room to start my watch again to expose the
11 next shot, was roughly right around in between, like I
12 said, one and-a-half, two minutes, right around in there,
13 depending on where I was, what position I was in, are the,
14 by what means I had to shoot that shot.

15 Q All right, and what did you, if anything, what
16 more, if anything, did the four minutes include? Four
17 minute maximum. Cause I thought you admitted that four
18 minutes was a better recollection than the one you did
19 today. What you just said was consistent with what you
20 testified to earlier, and I want to see how the four minute
21 comes in and whether it started from a different point or
22 it included...

23 MR. BROOKS: I don't think he was testifying that
24 four minutes was an accurate number. I think Mr. Dambly
25 was just saying, as a general rule, do you, he was just

1 asking if he thinks his recollection was better today than
2 on February 28, 1996. I don't think Mr. Dambly's intent
3 was to try to have him adopt four minutes because I don't
4 think that's what Mr. Chastain is ready to adopt.

5 CHAIRMAN BECHHOEFFER: Well, it's not what he
6 said today, but I thought that this was an attempt to show
7 that at some earlier date he said four minutes and that was
8 a more reliable figure than one and-a-half minutes, and I
9 don't know if he's trying to impeach the witness or, I want
10 to find out where the four comes and what relevance it has.
11 Cause it could well make a difference. That's where I'm
12 coming from.

13 A Well, the four minutes is basically time in front
14 of the source, I mean, that's how they're coming up with so
15 much exposure in the amount of time you're standing in
16 front of the source relative to the time you're away from
17 it or you're shielding from it. So, I mean, I'm going to
18 pick up more in four minutes than I would in two minutes.

19 BY CHAIRMAN BECHHOEFFER:

20 Q Well, that's clear. And I'm just wondering what
21 the basis of the four minutes are. Were you in front of
22 the source for four minutes?

23 A I couldn't tell you exactly how long I was in
24 front of the source. I mean, I don't know to an exact
25 number.

1 BY JUDGE COLE:

2 Q Would you be surprised if the number would be
3 that large?

4 A Would I be surprised?

5 Q Yeah.

6 MR. BROOKS: If the number was how large?

7 BY JUDGE COLE:

8 Q Four minutes.

9 A No. I mean, that wouldn't be surprising.

10 Q You indicated that your normal time would be one
11 and-a-half to two minutes.

12 A Yes, sir.

13 Q Would there describe --. You described it and -

14 - A Well, like I said, it depends on what I had to do
15 to perform that set up. I mean, if it was taking me longer
16 to set that shot up being that, say, I had no place to
17 clamp off to, or I had to do something out of the ordinary
18 to set the shot up.

19 Q The particular incident I'm talking about --
20 complications like that.

21 A I didn't use a clamp, I taped, as you can see in
22 the picture, I tape my collimator to a piece of conduit, I
23 mean, so the time that it takes to clamp it off and tape
24 the source to a piece of conduit probably would be
25 relatively pretty much the same time as far as getting the

1 distance.

2 Q So you can't think of any complications that
3 might prolong the time in that particular incident we're
4 talking about?

5 A No, sir.

6 Q Even when you found out that the source wasn't
7 totally --.

8 A No, sir, because then I got out of there in a
9 hurry.

10 Q All right.

11 JUDGE KELBER: I have just a couple more --
12 stimulated by your questions.

13 BY JUDGE KELBER:

14 Q Quite a bit of effort has gone into measuring
15 distances from the front of the camera. Now, at the time
16 of this incident you say it was about a third of a crank
17 out from its shielded position. That would put it
18 somewhere in the top of that internal tube in the camera,
19 is that correct?

20 A Yeah, somewhere in there.

21 Q Okay, is there any shielding at that point? Top.
22 It's about two inches from the shielding. From the
23 shielded position, the guide, the tube, the source goes out
24 through a kind of S, a slanted S-shape, tube, that's about
25 two inches from the shielded position. So, it's roughly at

1 the top of the S.

2 A Yeah, that's the shielded position right there.

3 Q Okay, now is there any shielding on the side of
4 the camera, a real camera as opposed to?

5 A There is, but there's, it's greater at the
6 middle.

7 Q I understand that. Okay. Okay. And the beam,
8 as it comes off there, it's not collimated, the beam is
9 only collimated when it goes through that collimator tube
10 at the end of the guide tube?

11 A Yes, sir.

12 Q So it's...okay. Now I understand some of the
13 distances involved.

14 MR. BROOKS: I'd like to talk to the panel about
15 something. As Mr. Dambly and Mr. Barth know, we went to
16 Ely Lily and attempted to do a reconstruction of this for
17 purposes of measuring time. I wasn't going to show it
18 because I thought his testimony on time was pretty clear,
19 but if it would be of interest to you or aid the panel, I'd
20 be happy to show that video tape now for the purposes of
21 having you say whether what we did on the video tape was
22 right or wrong in terms of time. I mean, I think this
23 testimony's pretty clear, a minute and-a-half to two
24 minutes, but I'd be happy to show the video tape if the
25 panel would like to see it.

1 Well, let me be clear. What the video tape is,
2 is of another radiographer, not Mr. Chastain, at Ely Lily,
3 attempting to come in, do a survey, go up the ladder,
4 change, do the same changes that he did, and timing that.

5 MR. DAMBLY: As I indicated to Mr. Brooks before,
6 if it's not going to be shown when Mr. Chastain's here to
7 validate that this is some reasonable recreation, then I
8 would certainly object to it ever being shown.

9 MR. BROOKS: I'm just, -- estimate the purposes
10 of time measurement, because the rest of it as you see, is
11 hard to tell.

12 CHAIRMAN BECHHOEFFER: Are you prepared to set it
13 up and do it now?

14 MR. BROOKS: I can have it ready to go in two
15 minutes here.

16 CHAIRMAN BECHHOEFFER: Oh, okay. Good.

17 And I take it you'll be able to --

18 MR. BROOKS: I placed in a VCR here, we've
19 identified and supplied to the Staff as Exhibit 37, I
20 believe, on our exhibit list, which is a video tape made on
21 August 6th, 1996.

22 [Video tape being played.]

23 MR. BROOKS: Does anybody want to go back and
24 look at it again before we proceed with the questions? --
25 can I proceed, your Honor, with the questions?

1 JUDGE KELLER: -- submittal rather than the video
2 represent what your working conditions?

3 MR. BARTH: No, the unit they were in was the
4 same unit I was in at the time. But in their video that
5 unit was running, while I was shooting on it was not in
6 process.

7 JUDGE KELLER: Okay.

8 MR. BROOKS: Can I ask a few questions.

9 CHAIRMAN BECHHOEFFER: Yes.

10 BY MR. BROOKS:

11 Q Mr. Chastain, you just looked at what we have
12 marked as Exhibit 37 for this proceedings. First of all,
13 did you recognize the room in which that video was taken?

14 A Yes, sir.

15 Q Was that the same room in which you were working
16 at Eli Lilly on February 27th, 1996?

17 A Yes, sir.

18 Q As far as you can tell was the video tape from
19 the same perspective, same position as were the camera
20 shots that we've marked as Exhibits 21 and 22?

21 A Yes, sir.

22 Q Now, was the position of the ladder in the video
23 in about the same position as your ladder was on February
24 27th, 1996?

25 A Roughly.

1 Q Could you tell in what direction, if any, it was
2 off?

3 A In the video it showed it more towards, I mean
4 the way he was going up the ladder you could see it was
5 more turned that you could see the opened end, the opening
6 of the rungs of the ladder. Where as you can see in the
7 picture that it was kind of offset.

8 Q Now, let me ask you about timing, specifically,
9 of the time that the radiographer and the video was on the
10 ladder. First of all, do you recognize the radiographer
11 there?

12 A Yes, sir.

13 Q Do you know Steve Faye?

14 A Yes, sir.

15 Q He's the Conam employee.

16 A Yes, sir.

17 Q From the time it took Mr. Faye to do what you
18 call the set-up, let me back up here. What you call the
19 set-up is the amount of time you're up on the ladder taking
20 down one piece of film, put up another piece of film and
21 moving the calumniator? Is that what you're calling a set-
22 up?

23 A Yes, sir.

24 Q Was the time that Mr. Faye was on the ladder
25 doing set-up, in this video, about the same as the time

1 that you took to do your set-up on the incident in
2 question, February 27th, 1996.

3 A Yes, sir.

4 Q Could you tell whether Mr. Faye went any faster
5 or slower than you went on February 27th?

6 A No, not really.

7 Q Did you see anything in what Mr. Faye did that
8 would indicate that he was favorable to do it faster or
9 slower than what you did on February 27th?

10 A Just the fact that he wasn't actually looking at
11 the well, I mean, it was insulated. Other than that,
12 that's everything he did is exactly what I have to do to
13 set up a shot. Measuring and putting on the film and
14 switching the penny from one view to the next.

15 Q So let me put it this way, is there anything
16 inaccurate in this film's representation, Exhibit 37, with
17 respect to the time on the ladder?

18 A Not that I can see.

19 Q As you saw there were three different trials that
20 Mr. Faye ran.

21 A Yes, sir.

22 Q In one he was facing front part of the time. He
23 turned around part of the time and in another, he's facing
24 front most of the time. In another, he was turned around
25 the time.

1 A Yes, sir.

2 Q As best you can recall, if any one of those best
3 represent what you did on February 27th?

4 A In the first scenario, it showed him that he was
5 facing, looking at the ladder, I mean, in order for me to
6 set-up that shot it was like looking away from, the
7 ladder's here, I mean, here's my shot. So, I mean, in
8 order for me to be facing the ladder and more here, I mean,
9 like it said it looked like in the film it was more turned
10 before he could reach to it.

11 Q So seeing this video, that doesn't change your
12 recollection now that you were down the ladder when you
13 were doing your work?

14 A It doesn't change my recollection.

15 Q After seeing this video is your best recollection
16 still that, when you got up the ladder, you turned around
17 with your back facing the camera in order to do your work?

18 A Yes, sir.

19 Q Let me ask you another question. When Mr., when
20 you saw Mr. Faye in the video doing his work on the ladder,
21 is it fair to say that, he was in a number of different
22 positions as he was doing the work?

23 A Yes.

24 Q Did he, he moved around, I don't know, four,
25 five, six, seven different positions as he was doing

1 various tests.

2 A Yes, sir.

3 Q Is that representative also of what you did on
4 February 27th?

5 A Yes, sir.

6 Q You weren't doing just one or two or three
7 positions when you were doing each individual part -- you
8 moved up or down or to the left or to the right?

9 A Yes, sir.

10 MR. BROOKS: I don't have anything else.

11 CHAIRMAN BECHHOEFFER: I have one question before
12 we, before we turn it back to staff.

13 Mr. Chastain, would it make any difference that
14 Mr. Faye never appeared, to me, at least, not as high up on
15 the ladder as you did. He seemed never to get to the top
16 two rungs, not the top, but the two rungs that you were
17 standing on, he never seemed to get that high, as far as I
18 could see.

19 MR. CHASTAIN: Well, see, Mr. Faye, is about, I
20 would say, roughly about five inches taller than I am.

21 CHAIRMAN BECHHOEFFER: Yes.

22 MR. CHASTAIN: I mean.

23 CHAIRMAN BECHHOEFFER: Fine, I'm trying to figure
24 out what time difference, if any, it would be to take a
25 step up and down.

1 MR. CHASTAIN: I mean, I don't know. I was on -

2 - CHAIRMAN BECHHOEFFER: -- back maybe.

3 MR. CHASTAIN: Yeah, I can't, like he said,
4 you're moving around up there, setting up the shot, I mean.
5 There's the time you spend in one spot, you're not, while
6 you're doing it, you're not thinking about, how long am I
7 here? How long am I here? And how long am I --

8 JUDGE COLE: This is a ladder, the same size
9 ladder as this, either of this? Six foot ladder?

10 MR. CHASTAIN: Yes, sir.

11 MR. BROOKS: That is what Mr. Chastain has
12 testified to.

13 MR. CHASTAIN: Yes, sir.

14 CHAIRMAN BECHHOEFFER: Mr. Damby, do you have
15 something?

16 MR. DAMBLY: I have a few things and maybe we
17 need to start the tape again but I don't normally --

18 CHAIRMAN BECHHOEFFER: That's okay.

19 MR. DAMBLY: Maybe for the Board, I believe for
20 Judge Bechhoeffer, you indicated or was it Judge Cole, that
21 he didn't appear to get up on to the same step. I think on
22 the video he turned back, he was up on the next to the top
23 step --

24 MR. CHASTAIN: Oh, okay.

25 MR. DAMBLY: -- which indicate, whatever you

1 would call it, that would be the one that corresponds to
2 the way he was saying now you did.

3 MR. CHASTAIN: Yeah, he's probably five inches
4 taller than I am.

5 MR. DAMBLY: So you would at least have been on
6 the next top step if he had to be on the next to the top
7 step to do this.

8 MR. CHASTAIN: Yes, sir.

9 RE-REDIRECT EXAMINATION

10 BY MR. DAMBLY:

11 Q Now, all right, going, I just can't help but to
12 ask, did you have anybody there tearing out film and
13 handing it to you on the day that you were doing this?

14 A That I?

15 Q Yes, I noticed Mr. Slack teared out a piece of
16 tape to help Mr. Faye on the last scenario, was somebody
17 standing there, helping you?

18 A Well, I didn't use tape. I used a velcro strip.

19 Q Okay. And I guess the only other question I
20 have, if you were doing this or Mr. Faye were doing this,
21 shall we say for real and ask you -- choosing film taking
22 time, do you think you would do it the same way and same
23 amount of time? As if you're just going up there seeing
24 how quick I can do it?

25 A I mean, what I saw in the video, I mean, he's

1 taking his measurements the same way I do. I have to take
2 my measurements to make sure I get my lifts on the wells. I
3 mean, as far as I can tell, all his measurement taking and
4 his film placement and showing him moving the finatrometer
5 (phonetic), I mean, it's basically the same scenario that I
6 go through in order to shot the well.

7 Q My question was more like, the difference
8 between the calf roping contest and when you're just out
9 there roping calves without somebody with a stop watch. Do
10 you think there was a difference here, I mean, if you were
11 actually doing the shots, the setting it up for real and it
12 counted and you had to get a good shot, do you think it
13 would take more time or were you just kind of running
14 through the motions.

15 A Yes, if I wanted to get a good shot, I mean, I
16 was making sure I was going to get it. The point I said,
17 that's just all in how much you do it and how often you do
18 it. I mean, you're just trying to get a groove so that --

19 Q I guess, is Mr. Faye more experienced, to your
20 knowledge?

21 A As far as radiography, I know he's a Level 3.
22 But as far as doing field work and shooting, I know, he
23 doesn't do a whole lot of it.

