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## NUCLEAR REGULATORY COMMISSION

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I N D E XWITNESSES:                      DIRECT   CROSS   REDIRECT   RECROSS

Robert Moore Boyd

By Mr. Evans                      --        2353                      --                      2550

By Ms. Woodhead                      --        2498                      --                      --

By Ms. Carroll                      --                      --                      2529                      --

E X H I B I T SEXHIBIT NO.      DESCRIPTION                                      IDENT      REC'D

Georgia Tech:

10                      O'Bannon Report                                      2454                      --

16                      NOV and OI Report                                      2437                      --

31                      Transcript of Boyd Tape                                      2427                      2497

PROCEEDINGS

1  
2 CHAIRMAN BECHHOEFER: On the record. Good  
3 morning, ladies and gentlemen.

4 Before we begin again with the examination or  
5 cross examination of Mr. Boyd, are there any preliminary  
6 matters that any party wishes to raise?

7 Whereupon,

8 ROBERT M. BOYD

9 RESUMED his status as a witness herein, and was examined  
10 and testified further as follows:

11 THE WITNESS: May I correct a comment I made  
12 yesterday? I got to thinking about it on the way home.

13 CHAIRMAN BECHHOEFER: Should we do that  
14 preliminarily?

15 MS. CARROLL: I don't see why not, it might be  
16 urgent.

17 THE WITNESS: It's not urgent.

18 CHAIRMAN BECHHOEFER: Okay, well, why don't you  
19 do that.

20 THE WITNESS: I think -- you'll have to tell  
21 this -- I think I said the reactor at Georgia Tech, I was  
22 there on December 31, 1963 when it started. I was there  
23 December 31, 1964 when it started, because I started  
24 working there in January of '64, so I was there a little  
25 while before the reactor actually started up. So if you

1 look at that somewhere down the line. Sorry, I was  
2 thinking wrong.

3 MS. CARROLL: That sounds like an errata issue.

4 MR. EVANS: And we certainly accept the  
5 gentleman's correction. He could have fooled us.

6 (Laughter.)

7 THE WITNESS: It just dawned on me.

8 MR. JOHNSON: We appreciate your honesty, I'm  
9 sure.

10 CHAIRMAN BECHHOEFER: Ms. Carroll, did you have  
11 another matter, or not?

12 MS. CARROLL: Yes. And the matter is a  
13 precious exhibit we have that we did not need to put in  
14 during Dr. Ice and this is -- we have minutes for everybody  
15 in two boxes over here. And I realize that it may not come  
16 up naturally to introduce this exhibit to people, and yet  
17 you guys have never seen the minutes before and there are  
18 quite a few and you might want the opportunity to review  
19 them during the break.

20 Also, if we brought it up early enough in the  
21 day, anybody that was burdened by the sheer size of it  
22 might could do, as I saw you do, stick it in the mail at  
23 your lunch break or what-have-you. I wanted to raise this  
24 early in the morning what are we going to do with these  
25 books over the break. If we could get them to the parties

1 --

2 MR. TURK: Are you offering them as an exhibit?

3 MR. JOHNSON: Yes.

4 MS. CARROLL: Well, yes, but it just may not  
5 come up naturally today before we --

6 CHAIRMAN BECHHOEFER: Naturally, it would come  
7 when Dr. Karam was the witness.

8 MS. CARROLL: Yes.

9 CHAIRMAN BECHHOEFER: That would be the natural  
10 time to put it in.

11 MS. CARROLL: And we did ask Dr. Ice about a  
12 couple of items in there, but nobody seemed to need the  
13 exhibit and it kind of went by the wayside. That's why I  
14 had them ready for his testimony.

15 MR. EVANS: I would just suggest that we do it  
16 in the normal order. You'll have ample time, probably  
17 starting today, to cross examine Dr. Karam, and I think  
18 that would be a normal time to do it.

19 MS. CARROLL: Well, I just wasn't sure and also  
20 just because of the sheer size of it, if anybody felt they  
21 wanted it this morning so they could some how or another,  
22 you know, travel better with it or make their travel plans  
23 better. That's why I'm mentioning it this morning. And I  
24 figure it's a group decision what we do with the exhibit.

25 MR. TURK: Your Honor, I would note I don't

1 understand that it's an offer at this time, but at such  
2 time as GANE offers the documents as an exhibit, I would  
3 oppose. And my reason is unless there's going to be cross  
4 examination or pointing to specific documents in that  
5 collection, which is two inches thick, we don't know what  
6 possible use was made of them. Absent some showing of  
7 relevance or use in this proceeding, there's no reason to  
8 put them into the record. And in fact, it's dangerous to  
9 put them in the record, because God knows what use is made  
10 of them that the parties may not be anticipating.

11 MS. CARROLL: Oh, I didn't want to put them in  
12 the record. I wanted to put it in your hands. We'll put  
13 it in the record later.

14 MR. TURK: My point is that at such time that  
15 you offer it into the record, I would oppose, and I'm  
16 giving you advance notice of that, the same way you're  
17 giving us advance notice that you intend to offer them.  
18 Use them to whatever extent you need to or want to with the  
19 witnesses, but otherwise I don't know that there's any  
20 relevance and I would oppose the introduction of them for  
21 any purpose absent some connection to testimony or to  
22 relevance.

23 MR. EVANS: I would suggest we defer all this  
24 until such time as they are tendered.

25 CHAIRMAN BECHHOEFER: We could have them marked

1 for identification.

2 MR. JOHNSON: This was something that we were  
3 more or less offering for the convenience of others. And  
4 since it's obviously not a consensus --

5 MS. CARROLL: Well, and for my own convenience,  
6 because two boxes of things for the next three weeks -- and  
7 I do intent for you to end up with them eventually, whether  
8 they go into the record or not, you're going to be given  
9 your set of minutes by us and we will be doing cross on  
10 those and I believe they'll make it into the record, but  
11 dispensing with them helps me, but I realize there's a bit  
12 of a hardship on everybody and I wanted to bring it up  
13 early in the day.

14 CHAIRMAN BECHHOEFER: You can mark them for  
15 identification. It would be better if Dr. Karam were the  
16 witness.

17 MS. CARROLL: That's right -- okay.

18 CHAIRMAN BECHHOEFER: When we get to  
19 particularly Dr. Karam -- I think Mr. Boyd attended some  
20 meetings, but not as many as Dr. Karam did -- you could  
21 offer them for identification. We'll worry about  
22 admissibility later on when you try to introduce them.

23 MS. CARROLL: Right. Which even if we didn't  
24 get to that point today, we might begin cross examining on  
25 these, and that would be an appropriate time to distribute

1 them.

2 One thing is, is we are going to be doing cross  
3 examination on these and if you haven't seen the documents  
4 ahead of time, you know, you will have to hustle to keep up  
5 and I didn't know if that was a factor, because obviously  
6 there's a good bit here to read.

7 CHAIRMAN BECHHOEFER: Right.

8 MS. CARROLL: And it's very interesting  
9 reading. I enjoyed reading them, didn't you?

10 MR. JOHNSON: That doesn't necessarily mean  
11 they're relevant.

12 MS. CARROLL: Okay, I think that dispenses with  
13 that piece of information.

14 CHAIRMAN BECHHOEFER: Okay, well I guess we're  
15 ready to resume. I understand that Ms. Carroll does not  
16 have any further direct of Mr. Boyd, so we'll begin with  
17 cross examination, I guess, Mr. Evans.

18 MR. EVANS: Oh, I thought there were more  
19 questions.

20 CHAIRMAN BECHHOEFER: Well, there was a  
21 reservation of a right to ask one and I was told that  
22 wasn't required.

23 MR. EVANS: I'm ready.

24 CROSS EXAMINATION

25 BY MR. EVANS:

1 Q Mr. Boyd, am I correct that you physically  
2 moved out of the Neely Nuclear Research Center and over to  
3 158 Edgewood Avenue, Georgia State, in May of 1988?

4 A I believe that's right.

5 Q And the reactor was at that time closed down,  
6 correct?

7 A I believe that's correct.

8 Q And you agree that you really don't know what  
9 changes in the health physics program procedures and  
10 methodology have come about since the time you left in May  
11 of 1988.

12 A Correct.

13 Q And you don't have any direct knowledge as to  
14 what has been going on at the reactor center since you left  
15 in May 1988.

16 A No, sir.

17 Q No, meaning you don't have.

18 A When you use the word "direct," right.

19 Q Thank you.

20 A I don't have any.

21 Q And you have no direct knowledge of the status  
22 of the reactor today.

23 A No direct knowledge. How do you define direct,  
24 having been there to observe it, you mean? No, that's  
25 correct, I don't have.

1 Q And I believe you know Dr. Rodney Ice?

2 A Yes, sir.

3 Q And I believe you agree that he is an excellent  
4 manager of the Office of Radiation Safety.

5 A Yes, sir.

6 Q And I believe at one time you said his  
7 credential exceeds yours.

8 A That was a kind of humorous remark, right.

9 Q Would you agree that that is so?

10 A Well, I would say it's equal or greater, he  
11 definitely has better educational credentials, he may not  
12 have quite as much practical experience as I do around that  
13 facility.

14 Q But would you agree he does have a doctorate in  
15 health physics?

16 A I would, and I think in light of your way of  
17 judging it, I'd have to answer that yes, he is more  
18 qualified.

19 Q And would you agree that his presence at the  
20 nuclear reactor clearly represented an upgrading in the  
21 health physics staff?

22 MS. CARROLL: Objection, Your Honor. We've  
23 already established that he has no direct knowledge of  
24 what's happened there after he left. How can we ask this  
25 witness to assess the qualifications of the current

1 radiation safety officer?

2 MR. EVANS: The answer is that he does know.  
3 He doesn't know the status of what's going on, but he does  
4 know the credentials of Dr. Rodney Ice.

5 MS. CARROLL: I don't think your question was  
6 just about his credentials, it was more about his  
7 performance.

8 MR. EVANS: The last question was that his  
9 presence, based upon his credentials, if you will -- I'll  
10 rephrase it.

11 MS. CARROLL: Well, his presence would be his  
12 practical --

13 MR. EVANS: I'll rephrase it.

14 MS. CARROLL: -- performance.

15 CHAIRMAN BECHHOEFER: He'll rephrase the  
16 question.

17 BY MR. EVANS:

18 Q Based upon his credentials, would you agree  
19 that his presence at the health physics -- in the health  
20 physics area at the center clearly represents an upgrading  
21 of health physics?

22 A At the reactor.

23 MS. CARROLL: Are you asking for his opinion?

24 MR. EVANS: Of course. That's all we've heard  
25 to date, is his opinion.

1 THE WITNESS: Opinion is all I've got.

2 A I don't know if it was clearly an upgrading, we  
3 might say it was a lateral at least. Educational-wise it  
4 was an increase.

5 Q Did you feel that Dr. --

6 A But I think I know the facility -- I knew the  
7 facility and still probably know the facility even better  
8 than he does. So six of one, half a dozen of the other.

9 Q Is it fair to say that your departure from the  
10 center -- I'm talking of your physical departure, I see no  
11 point in going into the staying on Georgia Tech payroll  
12 while you're working at Georgia State -- but as far as your  
13 physical departure from the center, is it fair to say that  
14 this was not on a friendly basis with the center's  
15 management?

16 A Yes.

17 Q And actually your feelings were hurt when under  
18 the 1 July 1987 reorganization, you became manager of  
19 radiation safety instead of your old position of radiation  
20 safety officer, is that not correct?

21 A My feelings were hurt?

22 Q Yes, sir.

23 A Yeah, I would think that's true.

24 Q And when --

25 A To some degree.

1 MS. CARROLL: What was that?

2 THE WITNESS: To some degree that's true, and  
3 of course there were other things that were hurt too.

4 THE REPORTER: Excuse me, Mr. Boyd, you'll have  
5 to speak up.

6 THE WITNESS: I'm sorry. Yes, my feelings were  
7 hurt, but there were other things that I think were hurt  
8 too.

9 BY MR. EVANS:

10 Q And when the health physics staff was being  
11 replaced in early 1988, you were, I believe to use your own  
12 words, being pressured to resign, is that not true?

13 A Could you say that again, I'm sorry.

14 Q At the time -- I'll put a date to it -- at the  
15 time the health physics staff was being replaced and  
16 immediately after they were replaced in the earlier part of  
17 1988, is it not true that you were, to use your own words,  
18 being pressured by various people to resign or leave?

19 A Yes.

20 Q And in your deposition, you named a person  
21 named Fuller as one of those pressuring you to quit, is  
22 that not true?

23 A Yes, that was after that period of time.

24 Q When was that?

25 A Well, it was in the spring after the firing of

1 Steve and Paul and for the next two or three years after  
2 that. I kind of worked through Dr. Fuller and we had a few  
3 communications back and forth and there was definite  
4 pressure there for me to do something besides stay on the  
5 Georgia Tech payroll.

6 Q Who is Dr. Fuller?

7 A You know Dr. Fuller.

8 Q Yes, sir, but I think the record doesn't.

9 A I'm sorry, I forgot I was in court.

10 (Laughter.)

11 A Let's see, what was Dr. Fuller at that time.

12 Dr. Fuller was the, I think at the time, the vice president  
13 for financial affairs, if I'm not mistaken.

14 Q What did he say to you when he was trying to  
15 get you to quit?

16 A You know, I have a lot of those letters back  
17 and forth because I saved everything.

18 MS. CARROLL: Do you have them with you?

19 THE WITNESS: I have some of them probably.

20 MR. EVANS: It's not that big a deal. If you  
21 can't remember --

22 A Basically, he would say that we have an  
23 agreement -- one letter was written with a lot of checkoff  
24 lists between he and Al Shepherd saying if I agreed with  
25 all these different things, for example, they would try to

1 pay for my military time so I could retire early; if I  
2 agreed to teach 40-hour short courses, we would allow you  
3 to use the nuclear research center -- this is while I was  
4 at Georgia State -- continue doing things I was doing  
5 anyway. And if I agreed, that after July of '89 or  
6 something, that I would retire or I would leave Georgia  
7 Tech. And of course I didn't want to leave Georgia Tech  
8 because I wanted to keep my basketball and football  
9 tickets.

10 (Laughter.)