24 MR. DAMBLY: Okay, nothing further.

25 MR. BROOKS: Nothing further here. Mr. Chastain,

1 I'm sorry. I know we kept you longer than I said we would.
2 I appreciate your time.

3 MR. CHASTAIN: No problem, no problem.

4 CHAIRMAN BECHHOEFFER: Mr. Chastain, we
5 appreciate your appearance. Thank you for appearing.

6 MR. CHASTAIN: Thank you.

7 CHAIRMAN BECHHOEFFER: Mr. Dambly, do you want a
8 break before you call the next or --

9 MR. DAMBLY: It's fine with me. Mr. Barth is
10 going to question Mr. Slack, but if you want to take a
11 break.

12 MR. BARTH: A couple of --

13 CHAIRMAN BECHHOEFFER: Pardon?

14 MR. BARTH: -- a couple more administrative
15 witnesses would be all right.

16 CHAIRMAN BECHHOEFFER: We'll take five minutes.

17 [Small recess taken.]

18 [Back on the record.]

19 CHAIRMAN BECHHOEFFER: Are you ready, Mr. Barth?

20 MR. BARTH: I think, we would probably be. We're
21 waiting for Mr. Dambly to return.

22 CHAIRMAN BECHHOEFFER: Mr. Slack, stand please
23 and be sworn.

24 ROBERT J. SLACK,
25 a witness, was called for examination by counsel for the

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 U.S. Nuclear Regulatory Commission and, having been first
2 duly sworn, was examined and testified as follows:

3 MR. BARTH: Mr. Chairman, Mr. Dambly has better
4 ears. He ought to be able to hear --

5 DIRECT EXAMINATION

6 BY MR. BARTH:

7 Q Mr. Slack, please state your name for the
8 record.

9 A Robert J. Slack.

10 Q By whom are you currently employed?

11 A Conam Inspection.

12 Q What is your place of employment?

13 A Glendale Heights, Illinois.

14 Q What is your position with Conam?

15 A I am the Radiation Safety Officer.

16 MR. BARTH: Your Honor, Mr. Slack is the
17 principal representative of Conam Inspection, Inc. I
18 respectfully request permission from you to treat him as a
19 hostile witness for this purpose, this cross, this direct
20 examination.

21 CHAIRMAN BECHHOEFFER: Mr. Brooks, any objection?

22 MR. BROOKS: I don't know that he's hostile,
23 exactly, he's the witness in the case. I guess, Mr. Barth
24 is looking for his permission to lead the witness.

25 CHAIRMAN BECHHOEFFER: Yes.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 MR. BROOKS: I mean, I guess, I don't have an
2 objection. Although, I guess, I do have an objection. I
3 mean the witness ought to be, he's the first witness from
4 Conam. I think he ought to be allowed to tell his story.
5 And if he tells something different than what Mr. Barth is
6 expecting, impeach him.

7 MR. BARTH: Your Honor, he is not the first
8 witness, would this then be the second witness for the
9 Staff at the present time. We do not have Carol Linders.
10 We want \$16,000 from this company. He doesn't want to pay
11 that. That's a difference of opinion in my view.

12 CHAIRMAN BECHHOEFFER: Mr. Barth, I think we will
13 not allow you to treat the witness as a hostile witness.
14 Mostly because you will later have a chance to cross
15 examine Mr. Slack when he appears as a witness on behalf of
16 Conam.

17 So, I think it would be better if you would not
18 lead the witness at this stage.

19 MR. BARTH: If I what?

20 CHAIRMAN BECHHOEFFER: If you did not lead the
21 witness.

22 MR. BARTH: Hostile or not hostile, your Honor,
23 the Appeal Board has ruled that leading questions are quite
24 approval and the set of evidence of rules as well. That
25 has nothing to do with the hostility of it. We do not have

1 parallel interests. If you want to rule that I am wrong,
2 you've got parallel interests and therefore would not find
3 go ahead.

4 CHAIRMAN BECHHOEFFER: We think that, for this
5 purpose, he should not be treated as a hostile witness.
6 And particularly given the fact that you would be given a
7 chance to cross examine him later on, when he's a witness,
8 direct witness for Conam.

9 MR. BARTH: We accept the rules of the Board.

10 BY MR. BARTH:

11 Q Mr. Slack, how long have you been employed by
12 Conam?

13 A Going on 21 years.

14 Q I'm sorry, that was a little bit quick for me.

15 A Going on 21 years.

16 Q Would you please describe your present duties?

17 A I am the Radiation Safety Officer for the
18 company.

19 Q Okay. And what does a Radiation Officer do?

20 A Radiation and Safety Officer is responsible for
21 the safety program, for compliance to regulations and
22 written documents and for administering the program.

23 Q For 21 years. Who were you employed before you
24 were employed by Conam, sir?

25 A Immediately before?

1 Q Yes, sir.

2 A I worked for a lumber yard.

3 Q What did you do there?

4 A I was in sales. I was in sales.

5 CHAIRMAN BECHHOEFFER: What was the firm? I
6 didn't hear the firm.

7 MR. SLACK: It's a lumber yard.

8 CHAIRMAN BECHHOEFFER: Oh, okay.

9 BY MR. BARTH:

10 Q And how long were you employed there, Mr. Slack?

11 A I believe three years.

12 Q And where were you employed before the lumber
13 yard, sir?

14 A I had a short time at insurance sales and prior
15 to that most employment time was with Uniroyal. And we
16 were the contractor for the Army Ammunition Plant in
17 Joliet, Illinois. And that was from 1967 to 1973.

18 Q Could you slightly elaborate upon what your
19 present position at Conam requires you to do?

20 A I'm responsible for performing annual audits of
21 various locations throughout the country for making
22 available to these locations our program, our license in
23 compliance with the regulations.

24 Q Pardon me, you said various locations. Does
25 Conam have --

1 A Yes, sir.

2 Q -- multiple location?

3 A We're in California to Massachusetts and Illinois
4 to Texas. So there are probably ten, ten or so locations.

5 Q Okay. Thanks.

6 A And Hawaii.

7 Q Will you please describe your formal education
8 and work experience that qualifies you for your position at
9 Conam?

10 A Initially I was hired at UniRoyal in 1967. I
11 received training as a, in a radiation safety, 40 hours at
12 Vicker Corporation, Cleveland, Ohio. I received 80 hours
13 of radiography and safety training with the Kodak at
14 Atlanta. I believe that was '70 or '71. And during that
15 period from '67 through '73, I was a radiographer and
16 Radiation Safety Representative for our department, which
17 was the Quality Control Department for the NRC license for
18 UniRoyal.

19 MR. BROOKS: Would you keep your voice up, it's
20 hard to hear.

21 MR. SLACK: I'll give you all I got.

22 BY MR. BARTH:

23 Q Are you familiar with NRC regulations that govern
24 responsibilities you now perform for Conam?

25 A Yes.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 Q Were you familiar with those regulations in 1996?

2 A Yes.

3 Q Does the NRC require any special training to be a
4 Radiation Safety Officer?

5 A At this point in time, the regulations has some
6 criteria in them, yes.

7 Q Do you have any kind of licensing or education
8 requirements by NRC imposed upon you?

9 A I believe there are, I can't quote them to you.

10 Q Mr. Chastain was exposed on February 27th, 1996,
11 were you informed of this incident?

12 A Yes, I was.

13 Q Could you tell me when you were informed of the
14 incident, sir?

15 A I believe I was informed the evening it occurred
16 by Steve Tucker, who is the Safety Manager at Gary,
17 Indiana.

18 Q Do you remember what time of day it was?

19 A Most probably in the evening.

20 Q Do you recall what Mr. Tucker said to you?

21 A Verbatim no, but what he said basically was, an
22 individual's dosimeter had gone off the scale. And that he
23 was working at Eli Lilly. I don't know if he quoted the
24 company. Told me who the individual was and basically
25 wanted to know what should be done next.

1 Q What did you tell Mr. Tucker at that time, sir?
2 If you can recall now.

3 A First thing that we normally do and I did then,
4 was tell him to obtain the individual's film badge and to
5 remove him from any radiographic operations.

6 Q Do you recall either from memory or from today's
7 discussions the approximate time Mr. Chastain was exposed?

8 A Somewhere around 6:00 o'clock, I believe you
9 stated.

10 Q And recently you have driven to Indianapolis?

11 A Yes, sir.

12 Q How long did that take approximately?

13 A About three, three and a half hours.

14 Q You drive faster than we do. So released now at
15 9:00 o'clock before he gets, 9:30 before he gets to
16 Mr. Tucker, is that correct, Mr. Chastain?

17 A I do not know that. I came from Illinois. He
18 would have gone to Gary, Indiana.

19 Q Mr. Chastain testified this morning,
20 Mr. Chastain, that was exposed to the best of your
21 knowledge in Indianapolis.

22 A I'm sorry, I didn't hear everything.

23 Q If Bill Chastain, who testified this morning and
24 saying Bill Chastain was exposed in Indianapolis on
25 February 27th.

1 A Bill Chastain said that his dosimeter was off
2 scale.

3 Q Did the film badges get sent for processing?

4 A Yes, sir.

5 Q Do you know when it was sent?

6 A I believe some time the day of the 28th, when he
7 returned it to Gary.

8 Q Was it sent overnight?

9 A It was directed to be sent overnight. I can't
10 verify that it was.

11 Q Did you get a telephone report of the film badge
12 reading?

13 A Yes, I did.

14 Q Do you recall when you got that?

15 A I believe it was the 28th. It could have been
16 the 29th.

17 Q You know the badge was sent on the 27th.

18 A No, sir, I didn't say that.

19 Q You think the badge was sent on the 28th.

20 A That's my belief.

21 Q And you think you got a telephone call the same
22 day that the badge was sent or the next day?

23 A I, it was either that day or the next day. I
24 can't tell you.

25 Q How was that badge acquired?

1 A Mr. Chastain was informed to bring it to Gary.

2 Q Do you know whether he met with Mr. Tucker the
3 evening of the 27th or the morning of the 28th?

4 A I know he met the morning of the 28th, I don't
5 know about the evening of the 27th.

6 Q Did you have a meeting with Mr. Chastain on the
7 morning of the 28th of February, which was a Thursday?

8 A It was a Thursday?

9 Q Yeah, that's irrelevant.

10 A Oh, okay. Yes, I had a meeting the morning of
11 the 28th.

12 Q Where was that meeting held, sir?

13 A At the Gary, Indiana lab, Conam Inspection.

14 Q Who was present at that meeting?

15 A Initially, Bill Chastain, Steve Tucker, myself.

16 Q Did Mr. Chastain describe, I'll quit the yelling
17 now. Did Mr. Chastain describe to you what happened?

18 A Yes, he did.

19 Q I apologize.

20 A Yes, he did.

21 Q Could you tell us what Mr. Chastain told you?

22 A I asked Mr. Chastain to step in the middle of the
23 room and to give me a description of what occurred at Eli
24 Lilly. And he basically went through the motions of
25 telling me where the ladder and the camera were set up. We

1 had no props at the time.

2 Q You did have props at the time?

3 A We had no props at the time. And when I, I asked
4 him where he was, he said, well, the pipes are up in the
5 air and we had to climb a ladder and the camera's on top of
6 the ladder. I said, show me what happened when you came
7 into the room. He described coming into the room through
8 the back of the camera, doing a 360 degree survey of the
9 camera and the guide tube. He did this verbally and a
10 motion with his arm indicating what would have been a
11 survey meter going around in a circle.

12 Q Did you have a -- a running camera on top of the
13 ladder, sir?

14 A At that time?

15 Q Yes.

16 A No.

17 Q Did you make any physical measurements with a
18 tape or what you thought were the correct distances at the
19 time?

20 A No, sir.

21 Q Did you make any time estimates yourself as to
22 how much time Mr. Chastain would have been exposed?

23 A In my discussion with Bill, I asked him to tell
24 me how he went up the ladder and what he did. He said, he
25 climbed the ladder. He had his dosimetry in his fanny

1 pack. I said, the fanny pack was in front of him. He
2 said, he did his work off of the second or third rung of
3 the ladder and while working on the pipes having to
4 relocate the calumniator for his next shot, he would move
5 to and from the camera and sideways in a twisting manner.
6 And both sideways and a twisting manner while on the
7 ladder. I asked him, I said, well, when this, in this
8 case, how many feet would you have been, he said, one to
9 three feet away from the source and in various positions at
10 various times.

11 Q Did you time Mr. Chastain was going through this
12 or did you just take his estimation of time?

13 A I took his estimation of what he was telling me.

14 Q And what was that estimation, do you recall?

15 A Of the majority of the time, I believe was,
16 actually, no, I don't recall. I don't recall even if he
17 had said there was an estimation.

18 Q Did you ask Mr. Chastain to provide you with a
19 written description of what happened?

20 A I did.

21 Q And later was a check list by Conam prepared, a
22 check list for incident report?

23 A Correct.

24 Q I got to have another one of those guys. I show
25 you one Exhibit No. 7. I wish another copy was handed --

1 PARTICIPANT: It's already been passed out.

2 MR. BARTH: We already have them.

3 CHAIRMAN BECHHOEFFER: I don't. He doesn't have
4 one.

5 MR. BROOKS: He should have one up there. He's
6 got one.

7 PARTICIPANT: You can take my copy back.

8 BY MR. BARTH:

9 Q Mr. Slack, is this the check list, prepared by
10 Conam as a result of the incident with radiation?

11 A Yes, sir.

12 Q Who prepared the report, sir?

13 A I prepared this report.

14 Q You prepared it?

15 A Correct.

16 Q And it says, it was, the third box from the top,
17 daily report 2-26-96. Is that when the report was
18 prepared?

19 A Prepared, no. This was --

20 Q Showing you page 57 from your deposition taken
21 May 13, 1998, and ask you to look at lines 13 through 17.

22 A Okay.

23 Q Does that not indicate that the report was
24 prepared on the 27th.

25 A That's what the words say. This is work in

1 progress. That's where they're different dates on it.

2 Q Do you have any idea if this is a memory slip at
3 the time of the deposition.

4 A I'm sorry.

5 Q Did you answer?

6 A Is there a question?

7 Q Yes, I asked if that was a small memory slip on
8 this deposition, the date?

9 A The date on here, is what is on there, I would
10 say it's just a misconstruing of it, yes.

11 Q The discrepancy in your testimony, you testified
12 this was not done on the 27th --

13 A Like I said, it's a work in progress. I probably
14 put down the wrong date as, if this were going to be a
15 report written on the 27th but the occurrence is the 27th,
16 I didn't get until the 28th an opportunity to start filling
17 this out.

18 Q -- calculate exposure, there's a calculation, did
19 you make that calculation, sir?

20 A Yes, sir.

21 Q You did. Do you recall when you made it?

22 A No, not exactly now, it's either the 27th or the
23 28th.

24 Q Do you recall, tell us how much time Mr. Chastain
25 was exposed according to your calculations?

1 A I think the time is a .0667 factor, which would
2 have indicated a number of minutes.

3 Q Is that not approximately four minutes?

4 A That could be, yes.

5 Q It could be a simple matter of arithmetic --

6 A I can figure it out.

7 Q Go ahead and do so, sir.

8 A Do you have a calculator?

9 CHAIRMAN BECHHOEFFER: I have a calculator.

10 MR. BARTH: Give him the calculator.

11 MR. BROOKS: You just multiply --

12 MR. BARTH: I understand that, the witness can
13 answer for us. We all know what the answer is.

14 MR. BROOKS: Calculate four minutes.

15 MR. BARTH: I understand that, so does he. You
16 want a calculator.

17 MR. SLACK: Excuse me, I don't understand that.

18 MR. WEST: Do you know how to use -- calculator?

19 MR. SLACK: No, I don't.

20 MR. WEST: Okay.

21 MR. BARTH: Your Honor, I happen to take judicial
22 notice that .667 --

23 MR. BROOKS: .0067.

24 MR. BARTH: .0067 works out to four minutes.

25 This is the way the deposition went.

1 BY MR. BARTH:

2 Q Mr. Slack, did you provide data to your
3 consultant for him to make the calculation of dose received
4 by Mr. Chastain?

5 A Yes, I did.

6 Q Could you tell us what that data is?

7 A Not unless I have a document in front of me.

8 Q I can't hear.

9 A Unless I have a document in front of me, I can't
10 tell you what it was now.

11 Q Let's put this question aside for the moment.

12 A Fine.

13 Q What did you calculate the dose to be on the 27th
14 or 28th?

15 A I calculated a range of doses October 3rd for
16 different times and different distances. And those
17 calculations range from, I believe, 4.1 to 36R.

18 Q Did you report any of these calculations to the
19 NRC at that time?

20 A No, sir.

21 Q Do you know whether 10CFR 20.2202 requires you
22 to immediately to report doses of 25 range or higher?

23 A I don't know specifically it says that but if
24 that's what it says then, yes.

25 Q Can you explain why you did not report this dose

1 to the NRC?

2 A Because -- it is not a dose. It's a calculation
3 of ranges of doses. It's the most conservative dose that
4 we calculated based on what Mr. Chastain had told us in his
5 manipulations on the 28th of February, 1996.

6 Q I'm not sure I understand your answer. Are you
7 telling me you did not report it to the NRC because it was
8 a conservative.

9 A No. I'm saying that it was a range of doses that
10 I had calculated. And based on what Mr. Chastain told me
11 and the distances that he was, depicted that he was away or
12 close to the source and the location, it was more in the
13 range of 4.11. And the film badge came out 4.6. I would
14 say I was close.

15 Q I don't see a 4.11 in your calculating exposure
16 on the check list for incident report, am I missing it,
17 sir?

18 A You're not missing it on this report, no.

19 Q Where was this 4.11 hidden?

20 A It was not hidden.

21 Q But we never seen it before, could you tell us
22 where it was about, withdraw the word and apologize to you,
23 sir.

24 A I have a document that I did by hand. Do we have
25 it available? That?

1 MR. BROOKS: It's among the documents we
2 designated as an exhibit. You don't have it, I thought you
3 would ask for everything that you didn't have. If you
4 don't have it, we had supplied it.

5 MR. BARTH: We'll get there.

6 MR. BROOKS: It's in the book that I had given
7 you earlier.

8 MR. BARTH: We can cover this later.

9 MR. BROOKS: Well, if you, I would like to answer
10 your question.

11 MR. BARTH: I think that's -- Mr. Brooks.

12 MR. BROOKS: Exhibit 36 is being submitted to the
13 panel. I supplied to you this morning, Mr. Barth,
14 notations, calculations that you spoke to, that Mr. Slack
15 is referring to.

16 MR. BARTH: This was submitted this morning?

17 MR. BROOKS: I gave you a list.

18 MR. BARTH: Yes.

19 MR. BROOKS: That's the U.S., you told me which
20 exhibits you didn't have and I supplied those to you. I
21 did not know that you did not think that you had this one,
22 otherwise, I would have supplied it to you earlier as with
23 the other evidence that you told me, yeah.

24 MR. BARTH: Thank you, Mr. Brooks.

25 BY MR. BARTH:

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 Q Now, when you computed the radiation dose which
2 is set forth on the check list, was this done in accord
3 with the NRC regulations, as it existed in February 1996?

4 A Which regulations are those?

5 Q You do not know?

6 MR. BARTH: Your Honor, the question is submittal
7 to a yes, no, I don't know. I'll take any of those three
8 answers.

9 He's testified, he's familiar with the NRC
10 regulations. He is a Safety Officer. He's not an ordinary
11 citizen on the street like I am. The calculation of this
12 stuff is part of his job. He doesn't know what the NRC
13 regulations are, what they control, fine. If he does,
14 fine. But I think I'm entitled to a yes or no answer to
15 the question. Was your dose calculation in accord with the
16 NRC regulations?

17 MR. BROOKS: I'm going to object to the question.
18 I'm not sure if it will help us out to know the answer to
19 Mr. Barth's question with reference to some particular
20 regulation, if there is one. It seems to me if you want to
21 ask, if it's a fair question, let's ask him a fair
22 question.

23 MR. BARTH: You mean, your Honor, that's asking
24 to comply with laws not fair?

25 CHAIRMAN BECHHOEFFER: Mr. Barth, not all people

1 read the rules the same as you may read them. I don't know
2 that it's a clear question when the rule may perhaps be
3 readable differently, so.

4 MR. BARTH: I don't wish to argue with the
5 Chairman. You've got to consider the circumstances. He is
6 a Radiation Safety Officer. He deals with, he's
7 testifying, he's familiar with them. He is not a layman to
8 this brief. This is normally done in the performance of
9 his job. If he doesn't know when he does his job report,
10 with his regulatory agency.

11 CHAIRMAN BECHHOEFFER: There may be more than one
12 way prescribed.

13 MR. BARTH: Fine, he can cite them.

14 CHAIRMAN BECHHOEFFER: Or permitted, or permit,
15 when you asked if he did it in accordance with regulations,
16 interpret the regulation for him that you're asking about.
17 Because --

18 MR. BARTH: 10CRFAR 20 --

19 CHAIRMAN BECHHOEFFER: -- 10CRFAR 20 has several
20 interpretations of what doses are permissible.

21 MR. BARTH: I'm not aware of that, your Honor.

22 CHAIRMAN BECHHOEFFER: Well, we are, so ask him
23 what dose you had in mind or what, I'm sorry, what
24 regulation or provision of the regulations you have in
25 mind.

1 MR. BARTH: I think I'll recall the question --

2 BY MR. BARTH:

3 Q Did you calculate it, exposure to Mr. Chastain
4 for the part of his body receiving the highest possible
5 dose.

6 A Calculations are performed and that are on here
7 and that are not on here were performed based on what the
8 individual told me. And that consideration was given to
9 the location of the film badge which is closest proximity
10 to the, what would have been the location of the source at
11 the time that he described it to me.

12 MR. BARTH: I repeat the motion, your Honor, it's
13 not going to a yes, no, I don't know answer. I can do this
14 all day, your Honor. I did this before.

15 MR. BROOKS: Your Honor, in that case, I'm going
16 to object to the question as leading. Now -- deny Mr.
17 Barth the opportunity to lead the witness. It seems to me
18 at this point in the proceeding, we might all benefit with
19 a question just asked Mr. Slack what he did? If he's
20 wrong, I'm sure Mr. Barth would point it out to us at that
21 point.

22 CHAIRMAN BECHHOEFFER: I believe Mr. Brooks is
23 correct and we'll sustain the objection.

24 MR. BARTH: I asked a different question. I
25 asked a question at this time -- would not suggest an

1 answer. Did you calculate the dose to the part of the body
2 that received the highest radiation dose. I would not
3 suggest an answer, it's certainly not leading.

4 CHAIRMAN BECHHOEFFER: That's a different
5 question. I believe the answer to that --

6 MR. SLACK: And my answer is that the film badge
7 was located at the body part that was, will receive the
8 highest dose. And that's where I calculated it.

9 BY MR. BARTH:

10 Q And what part of the body was that, sir?

11 A Somewhere around the waist or groin area. He had
12 indicated that his fanny pack is around his waist, it's
13 sitting in front of him. And as he showed you earlier that
14 had it stayed in front, that was somewhere around the waist
15 or groin area.

16 Q When you received the telephone call from your
17 Staff Director, the badge showed 4.6.

18 A Yes, sir.

19 Q Did you then decide this was not a regulatory
20 concern of the NRC?

21 A Based on what I had been told by Bill Chastain
22 and what he described and the fact that I made the
23 calculations as I did and the film badge came out to be
24 4.6. And the film badge being a medium that is
25 historically used as a permanent legal record for dose, I

1 felt he had not exceeded the 5R dose for the year 1996.

2 And that would mean, we did not exceed the regulations.

3 Q We are now approximately on February 28th or
4 29th?

5 A Yes, sir.

6 Q Did you later at some time engage a consultant to
7 make a field calculation for you?

8 A Correct.

9 Q Tell us the date you made that?

10 A That would probably be some time in the end of
11 March, 1st of April.

12 Q Did the NRC -- let me talk to counsel for a
13 moment.

14 BY MR. BARTH:

15 Q Did the NRC request that CONAM present a
16 reconstruction of the incident for them?

17 A I believe the NRC requested five items in their
18 letter or four items in their letter and one of them was an
19 re-enactment.

20 Q And was, was that re-enactment done?

21 A Yes it was.

22 Q Was that the re-enactment that occurred on April
23 11th, 1996?

24 A Yes, sir.

25 Q Did you take an active part in that re-enactment?

1 A I was, you d have to explain active. I was
2 there. I was with Monty and Tom and Bill Chastain. I
3 asked Bill to set the camera up and the ladder, take it
4 upstairs in Gary. Then after that Monty and Tom pretty
5 much ran the show.

6 MR. BROOKS: Keep your voice up as much as you
7 can.

8 BY MR. BARTH:

9 Q At the re-enactment did you make notes of times
10 and distances?

11 A I don t know if I specifically made notes, but I
12 know notes were taken by the NRC.

13 Q Do you remember who in the NRC took the notes?

14 A I don t know if Jeff, but, I m sorry, Jeff West
15 was there also. I don t know if Jeff took notes, Tom or
16 Monty.

17 Q Who was present at the re-enactment for the NRC
18 April 11th.

19 A Monty Phillips, Jeff West, Tom Young.

20 Q Let s go back for a moment out of sequence.

21 After the incident did CONAM check the operatability of the
22 various instruments, the amersham, the procemeters, the
23 alarms?

24 A All of those items were checked and found to be
25 operable and acceptable.

1 Q At the April 11th reconstruction, sir, did you
2 notice any differences between what Mr. Chastain had told
3 you on the 28th and what he was telling the NRC on the 11th
4 of April?

5 A I did.

6 Q Did you inform the NCR at the time of those
7 differences?

8 A I believe we stepped aside a couple of times and
9 made reference to them and, I think, I was talking with
10 Tom, I m not sure.

11 Q Will you tell us what those differences are?

12 A Primarily his position and location on the
13 ladder. Where he told me that he was basing the camera all
14 the time on the ladder with the fanny pack in front of him.
15 He showed Tom and Monty and myself something different. As
16 far as the survey, he told me he did a full survey of the
17 camera and the guide tube and did not indicate so to, on
18 the 11th, April 11th.

19 Q For the NRC, did Mr. Chastain describe a full 360
20 degree survey?

21 A On April 11th?

22 Q On April 11th.

23 A I do not believe he did.

24 Q I beg your pardon?

25 A I do not believe he did.

1 Q To the best of your knowledge were the time
2 differences in the description by Mr. Chastain to you on
3 February 28 and the re-enactment of April 11th?

4 A Over all times?

5 Q Time differences in the time he was exposed.

6 A Over all time, no. Just that, say again?

7 MR. BROOKS: I don t mean to object exactly, I m
8 just not sure I understand the question.

9 CHAIRMAN BECHHOEFFER: Are you comparing February
10 27th with April 11th or --

11 MR. BARTH: No. I comparing the times that were
12 told to Mr. Slack with the times told to the NRC for those
13 two dates, sir.

14 CHAIRMAN BECHHOEFFER: Okay.

15 MR. BARTH: Dr. Cole s great ability with
16 mathematics which seems to be unappreciated and showed four
17 minutes of time given on the 28th. I would like to compare
18 that with what was given on April 11th.

19 CHAIRMAN BECHHOEFFER: I don t know that --

20 MR. BARTH: I m not going through the sequence of
21 all stuff calculated and so forth. We do not need to go in
22 go into great discussion of number which Whitehead
23 discusses at great length.

24 MR. BROOKS: I m not sure, and maybe I m
25 mistaken, Mr. Barth, if Mr. Barth got from this witness

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 what he was told about time of February 28th for the
2 purposes of serving as a predicate to then the question of
3 comparing February 28th to April 11th. I could be wrong
4 about that but, I don t recall that part of the equation
5 coming out yet.

6 MR. BARTH: You are partially correct, Mr.
7 Brooks. He was an observer and he had some observation at
8 the time. But here we are suggesting the answer is real
9 easy. Let me take Mr. Brook s suggestion.

10 BY MR. BARTH:

11 Q Do you have any idea how Mr. Chastain was exposed
12 on the 11th of April in the re-enactment to the NRC?

13 A I can t quantify it, no.

14 Q Thank you. Let me show you a document which is
15 the, we ve already done that.

16 MR. BARTH: I move, Your Honor, into evidence,
17 Joint Exhibit No. 7 which is a checklist for the incident
18 report prepared either on the 27th or 28th, it s kind of
19 hard to tell which, which also consists of a drawing,
20 pencil drawing, by Mr. Chastain, previously identified by
21 Mr. Chastain and the three pages of Chastain s hand notes
22 as to what occurred which was required of him by his
23 employer of the incident.

24 MR. BROOKS: No objection.

25 CHAIRMAN BECHHOEFFER: I have one question.

1 COURT REPORTER: Can you wait until the truck
2 passes.

3 CHAIRMAN BECHHOEFFER: Pardon. I have one
4 question to ask. I don t know, I might be missing
5 something. Mr. Slack, I see your initials on the bottom,
6 but I also see Keith Tucker s name on the top.

7 MR. SLACK: Correct.

8 CHAIRMAN BECHHOEFFER: And who did what?

9 MR. SLACK: As I explained in reference to Mr.
10 Barth s question, this is a work in progress. I got a
11 phone call on the 27th so I had knowledge. But, I didn t
12 have a form so on, I believe it was the 28th, when I was
13 down at the Gary lab I started to fill this out on my
14 computer. So by saying that Keith Tucker was the one
15 making the report, what I am saying is he is one that
16 reported the information to me. And then when I had all
17 the information, I can t tell you when that was, this was
18 complete. Also, this is an in-house document that we put
19 in the file basically to keep information.

20 CHAIRMAN BECHHOEFFER: Okay. With that
21 explanation, we ll admit the document.

22 [Joint Exhibit No. 7 was received
23 into evidence.]