11 A If I went to Georgia State when I retired -- I  
12 needed four years -- I didn't get all that.

13 Q And I believe you testified that Bob McDonald  
14 also came to your office suggesting that you leave.

15 A Bob McDonald surprised me. He was -- I thought  
16 he was a very nice person for a long time, I've known him  
17 for 30 years or 20 years, and then he became a part of Dr.  
18 Karam's organization and somehow he got the concept and I  
19 think others got the concept that I was trying to harass  
20 Dr. Karam myself by not doing things. So he came to me one  
21 day just out of the blue and said why don't you just leave,  
22 you're not helping Dr. Karam any at all. This is after all  
23 this has happened and I didn't know exactly where I was  
24 except I still had my office, and you had Puckett around  
25 and me around. We had two MORS. I wasn't officially gone

1 yet, but the president said he was going to reassign me. I  
2 didn't know if he was going to reassign me to Siberia or  
3 where, but he just said reassign, and I guess my  
4 reassignment ultimately wound up at Georgia State, which  
5 was a blessing for me; otherwise, I would have been out in  
6 the cold.

7 Q And am I correct that this was in the fairly  
8 early -- or spring 1988?

9 A That began then, but those letters and  
10 different suggestions as to we don't have any place for you  
11 at Georgia Tech from Fuller occurred over the next two or  
12 three years because actually Georgia Tech I think  
13 ultimately paid half my salary and Georgia State paid the  
14 other half, which was basically what was going on before  
15 all this happened. But Georgia Tech wanted to get out of  
16 the whole thing, see, and make Georgia State pay for it.  
17 But some how or another, the Georgia State Vice President  
18 for Financial Affairs knew Fuller and they worked out some  
19 kind of agreement that this would be fine.

20 Because for three years, I had to go to the  
21 president's office at Georgia Tech to get my monthly check.  
22 It was kind of interesting to go in the Carnegie Building  
23 every month.

24 Q Yes, sir. Now you mentioned you know -- it was  
25 Dr. McDonald, am I correct?

1 A Right.

2 Q And am I correct that his position was  
3 Assistant Director of the Neely Nuclear Reactor Center?

4 A That's correct.

5 Q And you said you knew him for I think 20 -- or  
6 a number of years.

7 A A number of years.

8 Q But is it not true that actually he became --  
9 he was appointed director as a general part of the  
10 reorganization and upgrading, is that not true?

11 A I don't know that, but I presume that's true.

12 Q And is it true that he came, if you know, on or  
13 about the start of the first of January 1988, is when he  
14 started at Georgia Tech.

15 A I believe that's correct.

16 Q And he also was involved in review the cadmium  
17 incident, wasn't he?

18 A Yes.

19 Q And is it not true that, among other things,  
20 when he came to your office, he was blaming you for things  
21 that happened in the cadmium -- relative to the cadmium  
22 incident, is that not true?

23 A I thought that, partly anyway.

24 Q Yes, sir. And as I recall -- I mean, I assume,  
25 you did not think that was fair, did you?

1           A       Not totally. As a matter of fact, I didn't  
2 think I had hardly anything to do with it.

3           Q       Now, is it not true that when all of these  
4 personnel changes were going on in the late '87, early '88,  
5 that Dr. Karam consciously wanted to protect your final  
6 years for retirement purposes?

7           A       Well, there was a period of time I thought  
8 that, but as January and February of '88 came on the scene  
9 following George Kuzo's enlightening inspection of the  
10 cadmium incident in the previous August, I began to get a  
11 different perspective from Dr. Karam that -- and as a  
12 matter of fact, I have some notes here, a chronology,  
13 indicating that he had tried to keep Dr. Stelson from  
14 firing me and didn't know how much longer he could hold  
15 out. I didn't know what the heck was going on.

16          Q       Did I understand you to say he was trying to  
17 keep Dr. Stelson from firing you?

18          A       He tried for a while there, but as time went on  
19 after the inspection, I was frequently called into his  
20 office on matters that I considered a little less than what  
21 I would call a good way to run a safety organization, by  
22 trying to get me to change people's statements and who is  
23 calling the NRC and who is whistleblowing. I didn't know.  
24 All I said is I didn't think that Steve or Paul was doing  
25 all this, but to me that was totally improper to ask those

1 kind of questions. But in general, you're right.

2 Q In general, I'm right when I say he was trying  
3 to preserve your final three years.

4 A Prior to about December of '87.

5 Q I note that you nonetheless say that you were  
6 harassed by Dr. Karam as well as others, is that your view?

7 A I think that is an understatement.

8 Q It's an understatement.

9 A I think that's true.

10 Q Well, did you one time feel that your position  
11 there was about like being in hell?

12 A Very close. I think that's what I would  
13 categorize it.

14 Q And may have at one time.

15 A May have. I learned a lot by talking to you  
16 during that period of time.

17 Q Thank you, sir.

18 A I'm not advocating that you're the devil, I'm  
19 just saying I learned a lot.

20 (Laughter.)

21 Q Well, there are some people who probably view  
22 me that way.

23 A Well, that is true with me also.

24 Q Now is it fair to say that your feelings about  
25 the reorganization were quite strong?

1 A Yes, they still are, at my old retirement age.

2 Q Yes, sir. And as a matter of fact, it is a  
3 source of anger, is it not?

4 A Well, I wouldn't exactly -- I'm not what you  
5 classify a vindictive person in general. If it were so, I  
6 wouldn't have asked to be a hostile witness and had to be  
7 ordered by the gentlemen up there to come to this thing, or  
8 I would have started a lawsuit of my own way back yonder.  
9 But I don't like lawsuits -- not that I don't like lawyers  
10 to make money, but I just don't like lawsuits. They just  
11 bug me, and I don't like to treat people that way  
12 regardless of how bad they treat me.

13 Q What was your question again? I'll try to  
14 answer it.

15 (Laughter.)

16 Q It had nothing to do with your answer.

17 MS. CARROLL: I object. Are you angry, that  
18 was the question.

19 A No, I'm not angry, it's a very humorous  
20 situation right now.

21 BY MR. EVANS:

22 Q But since you brought up these other matters,  
23 it is fair to say that when Millspaugh and Sharpe received  
24 termination notices, you did not?

25 A That's right. I was in Tallahassee and didn't

1 get one, but I got plastered all over the world's  
2 newspapers as a hostile character.

3 Q Okay. And is it fair to say about the  
4 reorganization that prior to July 1, 1987, as RSO, you were  
5 essentially unsupervised?

6 A I worked directly for Dr. Stelson. He told me  
7 when I was appointed the acting acting RSO and then became  
8 the acting RSO and ultimately became the RSO -- and by the  
9 way, I got no increase in salary because I guess he  
10 considered me, like you do, a technician too, so he didn't  
11 give me any extra pay. I was glad to stay because I like  
12 Georgia Tech.

13 What was the question again?

14 Q The question was, prior to the reorganization,  
15 you were essentially unsupervised.

16 A I was going to tell you that he told me when I  
17 took over that I was to run that thing and don't bother  
18 him. He didn't want a superior situation, he wanted an  
19 adequate program. And that's true, I had no supervision  
20 other than I went to his meetings every week with all the  
21 rest of the people and he asked me to give my little  
22 presentation, and if he wanted to say that's not right or  
23 what, he could.

24 Q And is it true that one of the main things or  
25 dealings with Tom Stelson as nominally your superior, was

1 at least mainly for financial backing.

2 A That's true.

3 Q And as far as you knew, Tom Stelson had no --  
4 himself had no particular background in health physics to  
5 start with.

6 A I think he had a little bit. His brother  
7 worked at Oak Ridge, so I'm sure he knew a little bit about  
8 it, he's a smart man.

9 Q But he was a sharp person.

10 A Right.

11 Q But again, with all due respect, you do  
12 sometimes tend to go on on your answers --

13 A I apologize for that.

14 Q It's not a crime. But the -- in essence, your  
15 answer to the question is you were essentially unsupervised  
16 by anybody, is yes.

17 A Yes.

18 Q Thank you. And as far as the staff -- now you  
19 testified yesterday --

20 A May I digress?

21 Q Yes, sir.

22 A I'm not going to try to get wild. I was  
23 unsupervised except I always felt that the chairman of the  
24 then radiation protection committee and the chairman of the  
25 nuclear safeguards committee were essentially my boss as

1 far as safety concerns.

2 Q Yes, sir.

3 A They in turn dictated to me how they wanted to  
4 work those licenses and I tried to carry out their wishes.  
5 I would advise them just as I would advise anybody on  
6 matters of radiation safety, in my best opinion. So they  
7 kind of supervised me in some -- to some degree, so I  
8 wouldn't put it autonomal that I was, you know, not being  
9 watched over by somebody.

10 Q No, sir, but as far as your day-to-day  
11 operations and the conduct of your daily affairs, you were  
12 unsupervised.

13 A That's true. I think that's kind of proper.

14 Q I'm not suggesting -- I'm just asking, it's  
15 true.

16 A Correct. I just wanted to get my little licks  
17 in.

18 Q Yes, sir. Now you testified yesterday that you  
19 thought Dr. Karam's style of management -- I don't know  
20 whether to use the word hands-on, I think at one point you  
21 said dictatorial, which I assume is much like hands-on,  
22 having control over everything going on, is that kind of  
23 what you were talking about?

24 A That's true, without much consideration of  
25 anybody else's opinion. He's going to do it his way and

1 nobody else's.

2 Q Yes, sir, I understood your testimony.

3 A That's what I'm talking about.

4 Q And I understood it had to do with management,  
5 I didn't interpret it as you had to come in and salute him  
6 every morning or give the Heil Hitler or anything of that  
7 sort.

8 A Well, there was a period of time when I kind of  
9 felt that way.

10 Q Is it fair to say that your managerial style is  
11 not even remotely like Dr. Karam's?

12 A Not for radiation safety.

13 Q Yes, sir, I'm talking of radiation safety.

14 A Right. No, it's not.

15 Q And you had basically -- you had two radiation  
16 technicians -- I'll name them, Millspaugh and Sharpe --  
17 under you.

18 A At that time.

19 Q And basically as to their day-to-day  
20 operations, they were pretty free to do their thing, is  
21 that correct?

22 A With my supervision.

23 Q In what way were you supervising them?

24 A Daily. I knew what they were doing all the  
25 time except when I was out of town.

1 Q Well, they were doing things out of your  
2 presence, were they not?

3 A No, because I looked right at them.

4 Q You were looking at both of them all the time?

5 A Any time they were at their desk, I was.

6 Q Well, at their desk, but I mean, I assume they  
7 were out doing something.

8 A Well, they had their duties to do, I couldn't  
9 be there all the time, right.

10 Q Now, this is before the reorganization. After  
11 the reorganization, I think it's already clear, but I'll  
12 get you to say it once again, you reported to the director,  
13 Dr. Karam.

14 A That's correct.

15 Q And it is true that Dr. Karam wanted to know  
16 about everything going on at the center.

17 A I think that's true.

18 Q And I assume you agree that if he has  
19 responsibility for the health physics as well as the  
20 operations component, it would be appropriate for him as  
21 director to know everything going on, would it not?

22 A I think that's true.

23 Q Now the previous directors were, in your  
24 opinion, much more slack than Dr. Karam, correct?

25 A I think that's correct.

1 Q And Dr. Karam was on top of things.

2 A I think that's a correct statement.

3 Q And after the reorganization and you were under  
4 Dr. Karam, you had to get more things down on paper,  
5 correct?

6 A I don't know exactly how to answer that. There  
7 was a time when I felt like we didn't need to put things on  
8 paper, just tell him. I got the impression, he'd rather  
9 not had it on paper, but just tell him about it.

10 Q Well, did you not --

11 A Either tell him or put it in memo form.

12 Q Did you not, after the reorganization, start  
13 writing down -- things down in a more organized fashion?

14 A I don't know if that's true or not, I'm sorry,  
15 I'd have to review the records a little bit.

16 Q Yes, sir. I would --

17 A I don't know if that's true or not.

18 Q You do remember your deposition being taken on  
19 April 9 this year?

20 A Did I say I did then?

21 Q Yes, sir. And you were under oath.

22 A I said that we did do it that way then?

23 Q Well, I'll come and show it to you.

24 A No, that's all right, if you say it's true,  
25 I'll say it's true.

1 Q I would rather have you read it.

2 A Okay.

3 Q Question: "After the July '87 reorganization,  
4 were any improvements made in health physics procedures?"

5 A Oh, okay.

6 Q And the first say, -- it was again a double  
7 answer -- "Well, I don't know, because Dr. Karam was more  
8 or less in charge of health physics and I don't remember.  
9 We may have started writing things down in a more organized  
10 fashion for the whole full center or something, maybe they  
11 started doing that."

12 Do you recall --

13 A Yeah, I think --

14 Q -- there may have been some improvements  
15 actually putting things on paper, this was after the  
16 reorganization.

17 A Okay, I understand your question a little bit  
18 better now. I thought you were referring to things that I  
19 wrote to Dr. Karam. You're talking about procedures more  
20 than anything.

21 Q Yes, sir.

22 A Yes, I think that's a correct statement.

23 Procedures, there was pressure from the NRC also for us to  
24 put our procedures, not only health physics but reactor in  
25 a better form.

1 Q And not only from NRC, but also from Dr. Karam,  
2 correct?

3 A Right.

4 Q And also Dr. Karam was interested in checking  
5 out and attempting to improve procedures at this time, was  
6 he not?

7 A I think that's true.

8 Q And you had to inform him more than you did  
9 before.

10 A That's true.

11 Q And he directed you to write and improve the  
12 existing -- improve existing health physics procedures,  
13 didn't he?

14 A Yes.

15 Q Shortly after the reorganization.

16 A Yes, with the help of everybody.

17 Q And this was one of the areas where you  
18 formerly exercised -- were very independent.

19 A That I formerly exercised independence?

20 Q In your writing of procedures for health  
21 physics.

22 A Prior to giving them to Dr. Karam for approval.

23 Q Yes, sir.

24 A Right, that's right, I independently did that.

25 Q Now is it fair to say that the harassment and

1 other ill treatment you mentioned -- I think you believe  
2 you were ill-treated. Is it fair to say that the  
3 harassment and other ill treatment you believe you received  
4 at the center and from Georgia Tech management is something  
5 you still feel deeply about.

6 A Not only do I feel deeply about that, it's part  
7 of the NRC policy that you shouldn't have that. Yes, I  
8 still feel deeply about it.

9 Q Well, I was asking not about NRC, how they  
10 feel, but more or less how you feel.

11 A That's the same -- that's exactly right.

12 Q And is it not true that you cannot rule out the  
13 possibility that you may still hold a personal grudge  
14 against the center and/or Dr. Karam?

15 A Is that possible in the back of my mind  
16 somewhere?

17 Q Yes, sir.

18 A I guess there is some evidence that one might  
19 say that that's a possibility. But as I said earlier, I'm  
20 not one that is very vindictive, so it'd be a very weak  
21 possibility. I'm not really strong on that subject.