24 BY MR. BARTH:

25 Q Mr. Slack, I show you a document, Joint Exhibit

1 No. 11 and ask have you seen it before? You ve had a
2 chance to review the document, Mr. Slack, have you not?

3 A Yes, sir.

4 JUDGE COLE: I direct Mr. Barth that this is
5 Joint Exhibit No. 11, not NRC Standard Exhibit No. 11.

6 MR. BARTH: You re right, sir. You re right.

7 MR. BROOKS: The explanation, Dr. Cole, is that
8 we have not been able to agree with Mr. Brooks regarding
9 exhibit that we have not, largely because we are having a
10 disagreement at the present time.

11 THE WITNESS: And the information you requested
12 was? Okay I ve looked at it. Thank you.

13 BY MR. BARTH:

14 Q You recall receiving this document sir?

15 A Not firsthand recollection, but I ve seen it.

16 Q You have any present recollection as to having
17 received this document, sir?

18 A No.

19 MR. BROOKS: Sir, what was your answer?

20 MR. SLACK: My answer was I don t have any
21 current recollection of having received this document. Not
22 to say I didn t.

23 BY MR. BARTH:

24 Q Could you read the title of the document?

25 A This is an NRC document, is that correct?

1 Q I would like you to read the title, not in the
2 middle, top on the right.

3 A It says CONAM inspection dose reconstruction
4 data.

5 Q What do the words which are handwritten in the
6 upper right hand corner say?

7 A Faxed to Bob Slack 4-14, 4/19/96.

8 Q And at the very top line on the left, what does
9 it state?

10 MR. BROOKS: Your Honor, I m going to object. I
11 thought we were just having the title of the document read
12 for the purposes of identifying it for the record. I think
13 we ve done that. Unless the witness participated in
14 creating the document or took some action based on the
15 document which we don t know yet. I think I d object to
16 having him read from the document at this point.

17 MR. BARTH: It s part of the identification, Your
18 Honor. Quoting any special names doesn t tell us why we
19 was -- facts, background.

20 CHAIRMAN BECHHOEFFER: What s your current
21 question.

22 MR. BARTH: You have an objection before you,
23 Your Honor, to asking the question, does the upper left
24 hand, for Mr. Slack to read the upper left hand corner
25 which reads US NRC Region Three. Which goes to the origin

1 of this on the fax machine. That s the objection that s
2 now pending before Your Honor.

3 CHAIRMAN BECHHOEFFER: Well, all right. For
4 identification of the document solely, I guess, the
5 question s okay, but this occurred in 98 the way I read it
6 and I don t know what relevance it has to the 96 fax. I
7 mean, the Region Three was put on there in 98 the same in
8 the right hand.

9 MR. BARTH: Thank you, Your Honor. Your Honor is
10 correct, you do correct me. This was faxed to me.

11 CHAIRMAN BECHHOEFFER: For identification if you
12 want to show that this is the document they are talking
13 about, that s all right.

14 BY MR. BARTH:

15 Q Mr. Slack, having read the document, what
16 basically does it do?

17 CHAIRMAN BECHHOEFFER: Wait a minute. He hasn t,
18 he presumably hasn t read it yet. You better ask if he s
19 read it.

20 MR. BARTH: He did. I ask him before. I said
21 when you finish reading it, familiarize yourself, let me
22 know. He says I have.

23 MR. BROOKS: I guess, let me just make an
24 objection to the foundation of having the witness testify
25 about a document that he hasn t testified that he had

1 anything to do with at this point. I mean, if someone else
2 created this document, Mr. Barth will call him as a witness
3 and tell us what it means.

4 MR. BARTH: We don t need to jump the gun, Your
5 Honor. But, this was the document that he sent to Carol
6 Berger for her to make calculations from. We ll go over
7 that later. Carol Berger is his consultant on radiation.
8 I think it a fair question, Your Honor, to let him tell
9 you, in general, what this document does. I can do so, but
10 I am a lawyer and I cannot testify.

11 [Panel discussion.]

12 JUDGE KELBER: Would you repeat the question you
13 would like Mr. Slack to answer, sir.

14 MR. BARTH: I would like Mr. Slack to describe in
15 very summary terms to the gentlemen what this document
16 purports to do. What it does.

17 JUDGE COLE: Not attesting to the truthfulness
18 thereof, but just what he thinks it purports to do?

19 MR. BARTH: Yes, sir.

20 JUDGE KELBER: His opinion of this document,
21 you re asking?

22 CHAIRMAN BECHHOEFFER: His current, his current.

23 MR. BARTH: He s head of the course. He s a
24 grown man. He can read, he can summarize it. Getting the
25 opinion. Getting far afield. I thought this would speed

1 it up. I make mistakes.

2 CHAIRMAN BECHHOEFFER: Mr. Barth, the document
3 was prepared obviously by one of the Region Three people,
4 shouldn't they testify as to what it says and where the
5 information was derived from?

6 MR. BARTH: As soon as you sustain Mr. Brooks
7 objection, I will withdraw the proffer of the document and
8 go on with something else. But I would suggest to you the
9 documents we have listed, if you look at the documents
10 listed in the front of the consultants, this is one of the
11 documents she lists. Which means it's obviously in their
12 possession. Move on to something else, Your Honor. Are
13 you going to sustain the objection?

14 CHAIRMAN BECHHOEFFER: I think we will.

15 MR. BARTH: Fine. I'll quit hassling you then.

16 CHAIRMAN BECHHOEFFER: But I do think somebody
17 from Region Three could, who authored this.

18 MR. BARTH: We are aware of that.

19 CHAIRMAN BECHHOEFFER: Either is or who has been
20 in the room today. He could testify.

21 BY MR. BARTH:

22 Q Mr. Slack, do you ever recall the NRC providing
23 you with a summary of their calculations resulting from the
24 April 11, 1996, re-enactment in Gary?

25 A Based on recall, no. Looking at this document,

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 if it s been faxed to me then I would have had it.

2 Q You testified you employed a consultant to assist
3 in assessing the dose to Mr. Chastain. Who was that
4 consultant, sir?

5 JUDGE KELBER: Excuse me.

6 THE WITNESS: I don t recall.

7 JUDGE KELBER: Did you ask that, whether he
8 employed a consultant?

9 CHAIRMAN BECHHOEFFER: I think, well --

10 MR. BARTH: Yes, he gave a date. He said late
11 April.

12 CHAIRMAN BECHHOEFFER: Oh, okay. That s okay.

13 THE WITNESS: I believe you asked me who was the
14 consultant we employed?

15 BY MR. BARTH:

16 Q Yes, sir.

17 A The company is I.E.M. The individual is a Carol
18 Berger.

19 Q Did you transmit to her information provided to
20 you by the NRC as to their dose calculation?

21 A That is very possible, yes.

22 Q Can you say anymore than very possible?

23 A If you are talking about my recollection, no I
24 can t. If this is the document I was given and if this is
25 what she did her calculations off of, then, yes, I did.

1 Q Did you transmit to her data which formed the
2 basis of your calculations?

3 A I honestly don t know.

4 Q Could you explain to us this. You don t know
5 whether you gave her NRC s document, calculations.

6 A No, I said I didn t recall.

7 Q And you did not give her yours. How does this
8 woman arrive at dose?

9 MR. BROOKS: I m going to object to the question.
10 Pretty obviously it mischaracterizes the witnesses
11 testimony. He said he didn t recall. Now Mr. Barth wants
12 to ask him why he doesn t know. Or why he didn t do it.

13 MR. BARTH: I withdraw the question.

14 CHAIRMAN BECHHOEFFER: The witness, I mean, the
15 consultant will be here and may be asked what data she was
16 given and when.

17 MR. BARTH: I ve withdrawn the question, but I
18 will indulge Your Honor s comments. There is a two-way
19 field. He sends, she gets. You can ask him did she get?
20 Fine. I understand that, but it s legitimate to also ask
21 did you send.

22 CHAIRMAN BECHHOEFFER: He didn t recall that.

23 MR. BARTH: Yes.

24 CHAIRMAN BECHHOEFFER: As I recall.

25 MR. BARTH: I ve withdrawn the question, Your

1 Honor.

2 BY MR. BARTH:

3 Q Mr. Slack, do you know any of the perimeters
4 regarding the radiation incident to Mr. Chastain which were
5 provided by CONAM to Carol Berger?

6 A I m sure we described to Carol the situation. As
7 you indicated, if there are figures for her, calculations,
8 we would have provided those.

9 Q Let me take a break for a moment, Mr. Slack, and
10 divert with you completely to a more innocent question.
11 Could you tell us what audits you performed for people
12 going to radiology, since you previously testified that you
13 performed audits?

14 A Within the radiation safety program there are
15 couple of audits. The ones I described to you are annual
16 audits, a review of the program. There are also audits on
17 a ninety day basis of radiographers performed by the
18 radiation safety managers at various labs.

19 Q Where are these audits performed, sir?

20 A The audits are performed in lab, at field sites,
21 basically where ever our radiographers would work.

22 Q Are the radiographers aware that management is
23 observing?

24 A I m sure they are.

25 Q Does management, anywhere in CONAM, make surprise

1 audits of field work being done?

2 A Yes, they do.

3 Q They do?

4 A Yes, they do.

5 Q Could you tell us was Mr. Chastain ever the
6 subject of a surprise audit in his field work?

7 A I can t say if it was surprise. I can say he was
8 subject of audits.

9 Q Are some of these audits done in your Gary field
10 office?

11 A Yes, sir. Let me explain Gary field office. We
12 have a shooting vault, so it s not an office like this.
13 This is a really graphic exposure vault.

14 Q Could you run us through one of these audits so
15 we have some appreciation of what goes on? And I don t
16 require great detail.

17 A We normally have an audit checklist. That audit
18 checklist initiates with a normal information, date, time,
19 location, film badge number, dosimeter number, grade alarm
20 meter number, which radiographers or assistants are on the
21 site, if surveys are being performed, whether or not their
22 cameras are working properly, if the survey meter is
23 calibrated, if the dosimeter is calibrated, if the grade
24 alarm meter is calibrated, if they ve had any problems
25 there s an area for comments. I m sure there are other

1 things on the list, I just can't envision them.

2 Q Was there an enforcement conference with the NRC,
3 between the NRC and CONAM held?

4 A Enforcement conference, I don't know. Do you
5 have a date that you are thinking of?

6 Q Let's try December 13, 1996?

7 A Is that a predecisional conference? Is that what
8 that was? I believe.

9 Q Did you attend a conference in which Mr. Lake was
10 present, you were present, Mr. Preach was present, Cindy
11 Parson was present, Tom Young was present, and other people
12 from the NRC? In December, actually, on the 13th, 1996.

13 A December 13th, correct, that was a Friday.

14 Q Do you recall this?

15 A Yes, sir.

16 Q As a result of that meeting did the NRC provide
17 or send you people a confirmation of action letter?

18 A I believe so.

19 MR. BARTH: One moment, Your Honor.

20 BY MR. BARTH:

21 Q Mr. Slack, I'll hand you a document which is
22 simply marked Joint Exhibit Number 12. There are a number
23 of documents together with this exhibit. I ask that you
24 briefly familiarize yourself with these, will you, please?

25 MR. BROOKS: Judge Bechhoeffer, when we get to a

1 convenient time, if we could just take a short pause for
2 the cause. When you get to a convenient time, could we
3 take a short break?

4 MR. BARTH: Yes.

5 CHAIRMAN BECHHOEFFER: How long do you want?

6 MR. BROOKS: Oh, just five minutes for practical
7 purposes.

8 CHAIRMAN BECHHOEFFER: We could do it right now.
9 Five minutes.

10 MR. BROOKS: Thank you.

11 [A recess was taken.]

12 CHAIRMAN BECHHOEFFER: Back on the record.

13 BY MR. BARTH:

14 Q Mr. Slack, have you familiarized yourself with
15 Joint Exhibit 12?

16 A I have.

17 Q What is the first document there?

18 A The first document is a May 14, 1996 letter from
19 the Nuclear Regulatory Commission to Mike Creech, subject
20 satisfaction of confirmatory action letter dated April 5,
21 1996.

22 Q Does this not summarize that Conam has entirely
23 or almost entirely completed the steps required by the NRC
24 to its satisfaction in its confirmation letter? To put it
25 more bluntly, this is not an indication by the NRC that you

1 complied with the confirmation of action letter.

2 A The NRC says that we confirmed that we would
3 perform the following actions. They list them. This is
4 based on the following information provided. They have
5 determined that we or you, Conam, have satisfied the terms
6 of the CAL and have no further questions.

7 Q Thank you. I direct your attention to the second
8 document and ask that you identify for the reporter, if you
9 would, please, sir.

10 A The second document, page three, April 17,
11 correct?

12 Q Yes, sir.

13 A It's a letter written to Thomas Young at the
14 Region III, U.S. Nuclear Regulatory Commission and it is a
15 confirmatory action letter written in response to five
16 issues that the NRC had, three pages, signed by myself.

17 Q I would appreciate it, Mr. Slack, if you would
18 identify the third document in Exhibit 12 for the reporter.

19 A The next dated document is a February 29th, 1996
20 memo, describing radiation incident. It is sent to
21 distribution and it addresses a determination of an
22 observed mock-up of a re-enactment of the occurrence on
23 February 27th.

24 Q Do these three letters emanate from the
25 discussions between Conam and the NRC resulting from Mr.

1 Chastain being exposed on February 27th, 1996, sir? Do
2 they relate to that incident?

3 A Yes, sir.

4 MR. BARTH: I move, Your Honor, the admission of
5 Joint Exhibit Number 12. Some of the copies have got Staff
6 Exhibit, but that should be read as Joint Exhibit Number 12
7 for clarity. I move their admission into evidence. I
8 provided the reporter with three copies.

9 MR. BROOKS: Could I just ask, is there something
10 beyond the February 29 memo in what you're calling Exhibit
11 12?

12 MR. BARTH: Yes.

13 MR. BROOKS: This isn't part of the exhibit
14 here?

15 MR. BARTH: No.

16 MR. BROOKS: I'm just trying to understand what
17 the exhibit is.

18 CHAIRMAN BECHHOEFFER: The copies before us have
19 an April 4, '96 memo plus the CAL itself. You may wish to
20 at least identify these, at least the April 4 CAL.

21 MR. BROOKS: Chairman, you say you also have, as
22 part of that exhibit the April 4th letter from Radiation
23 Detection?

24 CHAIRMAN BECHHOEFFER: That's the one I just
25 asked for.

1 MR. BROOKS: And April 5th confirmatory action
2 letter.

3 CHAIRMAN BECHHOEFFER: Right.

4 MR. BROOKS: Okay.

5 MR. BARTH: I appreciate the questions by the
6 Chairman and by Mr. Brooks.

7 BY MR. BARTH:

8 Q Mr. Slack, I would direct you to look at the
9 document titled Radiation Detection, in the identification
10 of the documents there. Do you recall seeing this order,
11 sir?

12 A Correct.

13 Q Does it state that Mr. Chastain's exposure was
14 4.6 rems?

15 A It says that the dose was reported at 4,600
16 millirem of deep and -- dose.

17 Q What's the conversion?

18 A 4.6R.

19 Q This was the William Chastain exposed on February
20 27th, that's what we're talking about?

21 A This is a film dosimeter report for the full
22 month of February, beginning with 2/1.

23 Q For whom, sir?

24 A For Bill Chastain.

25 MR. BARTH: Your Honor, I've identified all the

1 documents in the package. Again, I renew my motion for
2 acceptance into the record.

3 MR. BROOKS: For Conam, we don't have any
4 objection to the admission of these documents. I just
5 would note for the record that the part of this document
6 that is the February 29, 1996 memo from Bob Slack, which is
7 sort of the third document back, has also been marked as
8 Exhibit 8. We haven't gotten to it yet. But it's been
9 separately marked by the staff.

10 And then the following letter, the April 4th
11 letter from Radiation Detection is something that we've
12 marked as Exhibit 32. Just so that you know that they're
13 going to come back around in other forms. But we don't
14 have any objection to the admission of these documents.

15 CHAIRMAN BECHHOEFFER: Okay. Without objection,
16 and taking into account the comments that we may see some
17 of them later, this exhibit will be admitted into evidence
18 as Joint Exhibit 12.

19 MR. BARTH: Thank you, Your Honor.

20 [Whereupon, Joint Exhibit No. 12
21 was admitted into evidence.]

22 BY MR. BARTH:

23 Q Mr. Slack, I'll hand you another document. This
24 is Joint Exhibit 15 which is marked on its front Staff
25 Exhibit. Scratch out the word Staff and put the word

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 Joint. Please familiarize yourself with the document.

2 JUDGE COLE: Mr. Barth, are you going to give
3 copies to the Board?

4 CHAIRMAN BECHHOEFFER: These aren't in our books.

5 Mr. Barth, you haven't gotten into this exhibit
6 yet. The second enclosure is not here.

7 MR. BARTH: The second enclosure?

8 CHAIRMAN BECHHOEFFER: Is not here. I don't know
9 that we need it or want it.

10 JUDGE KELBER: Let's see what you see.

11 MR. BARTH: That's the transcript.

12 CHAIRMAN BECHHOEFFER: Yes. We haven't seen it.
13 I'm not sure we want to or whether we need to.

14 MR. BARTH: I think that's one of the things by
15 Mr. Brooks.

16 THE WITNESS: Okay.

17 BY MR. BARTH:

18 Q Have you familiarized yourself with the document?

19 A Yes.

20 Q You testified you recall the enforcement
21 conference now.

22 A The pre-decisional enforcement conference. Yes.

23 Q Subsequent did this -- would you identify for the
24 reporter what this document is, if you please, sir?

25 A Are you talking about the March 10, 1997?

1 Q Yes, sir.

2 A The document is called a demand for information
3 by Mr. Michael Creech. It's written by the U.S. Nuclear
4 Regulatory Commission, March 10, 1997.

5 Q Is this a request from NRC to Conam for
6 information relating to the exposure of Mr. Chastain on
7 February 27, 1996?

8 A It's a request to give information because of
9 inconsistencies found in statements.

10 Q Inconsistency of information relating to what,
11 the New York Giants football game or Mr. Chastain's
12 exposure?

13 A Contradictory issues primarily are with the
14 survey required and with the procedure for locking the
15 camera.

16 Q Was this a survey performed by Mr. Chastain where
17 there were contradictions, sir?

18 MR. BROOKS: Object to the form of the question.

19 Is your question what the document relates to?

20 MR. BARTH: I've asked him several times whether
21 it relates to Mr. Chastain's exposure.

22 THE WITNESS: The description is that a survey
23 required by 10 CFR Part 34.43.

24 BY MR. BARTH:

25 Q For who was that survey required to be performed,

1 sir?

2 A It doesn't say.

3 Q Do you know from the context of the letter, as a
4 result of the enforcement conference? Is there any way
5 that you could look at this and in your best judgment
6 decide whether it relates to Mr. Chastain's exposure or to
7 the New York Giant football game?

8 A It does refer to the New York Giants football
9 game. But in the description it doesn't say anything about
10 Mr. Chastain's exposure.

11 MR. BARTH: I'll withdraw the document, Your
12 Honor.

13 I have another document simply marked Joint
14 Exhibit 16 and ask that you familiarize yourself with the
15 document.

16 CHAIRMAN BECHHOEFFER: Mr. Barth, do you plan --
17 I take it you did not formally introduce Exhibit 12 or
18 not?

19 MR. BARTH: No, sir. I'll do that.

20 CHAIRMAN BECHHOEFFER: Eventually.

21 MR. BARTH: I may introduce it in five seconds or
22 five hours.

23 JUDGE COLE: Exhibit 12 was admitted. It's
24 Exhibit 15 that he withdrew.

25 CHAIRMAN BECHHOEFFER: 15? I don't know that he

1 formally introduced it.

2 JUDGE COLE: 12 has been admitted.

3 MR. BROOKS: He did.

4 CHAIRMAN BECHHOEFFER: Okay.

5 MR. BARTH: Thanks everybody, for correcting me.

6 CHAIRMAN BECHHOEFFER: I just wasn't sure.

7 MR. DAMBLY: Maybe while we're waiting, to make
8 sure I'm on the same page, I have admitted so far 6, 7, 12,
9 21, 22, and that's it I think. Is that the same ones?

10 JUDGE COLE: Correct.

11 JUDGE KELBER: Exhibit 12 is the exhibit that
12 also contains documents which are separately entered as
13 exhibits, is that correct?

14 MR. DAMBLY: Or will be introduced. I have a
15 list of them as admitted.

16 JUDGE KELBER: Thank you.

17 MR. BROOKS: Mr. Lake advises me that it will not
18 be possible to call him as a witness.

19 CHAIRMAN BECHHOEFFER: Pardon?

20 MR. BROOKS: I said Mr. Lake advises me that it
21 will not be possible to call him as a witness and get his
22 best recollection of this.

23 MR. LAKE: Because he doesn't remember it.

24 BY MR. BARTH:

25 Q Sir, have you familiarized yourself with the

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 document?

2 A Yes, I have.

3 Q Would you please identify it for the record, sir?

4 A It's a letter from McBride, Baker & Coles, April
5 9, 1997. It is regarding a response to a demand for
6 information from the Nuclear Regulatory Commission written
7 to Mr. James Lieberman, Director, Office of Enforcement,
8 USNRC, Washington.

9 Q I would direct your attention, sir, to page two,
10 the second line from the top of the enclosure, the line
11 commencing his interview with the radiographer.

12 A Sir.

13 Q Who was the radiographer identified in your
14 response?

15 A Mr. William Chastain.

16 Q Having read this, do you feel in your own mind
17 that this is a response by Conam to concerns of the NRC
18 regarding Mr. Chastain's exposure?

19 A Yes, sir.

20 MR. BARTH: I respectfully move the admission,
21 Your Honor, of Joint Exhibit Number 16, which is a letter,
22 McBride, Baker & Coles cover letter which includes a
23 response to demand for information from Conam.

24 CHAIRMAN BECHHOEFFER: Is there any objection to
25 the admission of Exhibit 16?

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 MR. BROOKS: No objection.

2 CHAIRMAN BECHHOEFFER: Okay. Without objection,
3 Exhibit 16 will be admitted.

4 MR. BARTH: Thank you, Your Honor.

5 [Whereupon, Joint Exhibit No. 16
6 was admitted into evidence.]

7 BY MR. BARTH:

8 Q Now, Mr. Slack, I would again turn your attention
9 to Joint Exhibit Number 15, which I previously had
10 withdrawn and which I now again resubmit to you.

11 What is the date of the NRC demand for
12 information, dated March 10, 1997, the second line of
13 Exhibit 16? Is that what you have in your hand?

14 A 16 or 15?

15 Q 15. Should be what you have from 16.

16 A I'm sorry. I'm confused.

17 Q I agree with you, a very poorly phrased question.

18 What is the date of the NRC demand for
19 information which appears upon line two of Joint Exhibit
20 Number 16? The second line, sir.

21 A Of 16?

22 Q The second line of 16. The second text line of
23 16.

24 A Second text line of 16, response to the demand
25 letter, the demand for information letter is dated March

1 10, 1997.

2 Q Now, a hypothetical I would like you to consider.
3 Don't you think that Exhibit 15, demand for information
4 dated March 10, 1997 from the Nuclear Regulatory Commission
5 could be that same document, sir, and that this could be a
6 response to the demand for information?

7 A Exhibit 15 is a March 10 letter, demand for
8 information. Yes.

9 Q I again direct your attention to Staff Exhibit 15
10 and ask your judgment. Do you feel that this is a demand
11 for information regarding exposure of Mr. Chastain? It
12 could be read -- with Joint Exhibit Number 16 which is your
13 response which refers to this, and specifically refers to
14 Mr. Chastain.

15 MR. BROOKS: I'm going to object to the question,
16 object to the line of questioning. Exhibit 16 has been
17 admitted into evidence. It's hearsay, quite clearly. I
18 did not have an objection to the admission of Exhibit 16
19 because it's also pretty clearly an admission of a party
20 and therefore, an exception to the hearsay rule. So it's
21 admitted.

22 Exhibit 15 is not something authored by this
23 witness nor by anyone else who is here to testify about it
24 and therefore, it's hearsay. It's not admissible in the
25 proceeding, and I object to any questions to this witness

1 asking him what it says, what it means or what it's about.

2 MR. BARTH: Two responses, Your Honor. 16 is not
3 hearsay, for we have Mr. Lake present. Mr. Lake authored
4 the document.

5 JUDGE KELBER: Excuse me. Clarify for me.

6 MR. BARTH: 16.

7 JUDGE KELBER: Which document is said to be
8 hearsay, 15 or 16? Maybe I didn't hear correctly.

9 MR. BARTH: Mr. Brooks stated that 16 is hearsay
10 although it's signed by one of the persons in the room
11 here.

12 MR. BROOKS: Could I clarify for a second?

13 JUDGE KELBER: Yes.

14 MR. BROOKS: 16, which we have admitted now,
15 would be hearsay, where your witness is not the author of
16 it. As I said, I had no objection to the admission of
17 Exhibit 16 because it's an admission filed by a party in
18 this case, Conam. He would have the right to have that
19 document admitted no matter what I said about it.

20 Exhibit 15 is what I have an objection to. It's
21 a document that there is no one here to testify about the
22 truth of the matters asserted in this document. We have no
23 witness here who can testify as to this document and
24 therefore, I object to the admissibility of it and I also
25 object, until it's admitted, to Mr. Slack being asked

1 questions about what it means or what it does.

2 MR. BARTH: A very short rejoinder, Your Honor.
3 March 10, 1997, Exhibit 15, this is addressed to Conam.
4 Mr. Slack is a principal representative here. He
5 represents the company. I realize companies operate
6 through people. He was the representative and he was
7 principally involved in this investigation.

8 Now, if he says that he doesn't have any idea
9 that he received this letter or the company received the
10 letter, in reading the letter, in reading Number 16, he
11 cannot conclude that it even relates to the Chastain
12 exposure, I'll accept Your Honor's sustaining Mr. Brooks'
13 objection.

14 CHAIRMAN BECHHOEFFER: Mr. Barth, is this a
15 document that we could take official notice of? I'm not
16 sure you could ask questions to the witness based on that.
17 We could perhaps put it in the record that way.

18 MR. BARTH: Your Honor, I think that is the most
19 generous offer I've heard in years. I have no objection to
20 taking official notice of this under the Commission's
21 regulations. It is obviously what prompted the response by
22 the company and Mr. Brooks and I both are aware I can put
23 it by other means, but it's a matter of whether or not we
24 want to drag this hearing on forever.

25 There's no question, on Number 16, I could find

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 someone from the NRC who will testify. Mr. Lieberman will
2 appear later. Mr. Lieberman is the second to the last
3 witness. Then we've got the sequence all fouled up. That
4 doesn't bother me. We can play this difficultly or not. I
5 can put in the March 10, 1997 Exhibit 15 to Mr. Lieberman
6 who signed it. No question about that.

7 On the other hand, it seems to me that Conam got
8 this thing and responded to it and to say they responded to
9 something they haven't gotten, I don't know what they've
10 gotten. I think it would raise questions in the Judge's
11 mind about the sincerity going on here.

12 CHAIRMAN BECHHOEFER: Let me ask whether the
13 parties would have any objection to jointly stipulating
14 this into evidence, but we'll reserve what questions may be
15 asked this witness about this document.

16 MR. BROOKS: The question is, will we stipulate
17 to the admissibility of the document?

18 CHAIRMAN BECHHOEFER: Yeah. But then reserve
19 judgement on whether particular questions concerning it may
20 be asked this witness.

21 MR. BROOKS: I can't do that. Let me just...I'm
22 not trying to be tricky and I'm not trying to be
23 obstructionist, and I'm certainly not trying to be
24 frivolous about it. There are statements...if the letter,
25 if the letter were just a request that said, tell us about

1 this, this, this and this, fine, no problem. We responded
2 to it. The letter contains judgements and opinions by
3 someone. Someone who's not here to testify and who I can't
4 cross examine about those judgements and opinions. And I
5 do not think it's proper for the panel to have before it
6 judgements and opinions of someone who's not here to
7 testify. And that's the basis of my objection.

8 I don't know, beyond that, if what somebody else
9 said about it, someone else's judgements about what Mr.
10 Slack did or didn't do are relevant to the proceeding.
11 What we're here to do is to tell you what he did and have
12 you be the judge of whether he did it right or he did it
13 wrong.

14 So, beside, beyond hearsay, I'm not sure this
15 document is relevant other than to say, it's something that
16 we responded to.

17 CHAIRMAN BECHHOEFFER: Mr. Barth, we think we
18 will uphold the objection to the document for this time,
19 for this point in time, but to the extent this witness may
20 be familiar with the answers to any portion of it, he may
21 answer from his own knowledge.

22 MR. BARTH: -- Your Honor.

23 BY MR. BARTH:

24 Q Mr. Slack, I would ask you to look at Joint
25 Exhibit No. 17, if you please, and when you've familiarized

1 yourself with it, would you please let me know?

2 MR. BROOKS: If I could address this document,
3 Mr. Barth just made me a promise to quite arguing with him.
4 Just to maybe short circuit the process, we've reviewed
5 this document, Exhibit 17, to essentially be part of the
6 pleadings in this case, and therefore have no objection to
7 its admission as part of the record. I don't know that it
8 needs to be admitted as an exhibit, but.

9 CHAIRMAN BECHHOEFFER: The board was conferring
10 that almost reaching that same conclusion. It's before us.

11 MR. BROOKS: Exactly. This is the matter before
12 us, and so I have no objection, so maybe that short
13 circuits this part of the process.