22 Q No, but you would agree, would you not, that  
23 you may be vindictive against what you think Dr. Karam did  
24 to you.

25 A Mentally and not know it.

1 Q Sir?

2 A Mentally in a subconscious way and not realize  
3 it.

4 MS. CARROLL: Is this a psychological screening  
5 or some kind of legal proceeding?

6 THE WITNESS: I'm trying to answer the  
7 questions honestly. I don't know what psychology does for  
8 people.

9 MS. CARROLL: Plumbing the deep inner recesses  
10 of our witnesses, is that really what we're here for.

11 THE WITNESS: But I'm not hostile against you  
12 or Dr. Karam, if that's what you mean.

13 CHAIRMAN BECHHOEFER: They're trying to see if  
14 he has any bias in his answers.

15 THE WITNESS: I love Georgia Tech.

16 MS. CARROLL: But he's testifying that  
17 somewhere he's out of touch with there may be because he's  
18 so honest, and I just think this is getting a little weird  
19 and maybe we should get a different line of questioning  
20 going. I think his answer actually would probably have to  
21 stack up to no, at this point and we could move on.

22 CHAIRMAN BECHHOEFER: No, I think the questions  
23 thus far as trying to establish if there was any bias in  
24 the answers that we've gotten. I see no objection to the  
25 particular line. I don't want to spend the rest of the day

1 doing this.

2 MR. EVANS: No, sir. In fact, I believe you  
3 heard --

4 CHAIRMAN BECHHOEFER: We will not --

5 MR. EVANS: I have one more question on the  
6 line, actually a follow up on the last.

7 CHAIRMAN BECHHOEFER: Well, proceed.

8 BY MR. EVANS:

9 Q It is true that you felt that the change in  
10 your position was somewhat of a demotion?

11 A Yes, sir.

12 Q And it is true that you felt embarrassed and to  
13 some extent humiliated by this change.

14 A Shocked.

15 Q And embarrassed and humiliated, correct?

16 A I don't about I was embarrassed, but I couldn't  
17 believe it.

18 Q And it is true that you may -- I'm using the  
19 word may -- be vindictive against what you think Dr. Karam  
20 did to you.

21 A I don't know what my subconscious mind would  
22 say. But openly, I'd say no.

23 Q Well, sir -- again, --

24 A As I stated earlier, I like Dr. Karam, we just  
25 have severe differences in safety.

1 Q Well, you didn't say vindictive to Dr. -- my  
2 question -- maybe I'd better repeat it. The question was  
3 not do you feel vindictive against Dr. Karam, it was do you  
4 feel vindictive against what you think Dr. Karam did to  
5 you?

6 A I don't like what Dr. Karam did to me. Is that  
7 being vindictive?

8 MR. JOHNSON: How can you be vindictive to an  
9 action? Don't you have to be vindictive towards people?

10 BY MR. EVANS:

11 Q Well, sir, I think I can clear it up. You'll  
12 recall -- I'm not going through the same litany again, do  
13 you recall your deposition being taken on April 9, 1996 in  
14 this proceeding?

15 A What'd I say?

16 Q And you do recall being under oath at the time?

17 A I do.

18 Q Well, I refer you to page 194, line 6. Did you  
19 not say, "I may be vindictive against what I think Dr.  
20 Karam did to me."

21 A But I overruled any of my vindictiveness on  
22 what I have just stated about the way -- whatever -- I felt  
23 that way long before Dr. Karam ever reorganized.

24 Q But you did say "I may be vindictive against  
25 what I think Dr. Karam did to me," whether or not you say

1 you've overruled it, correct?

2 A When I say may, it could be my subconscious  
3 mind and I don't know what that means. If you were to  
4 hypnotize me, I'd probably say he was a rat.

5 Q Well, sir, I can't know what's in your mind, I  
6 can know what you said at the deposition.

7 A Try to hypnotize me and then you might find  
8 out.

9 MS. CARROLL: Is hypnotism allowed in these  
10 proceedings? Hypnotism for everybody.

11 MR. EVANS: what?

12 MS. CARROLL: Hypnotism for everybody. Let's  
13 get the truth out.

14 THE WITNESS: But I don't know how exactly to  
15 answer that except that I don't consider myself normally a  
16 vindictive person.

17 BY MR. EVANS:

18 Q No, sir. And I would be the first to say I  
19 don't either, but whether --

20 A I've been treated worse on the football field  
21 than with Dr. Karam and I wasn't vindictive against the guy  
22 that knocked the fool out of me.

23 Q Sir, would you agree with a hypothetical  
24 proposition that a person who by nature is not vindictive  
25 as a general rule, can nonetheless be vindictive as to a

1 particular situation?

2 A I think we're all guilty of that.

3 MR. EVANS: Thank you, sir.

4 MS. CARROLL: I move to strike that. It was  
5 hypothetical, it was not particularly relevant to this  
6 proceeding. Can somebody somewhere be vindictive if it's  
7 not normally in their nature has no business here, it just  
8 went too far, I'm sorry.

9 THE WITNESS: I don't mind trying to answer it.

10 MS. CARROLL: I know that you don't. But I've  
11 been hanging out here for eight days and I have a sense  
12 that we've gotten improper.

13 CHAIRMAN BECHHOEFER: I think the question is  
14 okay and we'll allow it.

15 MR. EVANS: And I will drop that subject right  
16 here and now.

17 BY MR. EVANS:

18 Q I would like to move on to the reorganization  
19 proper. And I'm talking about the reorganization of July  
20 1, 1987. Now you've repeatedly used the word improper to  
21 describe the July 1, 1987 reorganization, haven't you?

22 A Yes.

23 Q And you consider the management structure which  
24 came into being as a result of the reorganization of July  
25 1, 1987 to be totally improper, is that not true?

1 A Yes.

2 Q And this management organizational structure is  
3 why you think that Georgia Tech's license ought not to be  
4 renewed for another 20 years, correct?

5 A One of the reasons, yes.

6 Q Do you have any other reasons?

7 A Yes, sir. I think I stated them yesterday, but  
8 I'll be glad to state them, but they may be -- I may be  
9 told not to speak about them.

10 Q Is the other reason -- I think I recall -- the  
11 other reason is that you think that safety would require  
12 replacement or correction of some components to bring the  
13 reactor up to snuff, is that correct?

14 A Money, use of money to improve the reactor to a  
15 superior status rather than what I consider less than  
16 adequate status.

17 Q But if the money were provided, this could be  
18 remedied, correct?

19 A Got to be a pile, yes.

20 Q I take it you are aware that the management  
21 structure, the organizational structure, which you say is  
22 improper, has, to your understanding, been accepted as at  
23 least one proper format of organization by the Nuclear  
24 Regulatory Commission.

25 MR. TURK: I'm going to object to that, I think

1 there's some confusion. The reorganization which Mr. Boyd  
2 has spoken about was the July 1987 reorganization. That  
3 reorganization was not approved by NRC, there was a  
4 subsequent modified reorganization.

5 CHAIRMAN BECHHOEFER: Could you clarify that?

6 MR. EVANS: All right.

7 THE WITNESS: Maybe we can start over, I've  
8 done got lost.

9 BY MR. EVANS:

10 Q I will put it this way. I will forget the  
11 reorganization and won't refer to that. I take it you  
12 would agree -- at least it's your opinion that the  
13 management organizational structure which started with the  
14 July 1, 1987 organization, that structure has been approved  
15 by the NRC as one proper format for organizing research  
16 facility, has it not?

17 A I don't know because that's one of those things  
18 after-the-fact I never was privy to.

19 Q Well, sir --

20 A I assume it was because they're still  
21 operating.

22 Q Again, I hate to be doing this again and again,  
23 but --

24 A Did I say that in there?

25 Q Well, sir, I don't want to go through the whole

1 -- can we simply by reference incorporate my prior litany  
2 about you were under oath and you recall your deposition of  
3 April 9th?

4 A Yes.

5 Q It would save considerable time. I'm going to  
6 refer you to two pages. The first page is page 73. Do you  
7 not state, "Yes, because the NRC has approved the  
8 organizational structure over there, and I don't think  
9 they've done that right, and I don't consider that  
10 adequate." Do you recall that?

11 A I don't recall it, but that sounds about right,  
12 I agree with that.

13 Q And if I may get the other page while we're at  
14 it -- 261.

15 A As I understand it, that's true. But I've  
16 heard here that that may have changed a little bit from  
17 what I originally thought it was when I made that  
18 statement.

19 Q Talking about the reorganization, question:  
20 "Well, it went through." Answer: -- excuse me, this is  
21 page 261 of your deposition, lines 15 and 16.

22 Question: "Well, it went through."

23 Answer: "Right, because it was done by the  
24 highest authority and it was approved by the NRC."

25 A Apparently that was so, that was my opinion. I

1 didn't have any direct evidence, but that's what I heard.

2 Q I think I asked originally, that was your  
3 understanding.

4 A Yeah -- okay, yes.

5 Q Obviously the NRC is the highest and best  
6 evidence.

7 A I was a little confused with direct evidence  
8 versus hearsay.

9 MS. CARROLL: I apologize to the Court, but I  
10 turned my back, so to speak, and I don't know what's going  
11 on right this minute.

12 CHAIRMAN BECHHOEFER: Well, let me say I don't  
13 think what the witness said under depositions, as far as I  
14 understand it, is any different than what he just said now.

15 MS. CARROLL: What was the question, because I  
16 think I heard a lot that followed the question.

17 MR. EVANS: The bottom line is his  
18 understanding is that the organizational structure which  
19 came about starting with the July 1, 1987 reorganization,  
20 that was approved, with or without minor -- but the  
21 organizational structure he's talking about as to who  
22 reports to who, that was, to his understanding, approved by  
23 the NRC.

24 MS. CARROLL: Thank you.

25 CHAIRMAN BECHHOEFER: Well, he said as far as

1 he knows, it's in effect so it must have been.

2 MR. EVANS: Yes, sir, that's just a  
3 foundational question anyway.

4 MS. CARROLL: Thank you.

5 MR. TURK: I would hope at some point we can  
6 clarify what the witness understands to have been approved  
7 or not approved because at this point I don't see any  
8 evidentiary value in that last series of two or three  
9 questions. Maybe lay a foundation and see what it is that  
10 he understands was approved.

11 MR. EVANS: Okay.

12 MR. TURK: Because I think right now we're  
13 really not developing a clear record.

14 MR. EVANS: That's probably a fair criticism.

15 BY MR. EVANS:

16 Q Am I correct that certainly the focus of your  
17 criticism of the reorganization -- and I don't know that I  
18 need to use the word reorganization -- in fact, I'll  
19 withdraw that. The focus of your criticism of the  
20 organizational structure at Georgia Tech where by the  
21 office of radiation safety reports to the director as  
22 opposed to the vice president as formerly, is your  
23 understanding that that format was approved by the NRC,  
24 that organizational structure. I thought I'd been talking  
25 about that all along, but that's what I'm talking about.

1           A       I hate to answer yes, but, because I know  
2 lawyers don't like buts, they like yes or no. But I do  
3 have a but. I would say yes, but.

4           Q       Fine. If you want to explain your yes answer,  
5 I have no problem.

6           A       Well, I believe, from my past notes and  
7 recollection, that George Kuzo told -- well, first of all,  
8 may I read something -- October 27, 1987, Will Ingram, who  
9 was a state inspector, informed me that Ledbetter, who was  
10 in charge of the Natural Resources Department at Georgia,  
11 who was over the licensing of radioactive material in  
12 Georgia, wrote a letter to Stelson showing concern over the  
13 new organization. Also, NRC Washington office called him  
14 in the state office, agreement state, this past week  
15 showing concern over our new organization. This was  
16 October '87.

17                   Then I have some notes further that talk about  
18 what George Kuzo had told some of my people or something,  
19 that he was there not because of somebody calling the NRC,  
20 whistleblowing or whatever about the incident in the  
21 summer, but because Washington had asked him to come and  
22 look at this reorganization, that there may be some problem  
23 there.

24                   So I think the NRC had some concerns about the  
25 thing and ultimately I think they satisfied themselves that

1 it was okay. So that's why I answered yes, ultimately, but  
2 I do think the NRC did have some concerns about it and as  
3 far as I know, they may still have some concerns about it,  
4 I don't know. So that was my but.

5 Q Yes, sir, and that's perfectly proper for you  
6 to explain any answer. It would probably be useful and  
7 speed up things if you tried, when possible, to start out  
8 with yes or no and then say to explain or but, and that's a  
9 better way of going at it.

10 A That's a good way.

11 Q Notwithstanding what you say is the ultimate  
12 NRC acceptance -- I'm not even going to mention  
13 reorganization, I'm going to say the management  
14 organizational structure. And whenever I use those words,  
15 I'm talking about the one you criticize and for the reasons  
16 you have criticized it, about where the MORS reports.

17 A Right.

18 Q You still say it is improper, correct?

19 A Yes, sir.

20 Q And you say it is improper even though it has  
21 in fact been accepted at some point by NRC.

22 A Yes, sir, if that's truly the case.

23 Q Am I correct that your view is that because the  
24 NRC has approved the organizational structure over there  
25 and don't think they've done that right -- and I don't

1 think they've done that right, I don't consider that  
2 adequate, is that your view?

3 A I don't consider that -- I think that it's a  
4 little less than adequate in terms of what the NRC  
5 themselves call adequate. See, they have a superior  
6 rating, good and adequate and I'm saying it's a little less  
7 than adequate. What I'm trying to say is the chances are  
8 that Dr. Karam's way of running the thing and the way it's  
9 been apparently approved and all is probably not going to  
10 cause any health to the environment outside or anything,  
11 but the probability of something safety-wise happening is  
12 more likely under this kind of organization than if you had  
13 a separate independent analysis by Dr. Ice or somebody else  
14 reporting to another place so he didn't feel intimidated,  
15 harassed or anything, so he could make independent  
16 judgments without having to go to Dr. Karam for approval of  
17 what he puts out. That's what I'm talking about.

18 Q Well, I'm a little confused. When you say it's  
19 a little less than adequate, are you saying that --

20 A As I understand adequate.

21 Q Is it fair to say that your standard of  
22 adequacy is obviously not the same as NRC's?

23 A I don't know that. I just know what my -- see,  
24 my status is that facility ought to be run in a superior  
25 fashion, but I'm saying it is run in an adequate or

1 slightly adequate fashion with this organizational  
2 structure, because the chances are more probable that  
3 another Bill Downs incident will happen and Dr. Ice will  
4 have to go through Dr. Karam and that is not proper. He  
5 needs to have independent evaluation without having to be  
6 coerced by Dr. Karam in any way as to why you should change  
7 or anything, you know. And I think the facts show that Dr.  
8 Karam has a tendency to try to influence the MORS in what  
9 he evaluates. Which is fine, but I don't think he ought to  
10 hold it against the guy if he says no. There shouldn't be  
11 any fear of reprisal on the part of Dr. Ice or whomever is  
12 in charge of the MORS.

13 Q Do you have any reason to believe or any  
14 knowledge of any instance where Dr. Ice has declined to say  
15 no because he was -- I don't know, what is your word,  
16 intimidated?

17 A No, I don't have any for Dr. Ice. I have some  
18 for myself, but I mentioned those yesterday. No, I don't.

19 CHAIRMAN BECHHOEFER: Could I interrupt just  
20 for a minute? I was confused about the references to NRC  
21 characterization of something as adequate or superior or  
22 whatever. I thought that those were SALP ratings and that  
23 they did not technically apply to research reactors.

24 MS. WOODHEAD: This is correct. Judge  
25 Bechhoefer -- right.

1 CHAIRMAN BECHHOEFER: I would like -- there's  
2 quite a bit of testimony now as to adequacy and superior  
3 and that kind of thing.

4 MR. TURK: I think the witness could probably  
5 explain what he's referring to when he made that statement.

6 CHAIRMAN BECHHOEFER: Yeah, I'd like just some  
7 clarification about what those terms mean.

8 THE WITNESS: Well, I don't know if this does  
9 it, Your Honor, but this is the May 10, 1996 United States  
10 Nuclear Regulatory Commission newsletter that I subscribe  
11 to and get and if you'd like to have this, you're welcome.

12 CHAIRMAN BECHHOEFER: I'm familiar with it.

13 THE WITNESS: Oh, okay. Where it talks about  
14 the Fermi plant rating superior in one area, good in two  
15 areas, adequate in one area in the latest assessment  
16 report. And they've got a Category I, II and III. I guess  
17 I is a superior, II is good and III is an adequate.

18 CHAIRMAN BECHHOEFER: Well, I'm familiar with  
19 that, but that technically doesn't apply to research  
20 reactors and that was why I was raising the question.  
21 Those ratings are for power reactors.

22 THE WITNESS: Well, I just extended them.

23 CHAIRMAN BECHHOEFER: I asked the staff a  
24 question several days ago and I probably will ask panel B  
25 how they would --

1 THE WITNESS: My philosophy is what's good for  
2 the nuclear power plants are good for the research reactors  
3 and anybody else that uses nuclear material. That's just  
4 my philosophy.

5 CHAIRMAN BECHHOEFER: I was just trying to  
6 clarify the basis for the particular answer. Thank you.

7 MR. EVANS: I can maybe follow up on that a  
8 little bit.

9 BY MR. EVANS:

10 Q Sir, when you talked about your philosophy, is  
11 the term adequacy as you are using it dependent on your  
12 experience and your philosophy?

13 A Yes, sir.

14 Q Which is basically your standard as opposed to  
15 an NRC standard.

16 A Because I don't know the exact definition of  
17 their standard, that's true.

18 Q Okay, thank you, sir.

19 A But I just wanted to let you know that they  
20 themselves use standards like those terms.

21 Q Now, would you agree that reorganizations at  
22 colleges and universities are not unusual?

23 A True.

24 Q And more often than not, they're controversial,  
25 aren't they?

1 A Right.

2 Q And would you say that basically professors are  
3 not the milquetoasts they're commonly led -- people are led  
4 to believe they are, but sometimes they're feisty, correct?

5 A I think that's true. If I might -- can I  
6 digress just a little and make a few statements? It  
7 doesn't have anything to do --

8 Q If it doesn't have anything to do with the  
9 response, I would prefer not.

10 A Other than just to say that --

11 Q I'm trying to get you off here too, you know.

12 A Well, I'm just trying to say any time  
13 presidents change at universities, things happen, same as  
14 coaches, same way with reorganizations. I know that, I've  
15 been around universities all my life, as a matter of fact I  
16 grew up on them.

17 Q And talking about the July 1, 1987  
18 reorganization, it is true, is it not, that it was opposed  
19 by the entire health physics staff?

20 A My staff?

21 Q Yes, sir.

22 A Yes, sir.

23 Q Including you.

24 A Yes, sir.

25 Q And to be perfectly fair about this, I recall

1 you did preface your expression about the organizational  
2 structure brought about by the reorganization as -- your  
3 often prefaced your opinions by saying, in my view and in  
4 my opinion, correct?

5 A Correct.

6 Q As to the organizational structure you dislike.

7 A Yes, sir.

8 Q And that is your opinion.

9 A Yes, sir.

10 Q Would you concede that others at Georgia Tech  
11 with honesty and integrity equal to your own could reach an  
12 opinion contrary to yours?

13 A Yes, sir.

14 Q So it's fair to say that while you are very  
15 strong in your opinions, you think that reasonable people  
16 could reach exactly the opposite conclusion and be strong  
17 in their opinion.

18 A Yes, sir.

19 Q Is it correct to say that when you refer to the  
20 Neely Nuclear Center as being improperly managed, you are  
21 really talking about its post-reorganization organizational  
22 structure?

23 A Mostly.

24 Q Yes, sir.

25 A But also before the reorganization, there was

1 some improper management from the highest level, not  
2 committing itself money-wise to that operation.

3 Q Could we identify that level, sir?

4 A State of Georgia, the legislative body down  
5 through the Board of Regents through the president.

6 Q Could you please say the Governor or Board of  
7 Regents rather than incriminate --

8 A Not your level. The money bags.

9 Q Thank you, sir. And am I correct it is your  
10 understanding that if the organizational structure is a  
11 certain way, then management will be a certain way.

12 A I think that's true.

13 Q And at Georgia Tech, you believe the management  
14 is probably bad because of the way the -- because of the  
15 existing organizational structure.

16 A I think that's less than adequate.

17 Q And the central focus of your criticism is not  
18 so much Dr. Karam individually, as it is the organizational  
19 structure, correct?

20 A Correct. But --

21 Q Okay.

22 A As I stated, I think in my deposition, that any  
23 -- I would oppose any organizational structure like that,  
24 regardless of whether Dr. Karam was there, but Dr. Karam  
25 does have a unique stubbornness about him, you might say

1 it's similar to mine, but he does have a stubbornness about  
2 him that makes it even worse as far as I think being  
3 hostile to people and harassing them and trying to find out  
4 things that really he shouldn't be trying to do. That's  
5 not my style, his style does that. I don't do that kind of  
6 thing and I don't think that's a proper way to do it.

7 But, it is true what you said.

8 Q And it's fair to say that your understanding is  
9 based upon your experience.

10 A That's true.

11 Q And you know absolutely nothing about his  
12 relations and how he works with Dr. Ice.

13 A Right.

14 Q And you know nothing about how he worked with  
15 Dr. Betty Revsin.

16 A Correct, other than what I hear -- hearsay.

17 Q And am I correct that consistent with your view  
18 and based on what you hear or hearsay, is it fair to say  
19 that you think that because of Dr. Karam's personality,  
20 someone like Dr. Ice being under his supervision would  
21 cower down on matters of safety and not stand firm against  
22 Dr. Karam.

23 A I think anybody might, including myself,  
24 including Dr. Ice.

25 Q And is it true that you think Dr. Ice would

1 hesitate to close down an activity at the center or a  
2 covered activity for fear of adverse action by Dr. Karam.

3 A I think that possibility strongly exists; yes,  
4 sir.

5 Q Now being a fair person, if the evidence were  
6 to show that Dr. Ice wasn't intimidated by Dr. Karam and  
7 would close down and has closed down activities, whether or  
8 not Dr. Karam liked it, would that alter your opinion on  
9 the efficacy of the current managerial structure?

10 A No.

11 Q Why not?

12 A Because some other person in Dr. Karam's  
13 position might take up that same situation. You have to  
14 take it situation by situation, and if you avoid that  
15 organizational structure, you avoid that possibility  
16 altogether.

17 Q And I think it is your opinion that the  
18 organizational structure and/or existing management  
19 problems you criticize at Georgia Tech, it is true, is it  
20 not, that you don't think they're that serious that the  
21 safety of the center cannot be assured?

22 A I would say they're less than adequate,  
23 whatever that means to you. It means to me that the  
24 possibility is more likely to happen where a person would  
25 do just like you just said, cow down to the director and

1 not report something or go along with his opinion and not  
2 have an independent analysis. That's what health physics  
3 is all about, 100 percent independent analysis.

4 Q Maybe I could get this --

5 A Without fear of any reprisal.

6 Q Okay. Can I get an answer to this question? I  
7 think it's capable of yes or no.

8 A Okay.

9 Q I don't object to your explaining. Do you  
10 agree that the management structure which you criticize is  
11 not so serious as to say that the safety of the public  
12 cannot be assured?

13 A I think in general, that's a true statement,  
14 but what I previously said also applies.

15 Q Yes. And it is fair to say that you do not  
16 consider the present organizational structure to constitute  
17 an immediate health hazard?

18 A No.

19 Q No meaning you do not consider it.

20 A I do not.

21 Q Is it accurate to say that your view of the  
22 organizational structure is not that it will but that it  
23 might in the future cause a safety concern.

24 A I think that's true.

25 Q And is it fair to say that you think it is more

1 likely to cause a safety concern under the current  
2 organization than the one you would prefer where the MORS  
3 does not report to the director.

4 A Yes, sir.

5 Q Would you agree that one of the purposes, if  
6 not the primary purpose, of the reorganization was to  
7 resolve the level of animosity between the former health  
8 physics staff and the operations staff?

9 A I think that was part of it.

10 Q And would you agree that prior to the  
11 reorganization, Dr. Karam had taken a number of steps to  
12 try and bring the two groups together socially.

13 A Yes, sir.

14 Q And would you agree that he was doing this to  
15 try and reduce the level of hostility between the two  
16 groups?

17 A I never knew that for sure, but I assume that.

18 Q You assume that.

19 A I never knew what his -- I enjoyed the things  
20 that he did, but I don't know that.

21 Q And he threw some Christmas parties --  
22 luncheons, excuse me --

23 A Right.

24 Q Out of his own pocket.

25 A I don't know that they came out of his own

1 pocket, but they were nice.

2 Q And he also tried to have little things like  
3 birthday parties in the office.

4 A I remember those. We did that long before Dr.  
5 Karam was there.

6 Q But at these affairs, you had people from both  
7 HP and operations coming together.

8 A We used to do it down in the machine shop, yes,  
9 long before Dr. Karam was there.

10 Q And is it fair to say that as far as reducing  
11 the level of hostility, this did not work, these social  
12 attempts did not work, did they?

13 A I don't know if that had any bearing on it or  
14 not. I do know that there's always a certain amount of  
15 animosity between the safety people and the operating  
16 people of any nuclear organization.

17 Q Would you not agree that --

18 A We're considered nit-pickers, you know, going  
19 around nit-picking.

20 Q Yes, sir, I understand that. Would you not  
21 agree that the level of animosity can reach the point where  
22 it is, in and of itself, a safety concern?

23 A yes.

24 Q Did you not one time call the police to prevent  
25 what you were concerned about, a conflict between HP and

1 operations?

2 A I did.

3 Q Now is it fair to say that under the old system  
4 of managerial organization, Dr. Karam was really not in a  
5 position to exercise managerial control over the radiation  
6 safety staff, was he?

7 A No, financially or anything like that.

8 Q And after reorganization, he was in a position  
9 to exercise some managerial control over the health  
10 physics.

11 A Total managerial control.

12 Q Thank you, sir. Now I don't know if you -- do  
13 you have yesterday's exhibits? I want to refer to GANE 51.

14 A 51 -- tell me what it is.

15 MS. CARROLL: That reminds me, we'll have to  
16 get them to the court reporter.

17 THE WITNESS: He can have all my pile. Does he  
18 need them now?

19 MS. CARROLL: You won't know it by GANE 51.

20 THE WITNESS: What's it called, what does it  
21 look like?

22 MR. JOHNSON: That is your --

23 MR. EVANS: It's "The Wrong Way to Handle  
24 Radiation Safety."

25 THE WITNESS: My notes on the wrong way. I

1 think I made a speech about that one time, is why I wrote  
2 that.

3 BY MR. EVANS:

4 Q Is it a speech?

5 A I can't remember. Probably. Something I  
6 wanted to write down while I was thinking about it.

7 Q Okay. In here, and I believe consistent with  
8 your testimony yesterday, you say that when the new system  
9 went into -- under the organizational structure which  
10 developed, you no longer had any line of communication to  
11 the president or to the Nuclear Safeguards Committee, but  
12 everything was through Dr. Karam. Is that your view?

13 A That's true. That is not my view, that's the  
14 way it was.

15 Q Well, do you want to retract that testimony in  
16 light of GANE 46 and 47?

17 A Okay, where is that? Is this the wrong way to  
18 do stuff?

19 Q No.

20 MS. CARROLL: I think GANE 46 and 47 must be  
21 those charts, before 7/1/87 and after 7/1/87.

22 CHAIRMAN BECHHOEFER: 47 was a speech.

23 MR. EVANS: 46 and 47, they're both originated  
24 by President John P. Crecine; one is a letter to Interested  
25 Parties, Nuclear Safeguard Committee and the other is an

1 address to the general faculty, both in February 1988.

2 THE WITNESS: This address to the general  
3 faculty, my daughter put together that little -- okay, I've  
4 got them.

5 BY MR. EVANS:

6 Q Let me ask you first of all, in looking at  
7 these documents, would you not agree that that is contrary  
8 to what you state you believe the new reporting system  
9 barred you from doing?

10 A No, that is not contrary, and also it is not  
11 the first organizational structure that I was referring to  
12 when I made my first comment. This has been changed from  
13 the first one, this is not the way it was when it first  
14 happened, absolutely not the way. The way I have it in the  
15 other thing --

16 Q Well, let's look at -- first, I'm going to ask  
17 you to look at the second part of the second line. It is  
18 apparent that some misunderstandings exist regarding  
19 responsibilities, supervisor and reporting relationships  
20 between the radiation safety group and the Nuclear  
21 Safeguards Committee. Radiation safety group, that's what  
22 you were in charge of, correct?