14 CHAIRMAN BECHHOEFFER: So with that
15 understanding, we will admit the document into evidence.

16 [Exhibit 17 was received into
17 evidence.]

18 MR. BARTH: Thank you, Your Honor. Thank you,
19 Mr. Brooks. I have two more documents which fill out the
20 documentary of the basis of this whole situation. I
21 appreciate you having reviewed this, that one. I've
22 provided your witness with a copy of Joint Exhibit 18, and
23 when he has reviewed it and familiarized himself, I'll ask
24 him to identify it for the record and do not let Mr. Lake
25 leave the room in case I have to -- Mr. Lake --.

1 CHAIRMAN BECHHOEFFER: If this is the company's
2 response and as much as Mr. Slack signed it, I assume you
3 have no objection, or am I assuming wrong?

4 MR. BROOKS: Again, I do this to be part of the
5 essential -- in this case.

6 CHAIRMAN BECHHOEFFER: Yeah, right, right. We've
7 seen this and, but it could be put into evidence as well.

8 MR. BROOKS: If we mark it as an exhibit, you can
9 consider it part of the record. Whatever you do, it's part
10 of the record. I've got no objection to its consideration.

11 CHAIRMAN BECHHOEFFER: Great. Well, let's admit
12 it into evidence.

13 [Exhibit 18 was received into
14 evidence.]

15 JUDGE COLE: Thank you kindly, Your Honor. While
16 we've been examining these documents, Mr. Dambly has asked
17 me since I have the floor to -- operation. I don't think
18 that the video tape has been admitted into evidence. This
19 is only because I've been prompted to draw -- attention --
20 . We can...did you reach a ruling on this.

21 CHAIRMAN BECHHOEFFER: It was referenced, but
22 I...it had a number, a proposed number.

23 JUDGE KELBER: I believe it's number 38.

24 MR. BROOKS: Correct. It's Exhibit No. 37.
25 Yeah, we identified it as Exhibit 37.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 JUDGE COLE: Is it really necessary to put that
2 in? In view of the fact that a lot of the information
3 concerning that is already put into the record?

4 MR. BARTH: This is damaged photography. This
5 can cause Chastain was a witness, but I will point out that
6 Mr. Chastain supported this as for the times, or the times
7 might --, I don't know, I'm not a radiologist. So, I would
8 think that we would want this as part of the record since
9 we all do -- discuss the times. But let Mr. Dambly --
10 because that's his witness.

11 JUDGE KELBER: I would suggest that since the
12 panel is going to, in future proceedings, is videotape
13 anyhow, as the transcript, we might just as well start by
14 admitting it now.

15 CHAIRMAN BECHHOEFFER: We are not starting,
16 because I admitted one --. All with no objection, I
17 believe, but I did admit one.

18 JUDGE KELBER: You'll just -- my colleagues.

19 CHAIRMAN BECHHOEFFER: Yeah, right. Well,
20 subject to appropriate --. Yeah, I think one for the board
21 is sufficient to look at it in another office with a video
22 tape machine.

23 MR. BROOKS: What I'll do, with the permission of
24 the panel, is take this and get it copied so that we've got
25 enough copies.

1 CHAIRMAN BECHHOEFFER: What I'm saying, one for
2 the board is sufficient.

3 MR. BROOKS: Fine. Fine.

4 MR. DAMBLY: And I guess we already have one,
5 right?

6 MR. BARTH: This piece of evidence, is it an
7 exhibit, Your Honor?

8 CHAIRMAN BECHHOEFFER: Thirty-seven, it's been
9 identified as. Exhibit 37.

10 MR. BARTH: I think I just...has it been admitted
11 as evidence?

12 CHAIRMAN BECHHOEFFER: Well, it hasn't been...

13 MR. BARTH: I worry about the secretary's office
14 coming down and finding -- hey, we're missing documents --
15 and we have an official -- record --.

16 CHAIRMAN BECHHOEFFER: Well, a copy will be sent
17 to the secretary.

18 MR. BROOKS: Okay. Let me see if I can
19 understand where we are. NRC staff is, I guess, proposing
20 that Exhibit 37 be admitted as an exhibit, and if that is
21 the proposal, I will say I have no objection and we can get
22 it out of the way.

23 CHAIRMAN BECHHOEFFER: Yeah, and all we're saying
24 is that for purposes of copies, one to the board is enough,
25 but the secretary will have to be given a copy as well. An

1 official copy --. And we'll get a call saying, what do I
2 do with this and I'm not sure what we'll say, but --.

3 MR. BARTH: Only one more document to argue
4 about. But that doesn't mean I'm going to quit, Dr.
5 Kelber.

6 CHAIRMAN BECHHOEFFER: Exhibit 37 is admitted.
7 [Exhibit 37 was received in
8 evidence.]

9 BY MR. BARTH:

10 Q Mr. Slack, I show you a document which is Joint
11 Exhibit No. 19. I would respectfully request that you
12 review the document, familiarize yourself with it. I will
13 ask you to identify it for the record, and I'll then ask
14 you a question or so about it.

15 CHAIRMAN BECHHOEFFER: I understand that Exhibit
16 19 is a document that's already in the case except for the
17 highlighting of one sentence, or one portion of a sentence,
18 am I correct? On page 11. Is the highlighting on page 11
19 what just differentiates this from the standard that's
20 already in the case?

21 MR. BARTH: As we said earlier, this is what's -

22 - CHAIRMAN BECHHOEFFER: Oh, okay.

23 MR. BARTH: Just regard it.

24 CHAIRMAN BECHHOEFFER: It's the only part I read
25 today. I'll save the other for later. Is there any

1 objection to admitting this document?

2 MR. BROOKS: No.

3 CHAIRMAN BECHHOEFFER: Okay. Exhibit 19 is
4 admitted.

5 [Exhibit 19 was received into
6 evidence.]

7 MR. BARTH: Thank you, Your Honor. Thank you,
8 Mr. Brooks.

9 MR. BROOKS: While we're at it, Mr. Barth, could
10 you pass out Exhibit 20 also?

11 BY MR. BARTH:

12 Q Mr. Slack, I hand you a further document and it
13 is, asking you to familiarize yourself with it, it's been
14 marked as Joint Exhibit 20.

15 MR. BROOKS: Sir, I believe that Exhibit 20, too,
16 would just be part of the case and we'd have no objection
17 to its admission.

18 CHAIRMAN BECHHOEFFER: Exhibit 20?

19 MR. BROOKS: Exhibit 20. I think that's
20 what...is that what?

21 CHAIRMAN BECHHOEFFER: I thought you said twenty-
22 two, but twenty.

23 MR. BROOKS: At this hour of the day I could have
24 said almost anything.

25 MR. DAMBLY: You meant 20, also.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 MR. BROOKS: Oh, 20, also. Thank you Dennis.
2 Translation service.

3 CHAIRMAN BECHHOEFFER: Oh, oh, okay.

4 This exhibit will be admitted. And to prove it
5 has some effect, here we are.

6 [Exhibit 20 was received into
7 evidence.]

8 MR. BARTH: Thank you kindly, Your Honor and Mr.
9 Brooks.

10 BY MR. BARTH:

11 Q Mr. Slack, I will take you back to the video,
12 though this is not by my choice. What do you want the
13 licensing board to get out of this video that you had done
14 on August 26, 1998 in Indianapolis?

15 A Conam's intention was to determine if, in the
16 normal course of radiographic operations at the location,
17 the time would be consistent either with a statement of one
18 person or another whether it was four minutes or one and-
19 a-half minutes. And viewing the tape, both the tape and
20 the actual operation, I believe it shows that, without
21 rushing and performing normal functions as a radiographer,
22 the operation could have taken one and-a-half minutes and,
23 in fact, did.

24 Q Your calculation on a checklist, which was worked
25 out by Dr. Cole for us, complicated, was for approximately

1 four minutes of exposure of Mr. Chastain. Are you
2 suggesting that that is wrong or could be wrong, or in
3 light of...well.

4 I know it's more than one question. Answer the
5 question as well as you can, sir.

6 A If you're asking if I believe that it's more
7 appropriate to have a one and-a-half minute time frame for
8 the operation that actually occurred on February 27, 1996
9 as opposed to a four minute time frame, I would say yes.

10 CHAIRMAN BECHHOEFFER: Yes to one and-a-half
11 minutes, or wasn't it really two minutes, closer to two?

12 A No, sir. It was 1:33, 1:30, and this depends
13 upon where you start the time...

14 CHAIRMAN BECHHOEFFER: Oh, okay.

15 A ...but, I started the time as the individual came
16 in to start up the ladder as we had described that was the
17 operation.

18 CHAIRMAN BECHHOEFFER: Okay, okay.

19 A And it was 1:33, 1:34, 1:30. Approximately a
20 minute and thirty-one, thirty-two seconds for the three
21 operations.

22 BY MR. BARTH:

23 Q Mr. Slack, you are well aware from the deposition
24 I took with you, that these radiation things are not my
25 field. I'm a major in philosophy as is your lawyer, which

1 puts us in common. I heard you explain how this dose
2 is...let me ask you this, as a simile to help me
3 understand. If two people went to the beach at 12:00
4 o'clock, and one came in at 1:00 o'clock and one came in at
5 2:00 o'clock, one's there twice as long as the other. Does
6 that mean he gets twice the radiation?

7 A Depends upon his proximity to the sun.

8 Q Well, they're both in the same spot.

9 A If everything is the same, I would say they would
10 get twice as much for the one that stayed twice as long.

11 Q The NRCs calculation was based on four minutes,
12 was it not, sir?

13 MR. BROOKS: Objection to the question. There's
14 no evidence before the panel at this point about the NRCs
15 calculation.

16 MR. BARTH: That's right. Thank you, Mr. Brooks.
17 Your original calculation...I withdraw the question.

18 BY MR. BARTH:

19 Q Your original calculation on the checklist, as we
20 found out by Dr. Cole's arithmetic, was for four minutes,
21 is that correct, sir?

22 A Four minutes at various distances.

23 Q Help me understand this. If that four minutes
24 was wrong on the checklist, which is, I guess, what
25 Chastain told you originally...is that what he told you

1 originally? Something like that?

2 A He said between one and three minutes. I'm
3 sorry. That isn't correct. I believe he said between one
4 and three feet for maximum of four minutes.

5 Q If we cut that four minute time, that means he
6 was standing in front of the source for less time, is that
7 right, sir?

8 A If you cut the time it means he was standing in
9 front of the source for less time, correct.

10 Q And the amount of dose that he would receive,
11 would that be reduced by the, proportionately, the less
12 time?

13 A It would reduce by time, distance and shielding.

14 Q And you think that, do you now think, based on
15 all the information, that the, I guess new evidence,
16 actually means he got exposure which is not in excess of
17 the five REM. Not in excess of the NRC limits, is that
18 right, sir?

19 A I never believed he got exposure in excess of
20 five REM.

21 Q The original calculation was for nine.

22 A Pardon?

23 Q Would this reduce your original calculation which
24 you used four minutes.

25 A If we're using one and-a-half minutes versus four

1 minutes, it would reduce the calculation.

2 Q All right, Mr. Slack, one last question. Let me
3 accept your one and-a-half minute exposure of Mr. Chastain
4 if the radiation source is correct. If we reduce...if we
5 used your one and-a-half minutes, why was the film badge
6 reading, not equally reduced, thirty seven and-a-half
7 percent, because of the less time of exposure. I withdraw
8 the question, Your Honor. I withdraw the question. And I
9 have no more questions of Mr. Slack.

10 Mr. Slack, I would like to say this. For the
11 pleasure of both of the deposition and here, I appreciate
12 your patience with me. You know your radiation stuff and I
13 don't, and I appreciate your cooperative spirit. Thank
14 you, sir.

15 A Thank you, sir.

16 CHAIRMAN BECHHOEFFER: Mr. Brooks?

17 MR. BROOKS: Yeah, I'd like to ask some
18 questions. Do you want some more water before we watch.

19 CHAIRMAN BECHHOEFFER: Do you want a short break
20 before we...

21 MR. BROOKS: It's fine with me. I mean, it's a
22 quarter to five, I think I've got, at most, a half an hour
23 to cover just in response to the things that were covered
24 here. I'll save anything else for our case. If everybody
25 can stand it, let's just see if we can blast through in a

1 half an hour and clal it a day. Is it all right?

2 CHAIRMAN BECHHOEFFER: I'd like to do that.

3 MR. BROOKS: If I go beyond a half an hour, maybe
4 we can take a short break in case people need it. I've
5 been known to under estimate.

6 CHAIRMAN BECHHOEFFER: They don't want us to stay
7 long. Well, we have a while, to 6:30 when they turn off
8 the lights and the air conditioning and all that kind of
9 stuff. I've held hearings in federal buildings that have
10 done that.

11 MR. BROOKS: All right.

12 CROSS EXAMINATION

13 BY MR. BROOKS:

14 Q Mr. Slack, in Mr. Barth's examination of you a
15 little while ago, he was asking you about your meeting on
16 February 28, 1996 in Gary with Mr. Chastain and Mr. Tucker,
17 do you recall that?

18 A Yes, sir.

19 Q Where did you meet in the Gary office with them?

20 A We met at the supervisor's office, the
21 radiographic supervisor's office, which is on the first
22 level of the building.

23 Q Now, when you, you said that you ran Mr. Chastain
24 what happened in the incident, is that correct?

25 A Correct.

1 Q Now, can you...what did Mr. Chastain tell you on
2 February 28th, the day after this incident, about the
3 survey that he performed?

4 A Mr. Chastain said he performed a 360 degree
5 survey of the camera. He went up and down the guide tube
6 to assure that the source was in the secured position.

7 Q Keep your voice up. Did Mr. Chastain show you,
8 on February 28th, the day after this incident, what kind of
9 a survey he did?

10 A Mr. Chastain approached the ladder that he had
11 indicated was in the room, and the camera, he showed me the
12 swinging motion of his hand, that he had gone around the
13 camera and up and down the guide tube with the survey
14 meter.

15 Q If Mr. Chastain did, on February 27th, the survey
16 that he showed you on February 28th, was that a survey that
17 complied with Conam's requirements for performing a survey?

18 A Yes, it is.

19 Q Now, with respect to the ladder, did you ask him
20 how high on the ladder he climbed to do the work that he
21 was doing?

22 A I don't know if I asked him, but he told me that
23 he was on the second or third rung of the ladder to perform
24 his work, and it was a six foot ladder.

25 Q When you say the second or third rung, I've got

1 the ladder out here, which ones are you referring to?

2 A My reference to the third one would be this one,
3 my reference to the second would be this.

4 Q Okay. And just for the record, what we're doing
5 is we're counting the top of the ladder as the top of the
6 ladder, the first rung down from the top of the ladder is
7 the first and so on and so forth, right?

8 A Correct.

9 Q Was he able to be precise, when he explained to
10 you on February 28th, where he was on the ladder, as to
11 exactly which rung he was on?