23 A The office of radiological safety, yes.

24 Q No, no, radiation safety group, that's HP,  
25 right?

1           A       Yeah. They're better known as the office of  
2 radiological safety, that's right.

3           MS. CARROLL: I'm sorry, Mr. Evans, are you  
4 reading from 47 or from 51?

5           MR. EVANS: 46.

6           MS. CARROLL: 46, oh.

7           MR. EVANS: I'm sorry, I thought I was clear.

8           THE WITNESS: Where were you now? I was trying  
9 to --

10          MR. EVANS: The first paragraph of 46, the  
11 second line.

12          THE WITNESS: "This memorandum is intended to  
13 clarify"?

14 BY MR. EVANS:

15          Q       In reviewing the organizational aspects --

16          A       I know where we are.

17          Q       In reviewing the organizational aspects of the  
18 most recent controversy surrounding safety at the center,  
19 it is apparent that some misunderstandings exist regarding  
20 responsibilities, supervisor and reporting relationships.

21                 Now the next sentence states: This memo is  
22 intended to clarify two aspects of these organizational  
23 arrangements.

24                 Do you see that, sir?

25          A       Yes.

1 Q Now in your mind, does clarifying something, is  
2 that the same as changing something?

3 A Could be, yes. Very well could be. And that's  
4 exactly what it was.

5 Q You think that's what it was?

6 A I know it was.

7 Q Okay. Moving down to the next paragraph,  
8 second sentence -- no, moving down to the third paragraph,  
9 second sentence: For day-to-day supervision, the manager  
10 of the office of radiation safety -- that's you, correct,  
11 at the time?

12 A Right.

13 Q -- reports to the director of the Neely Nuclear  
14 Reactor Center.

15 A Excuse me. I think that's me. Dr. Stelson  
16 made it clear it wasn't me a little bit later, but I assume  
17 it was me. At that time, I was confused.

18 Q As of February 19, you thought it was you.

19 A I was still confused even then, you know, but I  
20 assumed that was me. Anyway, it was the manager of  
21 radiation safety.

22 Q I direct your attention to the next sentence:  
23 In terms of reporting responsibilities --

24 A Right.

25 Q -- an obligation exists for the reporting of

1 all safety violations, dangerous conditions and potential  
2 problems to the Nuclear Safeguards Committee as well as to  
3 the appropriate line manager, regardless of location in the  
4 Georgia Tech organizational structure.

5 Do you see that?

6 A Yes.

7 Q And the next sentence, do you see: The Nuclear  
8 Safeguards Committee has a direct reporting relationship to  
9 the office of the president.

10 A Correct.

11 Q And then you see the final sentence: For  
12 urgent, dangerous or unresolved situations of importance,  
13 the office of radiation safety -- that's you, correct?

14 A Well, at that time, we had Dr. Kahn as the  
15 radiation safety officer and me as the manager of radiation  
16 safety, so I'm not sure where we were.

17 Q Well, they didn't say radiation safety officer,  
18 did they?

19 A It said office of radiation safety, and I don't  
20 know where that term went to during that time.

21 Q Anyway, continuing, it says: -- has an  
22 obligation to report and inform their supervisor, the  
23 director of the Neely Nuclear Research Center -- the  
24 radiation safety officer, he was not under the director of  
25 the Neely Nuclear Research Center, he was chairman of the

1 Nuclear Safeguards Committee, correct?

2 A He was the radiation safety officer and the  
3 chairman of the Nuclear Safeguards Committee jointly.

4 Q Yes, sir. And therefore, when it states  
5 reporting to their direct supervisor, the director of the  
6 Neely Nuclear Research Center, doesn't that make it  
7 perfectly clear that when they're talking about the office  
8 of radiation safety, they're talking about you?

9 A Doesn't make it very clear to me.

10 Q Okay. And going on, it says: -- and/or the  
11 vice president for research and/or the president.

12 A Right.

13 Q And then there is a diagram attached to that,  
14 correct?

15 A Yes, sir.

16 Q And does it not show that manager, office of  
17 radiation safety -- now that's clearly you, correct?

18 A That could be me at that time.

19 Q Yes, sir. And does it not say reporting safety  
20 and safety policy, it has a line going to the Nuclear  
21 Safeguards Committee, correct?

22 A Correct.

23 Q It's a solid line, correct?

24 A That's correct.

25 Q And is it not also true, based on the memo,

1 that at the same time you also had a line of communication  
2 available to the president.

3 A Well, it's not shown on that organizational  
4 chart.

5 Q No, sir, but is it not true that it existed?

6 A I don't know. It's somewhat confusing, and it  
7 is definitely not true that this was the first plan.

8 Q Well --

9 A The first plan didn't look like this.

10 Q I can't even go over exactly what dates, but  
11 we're talking about the organizational structure, the  
12 document says to clarify misunderstandings which you say  
13 could be a change.

14 I'll put it this way, is there any doubt in  
15 your mind that as of February 19, 1988, you had these  
16 reporting chains open to you?

17 A As this drawing shows, but I don't know for  
18 sure that I had the freedom to go to the president's office  
19 with a dotted line. If he had put a dotted line like he  
20 put from the office of the director -- see, the way this  
21 thing shows is that the director has a dotted line to the  
22 Nuclear Safeguards Committee and the manager, radiation  
23 safety has a direct line and he ought to have a dotted line  
24 all the way around everybody to the president. But it  
25 doesn't have that. That's the way I look at it.

1 Q But if you can do it, it isn't necessarily  
2 reflected on a dotted line, is it?

3 A Everybody should have that right, even the  
4 lowest student, I agree.

5 Q Okay.

6 A But you ought to write it that way so it's not  
7 confusing.

8 Q That's a fair point.

9 I next direct your attention to GANE 46 and --  
10 MS. CARROLL: That's the February 19, '88  
11 letter.

12 MR. EVANS: This is GANE 47, excuse me.

13 MS. CARROLL: Okay, that would be --

14 MR. EVANS: This is your daughter's memo of Dr.  
15 Crecine's speech.

16 BY MR. EVANS:

17 Q And you stated that to the best -- you were  
18 there, and you thought this was accurate.

19 A I was there. It was pretty accurate.

20 Q Yes, sir, I'm agreeing.

21 A As far as I know, it's the only thing written  
22 about it.

23 Q Well, we'll take it.

24 A I'll have to admit, I did try to tape record  
25 that thing and my tape ran out and I couldn't hear it very

1 well, I was too far away from the president. And as I  
2 recall, listening to that tape a little bit -- because I'm  
3 a tape bug -- it started almost exactly the way my daughter  
4 wrote, so I assume it's fairly accurate.

Q Am I correct that in the third paragraph, it  
6 states: In response to that letter -- referring to a March  
7 '87 letter from NRC if you want to go into it -- but anyway  
8 the second paragraph: In response to that letter, a  
9 reorganization of the Neely Center was proposed in May of  
10 1987 by Dr. Tom Stelson and Dr. Ratib Karam. In June of  
11 1987, the reorganization was adopted with the intent to  
12 correct the following two areas -- do you see that?

13 A Yes, sir.

14 Q And if I may skip down to the bottom of  
15 paragraph number two: The intent was to keep the channels  
16 of access open to the radiation safety group and the intent  
17 was to keep the reporting channels the same. Do you see  
18 that?

19 A The intent was to keep the channels of access  
20 open to the radiation safety group -- I presume he refers  
21 to the reactor safety group and the radiation safety group  
22 as one and the same -- and the intent was to keep the  
23 reporting channels the same. I don't know what he meant by  
24 that.

25 Q Okay. Well, we'll continue down, maybe he

1 explains it a little bit more.

2 Looking down at the line seven, starting out  
3 "If there is a safety problem".

4 A Yes, sir.

5 Q You see that, paragraph 7?

6 A Yes, sir.

7 Q And it states: The radiation safety group  
8 functions as front line watchdogs. Now that's you?

9 A That's the way I think it ought to be.

10 Q Yes, sir, that's your position.

11 A Yes, sir.

12 Q There is --

13 A Just like the NRC is a front line watchdog over  
14 the radiation safety group.

15 Q And they say there is, in the day-to-day  
16 responsibility and under the new system, they were to go to  
17 the president as always; however, the normal way to deal  
18 with a problem would be to deal directly with line  
19 management, beginning with the PI or person doing the  
20 experiment and then move up the line if there is no  
21 response. If the problem remains, then you go to the  
22 president.

23 A I think that's my position.

24 Q Well, that's the way President Crecine  
25 understood it all along, based on this speech, isn't it?

1 A That's what he said, yeah.

2 Q And he gets down --

3 A However, may I but in?

4 Q Yes, sir.

5 A I don't think Dr. Crecine understands the NRC  
6 regulations that don't prohibit a person from going  
7 directly to the NRC or up the line, he didn't say he  
8 didn't, but if he really wanted to make it clear, he would  
9 have said, but the person also has a right to go directly  
10 to the president, according to 10 CFR 19, 10 CFR 20 and so  
11 forth. But he didn't understand that, I don't think. And  
12 I think the logical approach is always go to your line  
13 manager and if that doesn't work, go beyond, and not worry  
14 about fear of reprisal. And that's part of my problem  
15 here, if you report to the guy you're criticizing, you have  
16 some fear of reprisal and you are hesitant to go directly  
17 to the NRC or to the president or to the line management  
18 below the president.

19 Q Well, let's pursue this.

20 A Okay, go ahead.

21 Q Next sentence he talks about: Some confusion  
22 has arisen over this. The manager of radiation safety  
23 group -- that's you, correct?

24 A At that time.

25 Q -- did not feel he had authority to go directly

1 to the president. That was your view.

2 A That was definitely my view.

3 Q Yes, sir. Dr. Crecine disagreed, correct?

4 A Apparently he did. He'd only been on the job  
5 four months though.

6 Q Well, didn't he say there is an obligation to  
7 go to him and there's a memo which states this?

8 A Well, it came after the fact.

9 Q Well, the memo --

10 A I mean after all the firing took place. This  
11 speech didn't come before all that, to let everybody know  
12 for sure.

13 Q The memo came before the reorganization, didn't  
14 it?

15 A Crecine wasn't there then.

16 Q Well, the memo, at least from the president and  
17 reporting, there was a memo about that before the  
18 reorganization, correct?

19 A From who?

20 Q Well, I think you have to look back at -- okay  
21 --

22 A This was before the reorganization you're  
23 talking about?

24 Q Yes.

25 A Oh, yeah.

1 Q Stelson to Bourne memo, 5/27/87 -- I'm reading  
2 from GANE 46 -- the radiation safety officer would have the  
3 authority to report independent -- you --

4 MS. CARROLL: That's the February 19, 1988  
5 document.

6 MR. EVANS: Yes.

7 BY MR. EVANS:

8 Q -- saying this is the same as the current  
9 practice. In addition, immediate reporting of emergencies  
10 to the office of the president should be forwarded. And  
11 with the rest of the paragraph we've already reviewed, it  
12 talks about the radiation -- office of radiation safety  
13 which you concede is yours. In the bottom paragraph of 46.

14 A That is what date?

15 MR. JOHNSON: February 19 of '88.

16 MS. CARROLL: We just had it out a minute ago,  
17 it's the one that has the organizational chart attached to  
18 it.

19 THE WITNESS: This one right here?

20 MS. CARROLL: Yes.

21 BY MR. EVANS:

22 Q My point is there's a reference in there to a  
23 Stelson to Bourne memo of 5/27/87, which goes into the  
24 organization as far as reporting.

25 A The chairman of the Nuclear Safeguards

1 Committee is Georgia Tech's radiation safety officer --  
2 that's Dr. Kahn, the radiation safety officer.

3 Q Yes, sir. And the bottom paragraph talks about  
4 the same provisions as having been -- the same provisions  
5 applying to the office of radiation safety.

6 A But still kind of confusing. He should have  
7 made that statement right at the first, to make it very  
8 clear that the guy in charge of the day-to-day stuff had  
9 the responsibility to go directly to the president. He  
10 kind of weasel words it down here at the bottom.

11 But he also misses the point of radiation  
12 safety when he says the chairman of the Nuclear Safeguards  
13 Committee is also the Georgia Tech radiation safety  
14 officer. That's true -- it was true at that time, but the  
15 Nuclear Regulatory Commission doesn't recommend that in  
16 their Reg Guide 10.5, and ultimately it got changed.

17 Q Well, what I'm really talking about is whether  
18 or not you could report to the president directly or to the  
19 Nuclear Safeguards Committee. You say you couldn't.

20 A I could, but I had fear.

21 Q Yes, sir, you've said an awful lot about that.  
22 You've saved a number of follow-up questions.

23 A I could report to anybody, but I had fear. And  
24 I shouldn't have had fear.

25 Q Yes, sir, but that's not what I understood your

1 testimony to be.

2 A Well, I had fear all the time.

3 Q Yes. And actually President Crecine said that  
4 failure to tell those in authority is a dereliction of  
5 duty.

6 A Even after I went to see the president, as I  
7 mentioned the other day, he was so rude to me I didn't know  
8 what to think about the president and how to trust him.

9 Q Yes, sir.

10 A Whether he was committed to radiation safety or  
11 not.

12 Q He was rude?

13 A Very rude. He walked out on me. I didn't say  
14 anything rude to him, he just left. And also, I don't  
15 think he understands by commitment versus support.

16 Q Okay. Is it fair to say that you think he was  
17 rude when he wrote on page two of GANE 47, up at the top,  
18 toward the end of the top line --

19 MS. CARROLL: GANE 47 is your daughter's notes.  
20 During the break, Your Honor, we will number his documents.

21 THE WITNESS: Number these things for me.

22 MR. EVANS: GANE 47 -- I mean, I sorry, that's  
23 what was given to me.

24 MS. CARROLL: Well his documents aren't  
25 numbered and he needs that in order to refer to them.

1 BY MR. EVANS;

2 Q We're on President Crecine's address that your  
3 daughter wrote, I'm sorry.

4 A That's all right. I'm going to write 47 on it.  
5 I didn't know if I should write on this. Is it going  
6 somewhere officially?

7 MS. CARROLL: You can, just say GANE 47.

8 THE WITNESS: And President Crecine's letter to  
9 Stelson was what?

10 MR. JOHNSON: 46.

11 THE WITNESS: 46. Okay, we're on 47 now.

12 BY MR. EVANS:

13 Q Yes, sir, top of page two. You were talking  
14 about President Crecine being rude, I'm wondering if you  
15 also found it somewhat upsetting or you found it rude when  
16 he states: There is no ambiguity in the memos he has seen,  
17 he doesn't understand where the radiation safety group got  
18 the idea that they couldn't go to him.

19 A Where was that now? I remember that.

20 Q Very top of page two on GANE 47, which is your  
21 daughter's notes of President Crecine's address.

22 A Further, the reporting is simultaneous?

23 Q Yes, the second sentence.

24 A There is no ambiguity in the memo --

25 Q I'm wondering if you found that offensive.

1           A       Well, I didn't find it offensive, I found it  
2 that he just didn't quite understand the situation.

3           Q       Okay.

4           A       As I understand, he doesn't understand where  
5 radiation safety group got that idea, because he's so new.

6           Q       Thank you, sir.

7           A       I don't think better supervision would have  
8 accomplished that goal, but that's what he said.

9           Q       Now you testify a little bit about the logbook  
10 problem. No, no, it's not in there. Brand new subject.

11          A       Oh.

12                 CHAIRMAN BECHHOEFER: Do you have a lot of  
13 cross examination still to go? Because I'm wondering in  
14 terms of taking a break.

15                 MR. EVANS: I think I'm over half way, but yes,  
16 I have a substantial amount.

17                 CHAIRMAN BECHHOEFER: I mean it's not like one  
18 or two questions -- okay, since you're shifting to a  
19 different subject, why don't we take a break now for 15  
20 minutes.

21                 (A short recess was taken.)

22                 CHAIRMAN BECHHOEFER: Back on the record.

23 BY MR. EVANS:

24           Q       Mr. Boyd, you mentioned that you -- the  
25 impediment to your going to the Nuclear Safeguards

1 Committee or to the president was basically fear of what  
2 might happen because of Dr. Karam's attitudes. You said  
3 that earlier.

4 A Yes, sir.

5 Q I just want to make certain that I understand  
6 that -- and you're speaking of fear, you are not saying --  
7 you don't have any information as to whether Dr. Ice has  
8 any fears the same as yours.

9 A No, sir.

10 Q And your fears are based on your personal  
11 experience.

12 A Yes, sir.

13 Q Now one thing I might ask, in view of a  
14 contention GANE has made along the line that the Nuclear  
15 Safeguards Committee, which has oversight of GTRR  
16 operations has a flaw because it has no concern with health  
17 issues. Do you agree that the Nuclear Safeguards Committee  
18 has no concern with health issues?

19 A Is that part of the president's talk?

20 Q Yes, sir, the present Nuclear Safeguards  
21 Committee. Do they have --

22 MS. WOODHEAD: What document are we referring  
23 to?

24 THE WITNESS: What document are you referring  
25 to?

1 MR. EVANS: Oh, well, I was actually reading --

2 THE WITNESS: Or can I refer to a document.

3 MR. EVANS: I was reading from your deposition  
4 transcript.

5 THE WITNESS: And I said what, again? I mean  
6 what was the question?

7 MS. CARROLL: It's very important that the  
8 witness follow the question.

9 MR. EVANS: Yes.

10 THE WITNESS: I can answer anything.

11 BY MR. EVANS:

12 Q The Nuclear Safeguards Committee, which has --  
13 question -- which has theoretical oversight of the GTRR  
14 operations has a distinct flaw in having no concern with  
15 health issues? That's a charge made by GANE. And what I'm  
16 asking you is do you agree with that charge that the  
17 Nuclear Safeguards Committee has no concern with health  
18 issues -- is that your experience?

19 A No, I think -- they're supposed to have concern  
20 with health issues. I don't know what they're referring to  
21 there.

22 Q Do you think in fact that these people are  
23 concerned?

24 A I think that's what their prime concern should  
25 be.

1 Q Yes, sir.

2 A Radiation safety health conditions or any  
3 health, for that matter.

4 Q Yes, sir. Now you talked a bit about the  
5 logbook problem when you were testifying yesterday. Now  
6 the logs in question were being kept by Messrs. Millspaugh  
7 and Sharpe. This was probably prior to the reorganization,  
8 correct, that they were keeping logs as to safety concerns?

9 A Yeah, we had a logbook situation for writing  
10 down things that didn't go on the forms that were used for  
11 surveys and all, anything you wanted to put in there  
12 dealing with safety or anything, you stamp it and date it  
13 and write your name and --

14 Q Yes, sir. Now before the reorganization, the  
15 people keeping these logs, Messrs. Millspaugh and Sharpe,  
16 were not under the supervision of Dr. Karam, correct?

17 A Yes.

18 Q And after the reorganization, isn't it true  
19 that one of the first things Dr. Karam did is express the  
20 view that he wanted to be informed of matters and not have  
21 them buried in some logbook?

22 A I think that that's a fair statement, he would  
23 want to be informed as much as possible on anything.

24 Q This is entirely proper, is it not, sir?

25 A Oh, I think that is very proper.

1 Q Thank you. Now as to his complaints about  
2 someone going to NRC, is it not true that his concern was  
3 likewise that the best procedure is to go first to  
4 management so that he knows about it and then go to NRC.  
5 Is that not what his view was?

6 A I'm not sure, I'm a little bit fearful and  
7 confused, and was confused on that matter. I would hope  
8 that would be his, because in a way what you ask is the way  
9 I -- you know, it's kind of like motherhood, I would prefer  
10 that the person would come and tell me what was going on  
11 before they went over my head, but under no circumstances  
12 should I or he or anybody else hold it against anybody if  
13 they do. They shouldn't even bring it up.

14 Q Well, sir, do you agree with the proposition  
15 that the best method for an employee who has a safety  
16 concern is first and foremost to tell his supervisor about  
17 it.

18 A I think under most circumstances that's true.

19 Q Yes, sir. And is it not true, if you know,  
20 that what Dr. Karam was upset about, was being informed of  
21 certain concerns or violations by NRC about which he knew  
22 nothing?

23 A I think that'd be true.

24 Q And did he not ever discuss with you that he  
25 thought that the proper procedure was to go first to

1 management and then to the NRC?

2 A I don't recall that, that he ever did that in  
3 that order. I think he probably did say everybody should  
4 let us know. I don't know if he followed up by saying then  
5 going to higher management.

6 Q And you would agree that it makes sense as to  
7 safety concerns, to go first to higher management.

8 A I think that's a more proper way to do it --  
9 but not necessarily.

10 Q And wasn't the focus of his conversation with  
11 you on the matter one of developing better team work  
12 between health physics and the operations staff?

13 A I assume that. I would think that any manager  
14 would want to develop better team work.

15 Q And to your knowledge, did he -- was he upfront  
16 about this and made the same complaint to NRC?

17 A I don't know.

18 Q Okay. But you have no knowledge that he was  
19 doing anything covertly or under the table, do you?

20 A I don't, other than what I heard.

21 Q Now you testified several times yesterday about  
22 the difference between adequacy of a program and I think  
23 you did it again today, and a superior program. Does this  
24 get into your views on the difference between complying  
25 with NRC procedures and health program adequacy? Do you

1 draw a distinction between those?

2 A Yes, anything dealing with that subject.

3 Q Am I correct that it is your opinion that if  
4 you had health physics procedures and people trained in the  
5 procedures to comply with the NRC procedures and the Neely  
6 technical specifications, you would still not necessarily  
7 have an adequate health physics program.

8 A Not necessarily.

9 Q Would it be fair to say that your view is  
10 absolutely not?

11 A I don't think it'd be fair to say that.

12 Q I refer you -- incorporating the same litany --  
13 to page 74 of your deposition transcript.

14 A I used the word absolutely?

15 Q Yes, sir.

16 A So you caught me again. Okay, what'd I say  
17 this time?

18 Q Page 74, line 17.

19 A What was the question again?

20 Q Question: So, is it your opinion that if you  
21 had health physics procedures and people trained in the  
22 procedures to comply with their -- with the Neely tech  
23 specs and Part 20 requirements, you would still not  
24 necessarily have an adequate health physics program.

25 Answer: Absolutely not.

1           A       Okay, absolutely not.

2                   MR. JOHNSON: I do feel that the word  
3 "necessarily" in that question was not -- I don't believe  
4 those two questions are phrased exactly the same. If I  
5 remember correctly from just a few moments ago, Mr. Evans  
6 asked if you could have -- even if you had compliance with  
7 all regulations, would it still be absolutely not in  
8 compliance and that question just sounds like it was  
9 phrased a little different to me.

10                   MS. CARROLL: I mean, your question included  
11 the phrase "not necessarily" this time in the deposition,  
12 but previously it did not include -- just now, you did not  
13 have the words "not necessarily".

14                   MR. EVANS: Well, I was really directing my  
15 attention to the answer "absolutely not."

16                   MS. CARROLL: Well, I mean, but you have to ask  
17 the same question to get the same answer, I would think.

18                   MR. EVANS: I don't know, do you have a motion?

19                   MS. CARROLL: A motion to get precise here and  
20 not be twisting what's going on.

21                   MR. EVANS: Okay, I'll try and be precise and  
22 not twist what's going on.

23                   MS. CARROLL: So ask him the exact same  
24 question this time. That's the way to solve it to me, and  
25 then see if his answer concurs with his deposition

1 statement. You should use the deposition question --

2 MR. TURK: I don't know that's even an  
3 important question.

4 MS. CARROLL: Well, just ask what you asked him  
5 in the deposition and see what he answers.

6 THE WITNESS: I will answer absolutely not.

7 MS. CARROLL: Well, then let's move on.

8 MR. EVANS: Can we proceed?

9 MS. CARROLL: Well, we can check with the  
10 record and see if you asked the same question this time.

11 MR. EVANS: I hardly think it's worth the time,  
12 but, you know, if the Court wants --

13 MS. CARROLL: If you want to ask the question,  
14 I want you to get it right.

15 MR. EVANS: There's no motion. May I proceed?

16 CHAIRMAN BECHHOEFER: Yes.

17 BY MR. EVANS;

18 Q Just because you comply --

19 MS. CARROLL: I need to have him ask that  
20 question. I move to back up, strike what happened and if  
21 he wants to see if he answers today the same way he did at  
22 the deposition, he should ask the question he asked at the  
23 deposition. And I move that we strike the answer to the  
24 question he asked here and make him re-ask it using the  
25 same question he used in the deposition -- or whatever he

1 wants to do. I move that we strike the answer to the  
2 previous question.

3 CHAIRMAN BECHHOEFER: Why don't you just re-ask  
4 the question to clarify it.

5 MR. EVANS: Okay.

6 BY MR. EVANS:

7 Q So, it is your opinion that if you had health  
8 physics procedures and people trained in the procedures to  
9 comply with their -- with the Neely tech specs and Part 20  
10 requirements, you would still not necessarily have an  
11 adequate health physics program.

12 A Absolutely not.

13 (Laughter.)

14 MR. EVANS: Thank you, sir.

15 MR. TURK: I don't know what that means.

16 MS. CARROLL: Me either.

17 MR. TURK: I don't know what the point of all  
18 that is.

19 MS. WOODHEAD: Well, I do, because for the  
20 record that was my question on deposition.

21 THE WITNESS: Well, I think it was a wonderful  
22 question.

23 MS. WOODHEAD: Thank you.

24 BY MR. EVANS:

25 Q And just because you comply with Part 20

1 regulations doesn't mean that you know how to handle  
2 serious radiation problems, correct?

3 A I ought to say absolute to that. Did I say  
4 that in the deposition? Right -- true.

5 Q No, you said uh-huh (affirmative).

6 A Okay, true, I agree.

7 Q Now, along this line, is it not true that you  
8 never thought Dr. Betty Revsin was a very practical health  
9 physicist as far as making good judgments on the spot of  
10 real serious health physics or things like that.

11 A That's true.

12 Q Even though she did know her rules and  
13 regulations.

14 A That's true.

15 Q You concede, based on her NRC experience, she  
16 did know her rules and regulations.

17 A She knew those.

18 Q And is it your position that if Dr. Revsin,  
19 when she went with the Neely Nuclear Reactor Center,  
20 developed an HP program which complied with NRC  
21 regulations, this doesn't make it an adequate program?

22 A That's true. I might say a but. It might make  
23 a better program in some respects, as far as regulations  
24 and procedure writing and all that. But there are other  
25 areas to be considered too. That's my but.

1 Q And in this light, is it fair to say that you  
2 were somewhat skeptical of Dr. Karam's concerns with your  
3 improving the written procedures for health physics  
4 following reorganization?

5 A Did you ask me that in the deposition? I can't  
6 remember. I'm afraid I'm going to answer wrong. I don't  
7 recall -- I can't recall the answer.

8 Q That's a perfectly safe answer.

9 A I was schooled on that "I can't recall." I may  
10 recall later, my mind's a little weak.

11 MR. EVANS: Okay. I need to distribute Georgia  
12 Tech Exhibit 31, which has been marked for identification.

13 (The document referred to was marked  
14 for identification as Georgia Tech  
15 Exhibit Number 31.)

16 THE WITNESS: I made a speech about this, by  
17 the way. If you can read it, you're in good shape, this is  
18 the way I talk.

19 BY MR. EVANS:

20 Q Dr. Boyd --

21 A Mr.

22 Q -- GT-31 purports to be a transcript of a tape  
23 recording you made. I'll ask you to review it and I'll ask  
24 you whether it appears to be an accurate transcript of a  
25 tape you made on or about March 1, 1983.

1 A That is very true.

2 Q Have you reviewed it now?

3 A Yes, I've reviewed it many times.

4 Q Is it fair to say that this occurrence which  
5 you speak about is one in which you managed to get three  
6 people, including yourself as well as 15 different  
7 locations approximately within my office contaminated?

8 A Yes, sir.

9 Q And what do you mean when you say approximately  
10 within your office?

11 A Approximately within my office?

12 Q Yes, sir.

13 A Did I say that where is that?

14 MS. CARROLL: It's line three.

15 MR. EVANS: Line three.

16 THE WITNESS: Your Honor, you've got to  
17 remember, this was me talking on a tape recorder and then  
18 transcribed by my secretary -- attempted to transcribe it.  
19 So she's writing it just liked I talked it, so my talking  
20 may not use good English and sentences end crazy and she  
21 probably had a hard time.

22 But now where is it now?

23 MS. CARROLL: It's line three.

24 THE WITNESS: Line three.

25 BY MR. EVANS:

1 Q I would just ask you if you know. If you don't  
2 know, that's fine too.

3 A We were trying --

4 Q I would estimate got on 15 different locations  
5 approximately within my office including three people.

6 A Yes. Approximately 20 micro-curies, I would  
7 estimate, got on 15 different locations approximately  
8 within my office including three people. Terrible  
9 sentence. But I don't know, that "approximately" doesn't  
10 have much meaning, I don't know what that means exactly.  
11 It just got on about 15 different locations within my  
12 office. You might assume the approximately was different  
13 because as you read further, it got on some other  
14 approximate positions, as he walked out of the office and I  
15 called him back in.