12 A He was not certain which rung he was on.

13 Q Now, when he went up the ladder, let me go back.
14 Did you ask him about his dosimetry on February 28, 1998?

15 A After he explained where he was on the ladder and
16 how he had performed his operations, I asked him where his,
17 I asked him if he had film badge dosimeter and rate meter,
18 he said yes, and I said, where did you have it, he said, I
19 carry it in a fanny pack, and I said where was that, around
20 my waist, and it was in the front of the body.

21 Q Now, did you have him show you what he did when
22 he was up on the ladder? Did you have him physically
23 demonstrate the movements?

24 A Yes, I did.

25 Q What did he show you?

1 A What he showed me and what he described was that
2 he climbed the ladder, facing the ladder, always facing the
3 ladder, not turning...not repositioning himself on the
4 ladder. And then, changing the film and setting up the
5 shot for the next radiograph, while he faced the camera
6 with the film badge in front of him. He said that he would
7 move to and from the camera, back and forth on the ladder,
8 sideways, pretty much the manipulations that you saw on the
9 video, one way or another, and he was always facing the
10 ladder with the film badge in the closest proximity to the
11 camera.

12 Q Now, did he say, did you ask him if his fanny
13 pack with his dosimetry in it, was in front of him the
14 whole time that he was working?

15 A Yes, I did.

16 Q What did he say?

17 A He said it was.

18 Q Are you saying that he did not, when he described
19 it to you on February 28th, he didn't flip around on the
20 ladder to face outward?

21 A No, sir, he did not.

22 Q Okay. He said that he faced the ladder the whole
23 time?

24 A Yes, sir.

25 Q Did you ask him, on February 28th, specifically

1 where his dosimetry was vis a vie the source, the front of
2 the camera?

3 A I asked him where it was on his body and what his
4 proximity was to the front of the camera and he said it was
5 in the closest proximity to the front of the camera.

6 Q When you asked him about the proximity of his
7 dosimetry to the camera, was he able to tell you how close
8 his dosimetry was to the camera?

9 A He said he was between one and three foot away
10 from the camera while he was working.

11 Q Now in terms of distance, did he say he wasn't
12 sure whether he was one or three feet away, or did he say
13 that it varied?

14 A It varied.

15 Q Depending on what?

16 A His movements.

17 Q Can you just get up on the ladder here for a
18 second and demonstrate, for the panel, as best you can,
19 what you recall Mr. Chastain explained to you?

20 A I hope the ladder is sturdy.

21 Q Okay, so you've got the film, the fanny pack in
22 front of you...

23 A Correct.

24 Q ...and let's leave out -- maybe. Okay, so you
25 show me what you understood Mr. Chastain to be telling you

1 as of February 28, 1996, when you met with him in Gary?

2 A From the time he came in?

3 Q From the time he came into the room to perform
4 the service.

5 A He said he approached the ladder, it would have
6 been from that direction.

7 MR. BARTH: I object, Your Honor, because this
8 does not depict the scene that happened on February 28th.
9 They did not use a ladder in the props.

10 BY MR. BROOKS:

11 Q No, let's be clear about that, did you have a
12 ladder with you?

13 A No.

14 Q Okay. So, I'm just asking for what he described
15 to you. I'm asking you to use the ladder.

16 MR. BARTH: He cannot use something that wasn't
17 there, Your Honor. Let's be serious about this. This is
18 not a game.

19 CHAIRMAN BECHHOEFFER: This would just be your
20 understanding of what you said?

21 MR. BARTH: Are you overruling the objection,
22 Your Honor?

23 CHAIRMAN BECHHOEFFER: Yeah, on the basis that
24 this is his understanding of what was said.

25 MR. BARTH: You're aware that the appeal board

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 has often said that the board must explain it's ruling in
2 such terms that is subject to appeal later and must give a
3 rationnelle for it. That's a Church of Christ case, of
4 course also, which -- must follow. If you could tell me
5 how, so we can appeal this thing, you can use a prop which
6 does not even exist to create a situation which does not
7 exist, I'd appreciate it, Your Honor. This is really
8 going pretty far.

9 CHAIRMAN BECHHOEFFER: Okay, we'll reiterate,
10 this is purely your subjective interpretation.

11 A Yes, sir.

12 CHAIRMAN BECHHOEFFER: With that understanding,
13 we'll allow you. We'll overrule the objection.

14 BY MR. BROOKS:

15 Q You testified about the survey. I don't know
16 that we could recreate the survey that he was shown on
17 February 28th with the ladder here. I mean, I think Mr.
18 Barth has a fair point about that. Just go on the ladder
19 and show me how Mr. Chastain showed you how he was working
20 when he talked to you on February 28th.

21 A Mr. Chastain said he climbed the ladder to the
22 second or third rung, worked on the pipe in this position,
23 he said he hadn't moved -- back and forward --.

24 MR. BARTH: Your Honor, I again object because
25 the difference in the body size of Mr. Slack and Mr.

1 Chastain, this cannot be a reasonable representation of
2 what happened.

3 JUDGE KELBER: It's his subjective
4 interpretation, that's all. Nothing more.

5 BY MR. BROOKS:

6 Q Mr. Slack, when you're up on the ladder...

7 MR. BARTH: Will you let him rule on the
8 objection, sir?

9 CHAIRMAN BECHHOEFFER: We will overrule on the
10 objection just on the basis that we allowed the
11 demonstration to take place. This is the witness's
12 subjective interpretation of what he was told.

13 BY MR. BROOKS:

14 Q Let's just, just to deal with Mr. Barth's
15 objection. Mr. Slack, why don't you just stand up next to
16 the table here and show us what Mr. Slack, or what Mr.
17 Chastain showed you on February 28th as how he worked. Do
18 it without the ladder.

19 A I asked him to tell me what was going on with the
20 operation -- middle --. I asked Mr. Chastain to describe
21 to me what happened at Ely Lily on the 27th. He said that
22 he was set up in a room, closed doors, he approached the
23 camera from the rear about 25 foot away. When he got to
24 the camera he did a survey of the camera in a 360 degree
25 motion up and down the guide tube. Then I asked him what

1 happened then, he said he locked the camera and he
2 approached the ladder, went up the ladder to the second or
3 third rung from the top. Then I asked him what happened,
4 he told me how he manipulated to and from the pipe away
5 from the camera and towards the camera. I asked him where
6 his fanny pack was, he said it was around his waist in his
7 groin area and he was always facing the camera, and the
8 total amount of time he might have been there was maybe
9 four minutes.

10 JUDGE KELBER: He told you four minutes --

11 A It could have been four minutes.

12 Q I'm sorry, what did you?

13 A He said the total amount of time could have been
14 four minutes.

15 Q Did he give you a range of time when you talked
16 to him on February 28th?

17 A When I was talking with him I asked him, moving
18 back and forth, does that mean you would have been four
19 minutes in the same position, and he said no, moving back
20 and forth I probably would have been most of the time maybe
21 three foot away for the longest period of time. I don't
22 know if he gave me a time.

23 Q Mr. Slack, fine, you go ahead and sit down here.
24 Mr. Slack, let me ask you a little bit more precisely about
25 time. You testified that he said he was at different

1 distances, but let me ask you about time on the ladder
2 specifically. When you interviewed him on February 28th,
3 what did Mr. Chastain say about how long he was on the
4 ladder? Did he give you a time or range of times?

5 A To the best of my knowledge he gave me a one to
6 four minute time frame.

7 Q He gave you a one to four minute time range?

8 A He said that he wasn't certain, there was a lot
9 of shots, he'd been in a lot of different areas, so he was
10 giving me one to four, one to four minutes.

11 Q Now, Mr. Barth asked you about calculation that
12 you did.

13 A Yes.

14 Q When did you perform the calculation that you
15 did?

16 A Either the 27th or 28th of February.

17 Q To the best of your recollection, did you do that
18 after you talked to him on February 28th?

19 A Yes.

20 Q Now, can you give me, do you know the formula or
21 the variables that go into the calculation that you
22 performed?

23 A The formula I use is based on an inverse square
24 law.

25 Q What is an inverse square law?

1 A An inverse square law is a calculation of
2 intensity versus distance, and based on the changing of the
3 distance if you have a known intensity, the resultant
4 intensity will be a certain number.

5 Q Take a look in the book that we have here in
6 front of you at Exhibit 36, if you would. Mr. Slack, what
7 is Exhibit 36?

8 A Exhibit 36 are handwritten calculations of
9 certain doses at certain distances based on a known 94
10 curie irridium source.

11 Q Who performed those calculations?

12 A I did.

13 Q Who prepared Exhibit 36? Who wrote, who's
14 writing is it on the stack?

15 A That is my writing.

16 Q When did you create this document?

17 A It was either the 27th or the 28th.

18 Q Of February 1996?

19 A I'm sorry, that's February 1996.

20 Q Now, is this, what does this document look like
21 in real life? This is obviously a photocopy.

22 A It's a five -- sheet of Marriott stationery.
23 This is a two-sided document. It's on front and back.

24 Q And you just copied the front side on the left
25 hand side of this page and the back side on the right hand

1 side?

2 A Correct.

3 Q Where have you kept this document since February
4 28, 1996?

5 A With all the other documents related to the
6 incident, in my office.

7 Q In your office at Conam Inspection?

8 A Correct.

9 Q I would move for the admission, at this point, of
10 Exhibit 36.

11 MR. BARTH: Could we have about a four or five
12 minute recess, Your Honor, if you please?

13 CHAIRMAN BECHHOEFFER: We'll give you the recess.

14 [Short recess taken.]

15 MR. BARTH: We have no objection to the admission
16 of the document, Your Honor.

17 CHAIRMAN BECHHOEFFER: Without objection, Exhibit
18 36 is admitted.

19 [Exhibit No. 36 was received into
20 evidence.]

21 BY MR. BROOKS:

22 Q Mr. Slack, let me ask you a few questions about
23 Exhibit 36 and how you did your calculations. You said
24 that one of the things that your calculation required was
25 knowledge of source strength?

1 A Correct.

2 Q What was the source that Mr. Chastain was using
3 on February 27th, 1996?

4 A It s an Iridium 192 Isotope 94 Curries.

5 Q A 94 Curries source?

6 A Correct.

7 Q Is that an expression of the source strength?

8 A Yes.

9 Q Now in Mr. Chastain s explanation to you of the
10 events was it apparent to you that at the time of the
11 incident the source was probably partially withdrawn into
12 the camera? It was somewhere inside the camera?

13 A For him to become exposed, yes.

14 Q Now what impact does the fact that the source was
15 withdrawn inside the camera have on source strength?

16 A Depending upon whether it is in or out of the
17 camera, there is another factor, you have time, distance
18 and you have shielding. And the camera is shielded with
19 plated uranium.

20 Q Now, so in other words, if the source was inside
21 the camera someplace, there would be shielding, is that
22 right?

23 A Correct.

24 Q And what would that do to the effective source
25 strength that Mr. Chastain was receiving?

1 A It would reduce the dose.

2 Q Now for the purposes of your calculation on
3 February 28th, what assumptions did you assume any
4 sheilding of the source strength?

5 A No, I did not.

6 Q Why not?

7 A Because I wanted the most conservative amounts
8 for my calculations.

9 JUDGE COLE: So you re saying worst case
10 scenario?

11 THE WITNESS: Basically, yes.

12 BY MR. BROOKS:

13 Q How about the time element of your calculation?
14 You said Mr. Chastain told you that he was up on the ladder
15 one to four minutes. What assumption did you make for your
16 calculations?

17 A Again, for the calculations the most conservative
18 time would have been four minutes.

19 Q Why did you use four minutes?

20 A Because it would have shown the range that would
21 have given the largest dose.

22 Q Were you doing worst case scenario?

23 A Correct.

24 Q Were you trying to calculate a most likely dose?

25 A No, sir.

1 Q How about for distance? Would you make that
2 assumption about distance for the purpose of your
3 calculation?

4 A The D One Square Law is based initially on a
5 distance of one foot being your D one squared. And from
6 then you can put any distance in there you want and it will
7 give you the range of doses at a certain distance for that
8 four minutes.

9 Q So looking now at Exhibit 36 at the top of the
10 left hand side of the page at the top right under and to
11 where the left of where it says Oakbrook, is that your
12 formula?

13 A 94? Starting with 94, yes.

14 Q And then underneath that, is there a place where
15 it says at one foot?

16 A Underneath the 94?

17 Q Let s look underneath the 94. First there s a
18 number there, 554600, 554,600, what s that?

19 A I believe that s the calculation based on 94
20 Curries times 5.9 Rankings per Curry.

21 Q And that s Rankings per Curry per hour?

22 A Correct.

23 Q Now overall in your calculation, underneath where
24 it says 554600, you ve got, underneath that it says one
25 foot, two foot, three foot, four foot, five foot, six foot,

1 ten foot, is that right?

2 A Correct.

3 Q Did you calculate doses for each of those
4 distances?

5 A That is correct.

6 Q And you started with one foot?

7 A Correct.

8 Q Okay. What would the dose be for one foot at
9 four minutes assuming no shielding on the source?

10 A 36.97R.

11 Q And for two minutes.

12 JUDGE COLE: Two feet.

13 MR. BROOKS: I m sorry, thank you.

14 BY MR. BROOKS:

15 Q Two feet, assuming he was there for four minutes
16 and that the source was not shielded in any way, what would
17 be the result?

18 A I ve scratched through, but I believe it s 9.24R.

19 Q And how about for three feet?

20 A 4.11R.

21 Q What was the range of distances that he gave you
22 on February 28th?

23 A Between one and three feet?

24 Q At the time you did these calculations, did you
25 have film badge results?

1 A No, sir.

2 Q Now I think you testified that it was either on
3 the 28th or 29th you got film badge results?

4 A Correct.

5 Q What were those results?

6 A 4.6R.

7 Q For the month of February?

8 A Correct.

9 CHAIRMAN BECHHOEFFER: Pardon me. Was it for the
10 month of February or for the year until February?

11 THE WITNESS: It was for the month of February.
12 2/1 to 2/28 and we pulled the badge on 2/27.

13 BY MR. BROOKS:

14 Q What was Mr. Chastain s exposure for January of
15 1996?

16 A 150MR.

17 Q So as of the 28th of February, 1996, according to
18 film badge results, he received a cumulative dose of 4.75
19 RIM?

20 A RIM, correct.

21 Q I d like to have you look at Exhibit 7 which I
22 think you see in front of you someplace. Your checklist
23 for incident report. I would like you to turn to the last
24 page of that document if you would.

25 Are you the Bob to whom this note s addressed?

1 A That s my understanding.

2 Q Where it says density on clear film, density on
3 exposed film, what film is being talked about in this note?

4 A The clear film is the film that was taken in with
5 Mr. Chastain to initiate his second shot and the exposed
6 film was the film that had just be radiographed.

7 Q So the clear film was film that he had with him
8 in the room during the entire time he was in there during
9 the set up that we have been demonstrating here today, is
10 that correct?