16 Q Yes, sir. Is it fair to say you were  
17 conducting an experiment on your own?

18 A I was trying to develop an educational tool to  
19 demonstrate in a class with a particle of cobalt that was  
20 approximately four micron in diameter, you couldn't see it.  
21 As a matter of fact, I found it in the high bay area on the  
22 floor between the pool and the hot cell and it read  
23 approximately 250 rad per hour beta dose with an in-window  
24 cutie pie, uncorrected.

25 THE REPORTER: Excuse me, I couldn't hear the

1 last part, something about the cutie pie.

2 THE WITNESS: It read approximately 250 rads  
3 per hour beta, which is typical of the cobalt-60 particles  
4 that were in that hot cell area, why it was outside the hot  
5 cell is a problem that we had to watch for all the time.  
6 But I found it on the floor, you couldn't see it, but you  
7 could sure as heck see it with a cutie pie, ionization  
8 chamber.

9 And I said well, this would make a wonderful  
10 educational tool to demonstrated with Polaroid film how hot  
11 particle can develop on Polaroid film if you just stick it  
12 on the end of a pencil and write with it. As you write  
13 with it, it'll develop the film, it's so hot.

14 Well we did that and the particle fissioned.  
15 But we were prepared, we were in my office -- shouldn't  
16 have been in my office, should have been somewhere else.  
17 But I didn't think the particle was going to fission or  
18 break in two. It actually broke in about 15 parts. If you  
19 can imagine 15 parts starting with four microns, the only  
20 way you could find 250 rad per hour particle -- it wouldn't  
21 be hard to find with a geiger counter, that's why you have  
22 these high counts.

23 BY MR. EVANS:

24 Q Is it fair to say that if you had had and had  
25 followed adequate written procedures, this contamination

1 might not have happened?

2           A       I doubt very seriously that this would -- if I  
3 had done -- possibly, I don't know. We did things like  
4 this all the time, experimenting with different things. I  
5 should have done it in a different area, true.

6           Q       And didn't procedures at the time require  
7 committee approval of one of the two committees you had of  
8 any sort of activity with radioactive substance?

9           A       Well, being the radiation safety officer, I  
10 found particles all over the place. We used those a lot of  
11 times for things. If you went to the radiation safety  
12 committee every time you found a hot particle, you would be  
13 constantly meeting. No, I don't think there was anything  
14 unusual about that, I was always developing -- trying to  
15 develop better ways of having little classes. I still say  
16 the biggest mistake I made in that particular case -- I've  
17 made other mistakes, this was kind of a humorous one to me  
18 and shouldn't have happened, but we were anticipating it,  
19 we were ready for it. We had the geiger counter handy, and  
20 I thought well this won't happen to me, but it did, and as  
21 you read on, one of the guys got it contaminated on his  
22 woocher, whatever I said there. But we brought him back in  
23 and decontaminated him and got the whole place under  
24 control.

25                   Yeah, I would say that I should have done it in

1 a different place. And usually I did when I did things  
2 like that.

3 Q And you agree that your actions were not  
4 consistent with nuclear safety, radiation safety.

5 A I don't know if they were not, or not. I don't  
6 think so. The radiation safety officer knew what he was  
7 doing. I mean I knew that the possibility of making a  
8 contamination situation was possible, but this was not what  
9 you call a serious situation at all.

10 Q And you did not report this spill or  
11 contamination to NRC, I take it.

12 A I reported it to the state and that was the  
13 state license. As a matter of fact, in my logbook  
14 somewhere, it showed that I called Tom Hill and told him  
15 it's my tape if you want to listen to that tape. I think  
16 that's why we had this transcribed. As a matter of fact,  
17 it became quite a joke down at the state, that I would do  
18 such a stupid thing.

19 Q Well, moving on now to another spill. You've  
20 testified some on the cadmium spill, isn't it true that you  
21 as radiation safety officer gave Bill Downs self-monitoring  
22 approval for his activities respecting the topaz research -  
23 - no, I strike that question.

24 Isn't it true that you gave Bill Downs self-  
25 monitoring approval for his activities respecting the topaz

1 research?

2 A We gave Bill Downs self-monitoring approval for  
3 certain activities. I'm a little fuzzy as to what that was  
4 all about, but there was a self-monitoring approval thing,  
5 assuming that he was going to follow the existing  
6 procedures.

7 Q Well, was there any procedure against his  
8 attempting to pour, after it'd been out one day, the  
9 irradiated topaz from the double capsule into a beaker?  
10 Was there anything contrary to procedure about that?

11 A I would have to review the details of that to  
12 know for sure, because I'm kind of fuzzy on that, but he  
13 did violate procedures.

14 Q Can you identify which procedure he violated?

15 A Yeah, he violated one of the other committee's  
16 procedures. Everybody that had access to the reactor  
17 control zone had to take a test from me on the radiation  
18 protection committee procedure manual and the nuclear  
19 safeguards committee manual and the tech specs -- we had a  
20 test. I administered that test before Dr. Karam would  
21 approve it to give access card to the reactor control zone.  
22 So all of those procedures, anything that was in that  
23 thing, anybody that had access, whether it was a reactor  
24 operator, a health physicist or what, is supposed to comply  
25 with that, see. And one of the things was if you change

1 the status of an area, regardless of what the RWP says,  
2 like contaminate the area, you're supposed to report to  
3 somebody. Bill Downs did not report to somebody. You're  
4 also supposed to check yourself when you leave an area that  
5 is potentially contaminated. Bill Downs didn't do that  
6 until he walked down the stairs and went to the exit point.

7 So, there were existing procedures in force and  
8 that was another thing that I felt bad about because we  
9 seemed to be criticizing people, we didn't have procedures  
10 to prevent Bill Downs from doing a stupid thing like that.

11 Q Yes, sir. Of course, my question really wasn't  
12 framed -- perhaps that was lack of clarity in my question.  
13 I was speaking about the actual act of transferring the  
14 topaz on the top of -- I think it was on the reactor floor  
15 or right around the reactor.

16 Was there any procedure against his  
17 transferring the topaz from the double capsule --

18 A Yeah, in light of the fact that he was going to  
19 change the status of an area when he did that, and he did  
20 change the status by taking it out of the lead container.  
21 The day before, health physics monitored for him. The next  
22 day -- he should have known, as hot as that thing was the  
23 day before, it wasn't going to be very cool the next day.  
24 But I think the RWP or something said as long as your body  
25 dose rate was not going to exceed 100 millirem per hour,

1 you could do self-monitoring. This was a heck of a lot  
2 hotter than 100 millirem per hour.

3 Q In view of yesterday's testimony --

4 A And let me say also the RWP stated he'd wear  
5 certain kind of protective clothing, which, as I alluded to  
6 yesterday, he was so large, he couldn't fit into any of our  
7 protective clothing, so we had to go to state surplus and  
8 get a pinion blanket to put over him and it didn't cover  
9 his entire body.

10 Q Well, let me ask you this, yesterday you  
11 testified that in many ways -- you testified about Bill  
12 Downs' inadequacies, in a number of ways, you testified  
13 about that yesterday. Why in the world did you give self-  
14 monitoring approval to Bill Downs who, by your own,  
15 testimony, was of marginal competence?

16 A Dr. Karam approved that also, we both are  
17 guilty of that.

18 Q But the self-monitoring approval stems from you  
19 initially, does it not?

20 A No, he has to make the final decision.

21 Q Yes, but he was basically approving your  
22 decision, is that not true?

23 A I assume, but I don't know.

24 Q So you had input into it even though you  
25 considered Bill Downs to be of questionable competence,

1 correct?

2 A Correct. But he's a reactor operator too.

3 Q Now you criticized Dr. Karam yesterday for not  
4 reporting the August 1987 cadmium spill to the NRC. Do you  
5 recall that criticism you made?

6 A Yes.

7 Q Is it not true, sir, that the cadmium spill was  
8 not a reportable event?

9 A In my view, that's true.

10 Q And is it not true that if something is not a  
11 reportable event, you can't say that anything was  
12 improperly withheld, can you?

13 A Right.

14 Q And certainly you can't say that there was a  
15 cover up, correct?

16 A I can't say there was an absolute cover up but  
17 I can say it's an apparent cover up if an inspector finds  
18 out about it in somebody's logbook or asks somebody about  
19 the thing later. Some inspector might think that it was a  
20 cover up, see. I don't think it was a cover up.

21 Q If it is not reportable --

22 A If it's not reportable --

23 Q It is not a cover up, right?

24 A That's true. I was just saying that in my view  
25 if you go ahead and call in like that, you avoid those

1 kinds of misunderstandings in later months.

2 Q Now I believe you would agree that in  
3 connection with the entire cadmium incident, not just the  
4 spill, but the entire events following that, the NRC found  
5 a substantial number of flaws in the h. program, didn't it?

6 A They found some, justified criticism, as well  
7 as reactor.

8 Q I'm going to give you a copy of what has been  
9 marked for identification as GT-16, Georgia Tech Exhibit  
10 16.

11 (The document referred to was marked  
12 for identification as Georgia Tech  
13 Exhibit Number 16.)

14 MS. WOODHEAD: Could you give the title of that  
15 document?

16 MR. EVANS: The title is Notice of Violation  
17 and Proposed Imposition of Civil Penalties, NRC Report  
18 Number 50-160/87-08 and NRC OI Investigation Report Number  
19 2-88-003 dated November 15, 1988.

20 A Right.

21 Q Do you see that, sir?

22 A Yeah, I'm kind of familiar with this document.

23 Q I would like to review some of -- if you will  
24 look to the first attachment, which says Notice of  
25 Violation and Proposed Imposition of Civil Penalty, do you

1 see that, sir?

2 A What page?

3 Q It's really an attachment to the cover, which  
4 is the -- it's entitled Notice of Violation and Proposed  
5 Imposition of Civil Penalties. There is no page number,  
6 but in fact it is page one, as you will see from the  
7 following pages.

8 A Yes, okay.

9 MR. TURK: May I just note for clarification.  
10 I believe this is the same document as Staff Exhibit 15,  
11 which is already admitted in the record.

12 MR. EVANS: Yeah, it may be.

13 MS. CARROLL: Are you distributing a new  
14 exhibit that we didn't get?

15 CHAIRMAN BECHHOEFER: No, it's been distributed.

16 MS. CARROLL: Oh, okay.

17 MR. TURK: There are some differences I see,  
18 your exhibit has the concurrence page, ours did not.

19 MS. CARROLL: The concurrence page, is that  
20 where Georgia Tech comments back or --

21 BY MR. EVANS:

22 Q If you count down, it's the fifth page, if you  
23 count down, it has no page number on it but it is page one  
24 of an attachment entitled Notice of Violation and Proposed  
25 Imposition of Civil Penalty. Are you there, sir?

1 A Yes, sir.

2 Q I direct your attention, and I'm going to try  
3 to be fair about this and review them all -- looking first  
4 at, there's a Section A and down at the bottom of the page,  
5 it states contrary to the above, a topaz irradiation  
6 experiment which resulted in a subsequent contamination  
7 event during the week of August 17, 1987, the licensee  
8 failed to follow approved procedures and failed to have  
9 adequate procedures, in that -- and then it lists (1)  
10 licensed procedure 3.102 was inadequate in that it  
11 specified only a review by management prior to conducting  
12 experiments. Do you see that paragraph?

13 A Yes.

14 Q Is that basically an error involving  
15 operations?

16 A That was -- that's true.

17 Q That did not involve HP specifically, correct?

18 A Right.

19 Q Would this also be true of item (2) on page  
20 two, top of page two: The irradiation time for the topaz  
21 experiment exceeded the 30 MW hour limit allowed by the  
22 request for minor experiment approval form. Total  
23 irradiation time was 41.8, I guess megawatt hours.

24 A That sounds correct, I'd have to review --

25 Q Would you agree that that's an operator --

1           A       I would think that's right, yes.

2           Q       Would you agree that the next one is health  
3 physics -- licensee operation and health physics procedures  
4 to control and/or prevent the spread of radioactive  
5 contamination and to control personal exposure while  
6 handling and manipulating irradiated experiment materials  
7 were inadequate in that the measures such as fuel hoods of  
8 containment structures were not specified and surveys were  
9 not required at exit points to all contaminated or  
10 contamination control areas.

11                       Now that would be, at least in part, an HP  
12 area, is that correct?

13           A       Right.

14           Q       And if you go down to the next one (4) license  
15 procedures were inadequate in that the materials and  
16 methods for construction and fabrication of the cadmium  
17 layer used in the topaz irradiation experiments were not  
18 specified. That would also be an operator error, correct?

19           A       I assume.

20           Q       Okay, looking down to (5). Licensee procedures  
21 for analyzing for airborne radioactive contaminants were  
22 inadequate in that the samples in which gross analysis  
23 concentrations exceeded 10 CFR Part 20, Appendix B limited  
24 were not required to be maintained for a sufficient time to  
25 allow for decay of natural radon daughter products and then

1 be recounted to evaluate the actual radiation hazards  
2 present as a result of reactor operations. That would be a  
3 health physics concern, would it not, sir?

4 A That would be a health physics concern. Should  
5 be everybody's concern.

6 Q But this would directly involve a health  
7 physics function, correct?

8 A Yes, if we had known about it.

9 Q And item (6) licensee procedures for urine  
10 bioassay -- if I'm pronouncing it right -- analysis and  
11 internal exposure evaluation were inadequate in that  
12 standard methodology to quantify results of radionuclide  
13 analysis in urine was specified only for tritium and  
14 appropriate biological retention models to relate  
15 calculated body burdens to a person's estimated intake of  
16 airborne radioactive contaminants was not specified. That  
17 would be health physics, would it not, sir?

18 A Yeah. You know, I don't know if that was  
19 totally true or not because the window is wide open on that  
20 liquid -- was wide open on that liquid scintillation  
21 counter and it counts anything that was in his urine.

22 Q When you say it's not true, you think that  
23 maybe the NRC is shaky.

24 A Little shaky. What I've been classified as,  
25 that's a little nit-picky.

1 Q Okay. That's NRC nit-picky, not Dr. Karam.

2 A It may or may not be true. I guess what I'm  
3 saying is we didn't have methods to analyze any body burden  
4 that he might have picked up and the only thing we had was  
5 analyzing the urine sample and maybe stick a sodium iodide  
6 crystal on his chest or something.