11 A Yes, sir.

12 Q And that he put up on the pipes when he was
13 finishing the set-up, was that clear film?

14 A Yes.

15 Q Where it says density on clear film was .15, what
16 does density refer to?

17 A Density indicates the amount of darkening of the
18 film. Normally X-ray film when you process it without any
19 exposure it comes out kind of a blue background and normal
20 density is I would say around 4.5.

21 Q When you say normal density, it says clear film,
22 but the clearness has a blueish cast to it. What does a
23 density of .15 indicate on this clear film as to the level
24 of radiation that that film had received while it was
25 sitting in the room?

1 A My understanding it would indicate there was a
2 minimum or no exposure to the film.

3 Q A minimum or no exposure to that film?

4 A Yes, because I don t know exactly what the
5 background density is.

6 Q Now February 28th and 29th, after you received the
7 film badge and after you had seen this analysis of the
8 clear film in the room and after you talked to Mr.
9 Chastain, did you come to some conclusion about what the
10 best indicator of the dose that Mr. Chastain had received
11 was?

12 A I believe that the best indicator of the dose
13 received was his film badge.

14 Q And look again at the first page of Exhibit 7, if
15 you would, where it says actual whole body wear.

16 A Correct.

17 Q It says 4.6 RIM, did you write that down there?

18 A Typed it, yes.

19 Q Why did you write down 4.6 RIM as the actual
20 whole body dose to Mr. Chastain?

21 A Because I would have received the dose and I
22 would have completed the report.

23 Q But why did you chose 4.6 RIM as opposed to any
24 of these other numbers that you have calculated or any
25 other number?

1 A Because 4.6 is the legal medium of film badge
2 dose.

3 Q Did you have an opinion at that time as to
4 whether or not the film badge was the best representation
5 of the dose Mr. Chastain received?

6 A Based on what Bill told me, yes. I felt it was
7 the best representation.

8 Q Why would you think the film badge was the best
9 representation of the dose that Mr. Chastain received?

10 A Because it s telling to the range of the doses
11 that were calculated on Exhibit 36.

12 Q Any other reasons, anything having to do with the
13 proximity that he had described?

14 A Well that comes from Exhibit 36, there was three
15 foot and he said he said he was, for the most part, three
16 foot away and the calculations come out to 4.11R.

17 Q If 4.6 RIMs was the dose that Mr. Chastain had
18 received in February of 1996, and if he had received 150
19 millirims in January of 1996, did you have a reporting
20 obligation, with respect to Mr. Chastain s dose?

21 A No, sir.

22 Q Why not?

23 A Because it didn t exceed 5R.

24 Q Do you have any reason to believe, as of February
25 28th, 29th, 30th, 1996, that his dose did exceed 5R for 1996?

1 A No, sir.

2 Q Mr. Slack, I m just going to ask you a quick
3 question about the re-enactment that you attended April
4 11th, 1996.

5 A Yes, sir.

6 Q Now that was the one where people for the NRC
7 came to CONAM?

8 A Correct.

9 Q Mr. West was there?

10 A Yes.

11 Q And Mr. Phillips was there?

12 A Correct.

13 Q Mr. Young was there?

14 A Correct.

15 Q And you supplied them with a room and a ladder to
16 use with Mr. Chastain?

17 A Correct.

18 Q There were measurements taken on that date,
19 right?

20 A Yes, sir.

21 Q Just for the record, Mr. Slack, I m going to show
22 you what has been marked as Exhibit 10, the CONAM dose
23 reconstruction and I m just going to ask you to turn to the
24 page with the drawing on it that says Orientation A.

25 Were you present on April 11th, 1996, when the

1 NRC staff made the measurements that are shown here on
2 Orientation A drawing?

3 A Yes, I was.

4 Q When the NRC staff made these measurements, did
5 they have Mr. Chastain up on a ladder?

6 A Yes, they did.

7 Q Did they have a camera positioned at the top of
8 the ladder?

9 A Yes, they did.

10 Q Did they have a fanny pack there for Mr. Chastain
11 to use?

12 A I don t believe so.

13 Q So when did, did you watch them make a
14 measurement from the opening of the camera, the front port
15 of the camera to Mr. Chastain s, where his fanny pack would
16 have been? Did you see him do that?

17 A Yes, I did.

18 Q And on the picture that is shown here, in Exhibit
19 10, it shows a measurement to a spot that I would say is
20 about his belt buckle?

21 A Correct.

22 Q Is that the spot that the NRC measured to on
23 April 11, 1996?

24 A Yes.

25 Q To Mr. Chastain s belt buckle?

1 A Yes.

2 Q Just one question with respect to the video tape,
3 just to confirm, you measured from the video tape the
4 amount of time that Steve Fay was up on the ladder doing
5 what Mr. Chastain called the set-up?

6 A Correct.

7 Q The time that he was in proximity to the camera?

8 A Correct.

9 Q And did you measure that for all three of those
10 trials?

11 A Correct.

12 Q What were the times for those three trails that
13 Mr. Fay was on the ladder doing that work?

14 A A minute thirty-three, a minute thirty-four and a
15 minute thirty.

16 MR. BROOKS: No further questions at this time.
17 Thank you very much.

18 JUDGE KELBER: I have some, a few questions to
19 try and resolve some puzzles in my mind.

20 Are you expert in the camera the Amersham camera?

21 THE WITNESS: I ve been given administrative and
22 retrieval and maintenance courses. I don t know if that
23 would make me an expert.

24 BY JUDGE KELBER:

25 Q Are you familiar with the radiation pattern

1 coming from the Amersham camera?

2 A No, sir.

3 JUDGE KELBER: All right. I have no further
4 questions.

5 On Exhibit 7 which is the checklist, are all the
6 entries made on the same day from the checklist?

7 THE WITNESS: I would have to say no.

8 JUDGE KELBER: Where some made after the results
9 from the film badge came back?

10 THE WITNESS: Correct.

11 JUDGE KELBER: Thank you.

12 CHAIRMAN BECHHOEFFER: And that s the 4.6?

13 THE WITNESS: Yes, sir.

14 BY CHAIRMAN BECHHOEFFER:

15 Q And the return to duty, the next question is it
16 must have been earlier?

17 A Correct.

18 Q Now I m wondering about these calculated
19 exposures. They seem considerably higher and are they all
20 the worst case? Are they all based on four minutes, for
21 instance, or --

22 A You talking Exhibit 36?

23 Q Yeah, where it says it says calculated exposures.
24 Let seem to me to a non-technical person to be considerably
25 higher.

1 A Okay, on Exhibit 7?

2 Q On Exhibit 7, what I m talking about is where it
3 says calculated exposure.

4 A Correct. The first one ends up being 36.97R.

5 Q Yeah.

6 A And that s the first one that is on Exhibit 36.

7 Q So that s the one foot?

8 A Yes, sir.

9 Q I see.

10 JUDGE KELBER: Can I ask a question of the
11 parties?

12 CHAIRMAN BECHHOEFFER: Sure.

13 JUDGE KELBER: Do we give the parties time to
14 introduce an expert who is familiar with radiation
15 batteries from the camera?

16 MR. BROOKS: Yes. I think our expert can testify
17 about pattern.

18 JUDGE KELBER: Your expert, that being?

19 MR. BROOKS: Carol Berger

20 JUDGE KELBER: Thank you.

21 MR. BARTH: Dr. Kelber?

22 JUDGE KELBER: Yes.

23 MR. BARTH: You realize that the radiation pattern
24 is a function of the location of the source?

25 JUDGE KELBER: Absolutely.

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 MR. BARTH: And you re aware there s been
2 testimony, we don t know where the darn source is?

3 JUDGE KELBER: No, but we have some bounds on it,
4 somebody s normal bounds.

5 MR. BARTH: And an infinity problem.

6 JUDGE KELBER: Mr. Barth, no, it is not. I m
7 concerned about the questioned discrepancies that are
8 pending, the question of the performance of the survey and
9 I m wondering whether the admitted pattern, because of the
10 source, is partially shielded, could have been collimated
11 by being maybe the operator thinking he was making a
12 complete survey and in fact missed the beep. That s the
13 whole.

14 MR. BARTH: Thank you for your explanation.

15 JUDGE COLE: Mr. Slack, just to confirm what I
16 understand, on Joint Exhibit 7, in the category of
17 calculating exposure calculations.

18 THE WITNESS: Yes.

19 BY JUDGE COLE:

20 Q On Exhibit 36, with the knowledge or the
21 information that was given to you that he was within one or
22 three feet of the source, you calculated what it would be
23 if the source were totally unexposed, totally out of the
24 cylinder and with nothing between him and the source and he
25 stayed there for four minutes. The dose that he would get

1 would be 36.97 RIM, right?

2 A Yes, sir.

3 Q Is that the calculation?

4 A Yes, sir.

5 Q And at three feet that exposure to the 94 Curry
6 source with nothing in between.

7 A Correct.

8 Q A distance of three feet would be 4.11 RIM?

9 A Yes, sir.

10 Q That s what you put on this, it came out to be
11 between nine and thirty six RIM dose, correct?

12 A Well the indication for one foot and two foot is
13 the nine to--

14 Q Three feet?

15 A No. No. If you notice the calculation --

16 Q What would be nine --

17 A If you look at show calculations it says one
18 times one and two times two, those in the formula are
19 indications of one foot and two foot.

20 Q All right, sir.

21 MR. BARTH: I have a very brief question.

22 CHAIRMAN BECHHOEFFER: Yeah, anyway the board the
23 through and we ll go back to you.

24 REDIRECT EXAMINATION

25 BY MR. BARTH:

ANN RILEY & ASSOCIATES, LTD.
Court Reporters
1250 I Street, N.W., Suite 300
Washington, D.C. 20005
(202) 842-0034

1 Q Mr. Slack, earlier you testified, I asked you
2 what part of the body received the greatest amount of
3 exposure, you testified Mr. Chastain s groin, do you recall
4 this?

5 A I don t know if I said his groin or the film
6 badge in the groin area.

7 Q And could I ask you to put on the fanny pack,
8 please sir. Actually it should be called a tummy pack.
9 Ask you questions and I have to ask questions, not make
10 statements so you correct me. My understanding is you
11 testified, your assumption is the fanny pack was closest to
12 the source at all times, it that correct?

13 A Yes.

14 Q Could I ask you to get on the ladder and so we
15 can measure the fanny pack three feet from the source and
16 so you can hold your hands up and put film on the pipes
17 there while the fanny pack is three feet from the source.

18 MR. BARTH: I just want to get the fanny pack
19 three feet from the source.

20 Is that three feet from the source, Your
21 Honor?

22 JUDGE COLE: Is that on the thirty six inch mark?

23 [Discussion of the Board]

24 CHAIRMAN BECHHOEFFER: Mr. Chastain was on that
25 lower level.

1 BY MR. BARTH

2 Q Can I ask you a question while you re on the
3 ladder, I promise not to push the ladder.

4 My understanding of the testimony is you felt
5 that the fanny pack was the same level as the exit point,
6 is that correct, sir?

7 A It was in the closest proximity to the source in
8 regard to his body.

9 Q Okay sir, let s find out if we can get that three
10 feet. I think around three feet. We will also check the
11 record. Now can we put that --

12 CHAIRMAN BECHHOEFFER: Three or four?

13 MR. BARTH: Give me a second so I can work on it.

14 CHAIRMAN BECHHOEFFER: That s what it says

15 MR. BARTH: Pardon?

16 CHAIRMAN BECHHOEFFER: That s what is says.

17 MR. BARTH: Let me make a statement for the
18 record and Mr. Brooks can join in to.

19 I ve taken a standard tape measure, pulled out
20 about three feet of tape and put the three feet mark on the
21 edge of the camera and then we would find the fanny pack is
22 three feet and the exit point on the groin because it s
23 maximum body girth, is that a fair statement?

24 CHAIRMAN BECHHOEFFER: Reasonably, yes.

25 MR. BARTH: Mr. Brooks?

1 MR. BROOKS: I didn't see what you did.

2 MR. BARTH: You've got to pay attention.

3 MR. BROOKS: I think it's a fair statement

4 MR. BARTH: Thank you, counselor, anyway I don't
5 think I have any other questions. I do have one.

6 BY MR. BARTH:

7 Q Could you tell me, sir, what the 9A in the upper
8 right hand, upper left hand corner stands for and also what
9 the V sub 2 squared stands for right below.

10 A If a left hand corner is a ninety-four, that
11 stands for the intensity one which is a known intensity of
12 a 94 Curry source. That's why the ninety-four is on there.
13 And the I 2 or I sub 2 is the intensity that you will
14 result in when you put in your distances.

15 Q And the D sub one and sub two?

16 A D sub one indicates the first distance which is a
17 one foot distance at sources normally indicated as being
18 measured at and the D sub two is varying distances that you
19 will put into the formula to come up with varying
20 intensities.

21 Q I have no further questions, Mr. Slack. Thank
22 you kindly Mr. Slack for this late hour, it's 5:44, but on
23 the other hand your counsel may be calling you so you may
24 do this again, sir.

25 A Thank you.

1 CHAIRMAN BECHHOEFFER: Do you have any follow-up
2 to that last series?

3 MR. BROOKS: No, sir.

4 CHAIRMAN BECHHOEFFER: Mr. Slack, I appreciate
5 your appearing.

6 THE WITNESS: Thank you, sir.

7 CHAIRMAN BECHHOEFFER: We ll probably see you
8 again if we need you.

9 THE WITNESS: I m here tomorrow.

10 CHAIRMAN BECHHOEFFER: You re excused for the
11 moment.

12 THE WITNESS: Thank you.

13 CHAIRMAN BECHHOEFFER: Now am I correct that
14 tomorrow morning we ll start with the Phillips and Young.
15 Maybe further if we get that far. We ll start first thing
16 in the morning with Mr. Phillips. We start at 9:00 a.m.,
17 so we ll see you then.

18 MR. DAMBLY: Did we decide if we can leave stuff
19 here?

20 [Whereupon the above-entitled
21 matter adjourned to the
22 hour of 9:00 a.m. on the
23 15th day of September, 1998.]
24
25

REPORTER'S CERTIFICATE

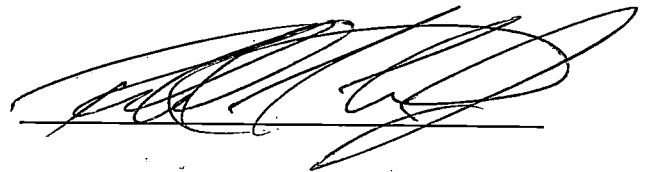
This is to certify that the attached proceedings
before the United States Nuclear Regulatory Commission in
the matter of:

NAME OF PROCEEDING: CONAM INSPECTION, INC.
Itasca, Illinois
License No. 12-16559-01

DOCKET NUMBER: 30-31373-CivP

PLACE OF PROCEEDING: Chicago, Illinois

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

A handwritten signature in dark ink, appearing to be 'Ann Riley', written over a horizontal line.

Official Reporter

Ann Riley & Associates, Ltd.