7 Q Okay. Moving to item (7), the licensee did not  
8 have procedures detailing the calibration and operation of  
9 the sodium iodide now -- looks like -- detection system  
10 used to conduct quantitative in vivo chest surveys for  
11 radionuclides -- maybe -- potentially deposited within the  
12 body.

13 A We didn't have good methods there. We relied  
14 on taking a person to Savannah River or Georgia Power if  
15 anything that wild happened.

16 Q And this would have been a health physics  
17 function, correct?

18 A That's correct.

19 Q Moving down to Section B, the bottom paragraph  
20 on page two, where it says: Contrary to the above, for a  
21 contamination event which occurred during the week of  
22 August 17, 1987, the licensee failed to conduct surveys or  
23 conducted inadequate surveys to evaluate the extent of  
24 radiation hazards which may have been present, in that --  
25 and then it lists three items; one, two and three on page -

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MS. CARROLL: Your Honor, I may not understand this proceedings, I think that's pretty apparent to everybody, but you know, we've already heard that we aren't re-litigating this. This document stands for itself, Mr. Boyd was in the exit interview and was totally in the loop for all of this. We've heard a lot of testimony on a detail level about the violations of both operations and health physics. Is it appropriate -- I object to this line of questioning, I think it's cumulative, redundant and the document speaks for itself, it's in the record.

CHAIRMAN BECHHOEFER: We're not going to interrupt this line at this moment. At some point it will become cumulative, excessively cumulative and --

MR. EVANS: No, sir. If I may, I do think --

CHAIRMAN BECHHOEFER: I think the record does already reflect that both operations and health physics were responsible for --

MR. EVANS: Yes, sir, that is precisely my point. I believe this item will clarify the proportionate responsibility. I think that is very important to our case since we ultimately removed the health physics staff and have been accused of doing that improperly. I think this is important to show the proportion of fault in respect to a violation, level III for which we were penalized \$10,000

1 and had the reactor shut down.

2 CHAIRMAN BECHHOEFER: \$5000.

3 MS. CARROLL: Five.

4 MR. EVANS: Thank you, I'm glad it wasn't that  
5 bad. But I think it's appropriate for me to show the tie-  
6 in to how we got to have a level III violation and we would  
7 stipulate that there were operator problems and there were  
8 health physics problems. I believe it's relevant to show  
9 the preponderance or weight of the problems where they  
10 were.

11 CHAIRMAN BECHHOEFER: Well, anyway, we'll  
12 permit you to continue.

13 MR. EVANS: I may be able to hurry it along by  
14 avoiding reading each paragraph since it's in the record.

15 CHAIRMAN BECHHOEFER: I think that would help,  
16 we all have the document in front of us.

17 MR. EVANS: Yes, sir, I will just simply  
18 identify the area and ask the witness to read (1), (2) and  
19 (3) and I'll ask him if (1), (2) and (3) are HP errors.

20 BY MR. EVANS:

21 Q Looking at the top of page three, we start on  
22 page two where it says contrary to -- first, they outline  
23 the violations. Looking at (1), (2) and (3) at the top of  
24 page three of Georgia Tech 16, would you agree that each  
25 one of these paragraphs represents a health physics

1 concern?

2 A Yeah.

3 Q Moving down to Section C, which we have at the  
4 bottom of the page where it talks about contrary to the  
5 above, the licensee failed to conduct suitable measurements  
6 of concentrations of radioactive materials in air or  
7 measurements of radioactivity in or excreted from the body  
8 in that and then it lists items (1), (2) and (3).

9 Would you agree that both the introductory  
10 paragraph starting with contrary to the above and items  
11 (1), (2) and (3) are all health physics functions?

12 A When you speak of health physics functions,  
13 you've got to remember that Dr. Karam is in charge of  
14 health physics. True -- I agree.

15 Q When you say in charge of, do you not mean that  
16 he had supervisory --

17 A He is essentially the radiation safety officer  
18 at that point.

19 Q Well, sir, were you not at the time of the  
20 cadmium --

21 A I was the manager of radiation safety.

22 Q At the time of the cadmium spill, you were  
23 manager of the office of radiation safety.

24 A Reported directly to Dr. Karam just like  
25 everybody else reported to Dr. Karam.

1 Q Yes, sir, as far as reporting. But would you  
2 agree that each one of these items had to do with the  
3 health physics function?

4 A With a health physics function that is over-  
5 done by Dr. Karam, that's right, that is overseen by Dr.  
6 Karam.

7 Q Were you not --

8 A He was in charge of health physics.

9 Q Well, sir, you were manager of the office of  
10 radiation safety, correct?

11 A But he was my manager, and he wanted it that  
12 way.

13 Q Yes, sir, but is it not true -- I'm not talking  
14 about responsibility, I'm talking about the day-to-day  
15 functions. Is it not true that they were performed by  
16 Messrs. Millspaugh and Sharpe?

17 A And the student assistants that I had and  
18 myself.

19 Q And they were directly under you; correct, sir?

20 A Well, that was somewhat questionable sometimes  
21 as to who they really reported to.

22 Q Well, you were supposed to be managing, were  
23 you not?

24 A I was supposed to be called the manager of  
25 radiation safety, but it was somewhat questionable as to

1 who Millspaugh and Sharpe reported to, me or Dr. Karam.

2 Q Do I understand that you had a question that  
3 they reported first and foremost to you as their  
4 supervisor, immediate supervisor?

5 A Well, that is the way it was supposed to be,  
6 but it was kind of a shaky arrangement and kind of  
7 confusing -- to say the least, it was shaky.

8 Q When you say shaky, this is your personal  
9 opinion?

10 A Yeah.

11 Q Okay. Let's move on to D on page four. This  
12 is where contrary to the above, the contamination event  
13 which occurred during the week of August 17, the licensee  
14 failed to maintain records for facility and personal survey  
15 records, in that, and then it has (1) and (2).

16 Would you agree that the introductory  
17 paragraph, starting with the words contrary to the above,  
18 and items (1) and (2) were all health physics functions?

19 A Under Dr. Karam, yes.

20 MR. EVANS: I would move to strike the words  
21 "under Dr. Karam," as non-responsive. We do not dispute  
22 that in the reporting authority or from the viewpoint of  
23 supervision, that -- as has the witness testified, he  
24 reported to Dr. Karam. This does not in any way, from his  
25 own testimony, change the fact that he was manager of the

1 office of radiation safety and the supervisor, immediate  
2 supervisor of Messrs. Millspaugh and Sharpe, the radiation  
3 safety technicians or health physics staff.

4 CHAIRMAN BECHHOEFER: The Board will not strike  
5 that particular reference, but we would request the  
6 witness, if he wishes to qualify a yes or no answer or  
7 something like that, to state it as a qualification, one of  
8 your butts.

9 THE WITNESS: Okay. But, you've got to  
10 remember --

11 CHAIRMAN BECHHOEFER: Yeah, because I think  
12 answers may require more than a yes or no answer.

13 THE WITNESS: Your Honor, may I speak?

14 CHAIRMAN BECHHOEFER: That one we will leave in  
15 the record the way it is.

16 BY MR. EVANS:

17 Q Is it fair to say that the reorganization  
18 changed your supervisor?

19 A But it changed our philosophy as to who we  
20 really reported to.

21 Q Well, sir, my question was did it change your  
22 supervisor, who you reported to.

23 A You mean Dr. Karam.

24 Q Yes, sir.

25 A Oh, no. Did the reorganization change -- yeah,

1 it did change, yeah, that's true.

2 Q From Dr. Stelson to Dr. Karam.

3 A Right.

4 Q Is it not fair to say that it did not change  
5 your functions as management of the radiation safety  
6 officer including the supervision of the HP staff,  
7 Millspaugh and Sharpe?

8 A That is what is confusing, Al. That's where  
9 the confusion comes in, that very point. And when Dr.  
10 Karam wrote his famous memorandum to all people to not use  
11 personal logbooks and all this stuff, it changed our  
12 feeling -- we feared writing anything down or doing things  
13 without informing him personally or getting his approval  
14 and all that. So we were a little bit afraid to document  
15 too much, see? So I can understand why anybody might fear  
16 doing something like that in favor of just verbally talking  
17 about it, in light of the reorganization. And that's why I  
18 keep saying we felt that's the way Dr. Karam wanted it, not  
19 to document so much, just tell him or write a little memo  
20 or something.

21 So I think Dr. Karam has to take a share of the  
22 blame for this \$5000 as well as -- obviously a lot of  
23 people think it was the health physics where the root mean  
24 cause, which is not true.

25 Q It's your testimony -- is it your testimony

1 that Dr. Karam ever told you not to maintain records for  
2 facility and personnel survey records?

3 A He never made that very clear in his  
4 memorandum, he was kind of frustrated and mad about this  
5 thing and wanted to have all the stuff come to him.

6 Q Well, is it not true, sir, that the logbooks  
7 had nothing to do with the survey forms which, like the  
8 maeslin survey, which you conducted on a daily basis?

9 A Had nothing to do with -- I guess that's true.

10 Q And is it not true that what is in question in  
11 Section D -- and I'm referring again to contrary to the  
12 above, and it talks about maintaining records for facility  
13 and personnel survey records. And then it lists (1) and  
14 (2).

15 Do you deny that all three -- the contrary  
16 paragraph and items (1) and (2) related to the health  
17 physics function?

18 A As a health physics function, right, all of  
19 this relates to health physics function -- everything,  
20 including what you call a reactor thing, that's all health  
21 physics, if you want to put it generally like that.

22 Q Now --

23 A But to try to place blame, that's a different  
24 matter.

25 Q Well, sir, you would prefer to blame someone

1 else, I understand that.

2 A I am not trying to blame anyone.

3 Q Are you not trying to put the blame on Dr.  
4 Karam?

5 A I'm just trying to say that under the  
6 reorganization, Dr. Karam has to share some of the blame  
7 for that too, if there is blame to be shared. And others  
8 as well.

9 Q Is it fair to say, looking at GT-16, by a  
10 considerable majority, -- the majority of these violations  
11 by a considerable degree involve HP as opposed to  
12 operations functions?

13 A Yes.

14 Q Now, when you were getting criticism from  
15 assistant director McDonald as to maybe you should leave,  
16 and you said earlier that he had looked into the cadmium  
17 spill. Given those two facts --

18 A He and I looked into it together.

19 Q Yes, sir, but given the preponderance of HP  
20 errors, would it be fair to say that when Dr. McDonald was  
21 suggesting maybe you should leave, he might have had these  
22 errors in mind?

23 A I do not know that. But what he did say was  
24 that I wasn't cooperative and I've got some 17 different  
25 things where I was very cooperative right here, if you want

1 me to read them. Anticipating that that might --

2 Q I will allow that on redirect, I don't --

3 A You don't want to listen --

4 Q That's your counsel -- if it's not responsive  
5 to the question, I think it should be proper for redirect.

6 A Well, there's one in here that says help Dr.  
7 McDonald, who blah, blah, blah, and Puckett do certain  
8 things.

9 Q If I may, I would leave counsel to explore  
10 that.

11 Now, moving to another subject, the O'Bannon  
12 report. Do you recall a Dr. O'Bannon being called in  
13 around December 1987-January 1988 --

14 A I do.

15 Q -- to assess the center's personnel problems?

16 A I recall Dr. O'Bannon. The dates I don't  
17 recall to well.

18 Q Well, would you say it was around the end of  
19 1987, beginning of 1988, approximately?

20 A If you say that's right, I'll say that's right,  
21 because I don't remember.

22 Q Thank you, sir. I really wouldn't mislead you.

23 A I know you wouldn't.

24 Q And he was also -- his purpose was to look into  
25 the level of animosity between the HP and operations staff,

1 correct?

2 A I understand he was a psychologist trying to  
3 psychoalkalyze (ph) us all.

4 Q Did you say he was an industrial psychologist?

5 A I believe that's what he was called by Dr.  
6 Stelson.

7 Q And to your knowledge, he filed a written  
8 report, didn't he?

9 A Yes.

10 Q And he interviewed a lot of people at Georgia  
11 Tech?

12 A He did.

13 Q Including --

14 A Including me.

15 Q Yes, sir. Do you know anything about prior  
16 oral reports that Dr. O'Bannon made to either Director  
17 Karam or Tom Stelson, Vice President Stelson?

18 A I don't know much about that.

19 Q Do you know whether he made any oral reports?

20 A I assume he did, Dr. Stelson hired him to do  
21 that, or asked him to do that -- he was already on staff.

22 Q I'm going to ask you to look at --

23 A I did see a report that he wrote somewhere, I  
24 know I've seen something that he put together. Maybe  
25 that's it.

1 Q Yes, sir. You will recall at the time of your  
2 deposition, you were shown the document and asked --

3 A I recall that he had a document showing it.

4 Q Yes, sir. I show you what's been marked for  
5 identification as Georgia Tech Exhibit 10. It also has a  
6 marking on it Exhibit Boyd 1 from the date of your  
7 deposition. The title is "An Organization Review of the  
8 Neely Research Center of the Georgia Institute of  
9 Technology."

10 MS. CARROLL: Where is this -- I'm kind of lost  
11 in paper here. When did you give this to us?

12 MR. EVANS: GT-10.

13 MS. CARROLL: Is it appended to Karam's  
14 testimony?

15 MR. EVANS: Actually it is attached to Karam's  
16 testimony, but it's also in the big package.

17 MS. CARROLL: Then we were given it yesterday.

18 CHAIRMAN BECHHOEFER: It's that big package of  
19 exhibits.

20 (The document referred to was marked  
21 for identification as Georgia Tech  
22 Exhibit Number 10.)

23 BY MR. EVANS:

24 Q First, I direct your -- this is preliminary --  
25 I direct your attention to page one where it states the

1 purposes of the survey included the following goals, and it  
2 says assessment of the attitudes and reactions of the  
3 personnel toward the recent Nuclear Regulatory Commission  
4 order requiring suspension of certain activities,  
5 clarification of any organizational issues or problems  
6 which might have contributed to the conditions described in  
7 the Nuclear Regulatory Commission order, or which might be  
8 impacting on the effectiveness at the center. And then it  
9 talks of identification of the courses of action which have  
10 potential for leading to greater organizational  
11 effectiveness.

12 Do you take any issue that this was the purpose  
13 of the --

14 A What page are you on?

15 Q Page one, sir, third paragraph, the purposes of  
16 the survey included the following goals, which I have read,  
17 I won't repeat them, but if you would look at that on page  
18 one -- I'm not counting the cover page.

19 A I know it.

20 Q And it states the purposes and I want to know  
21 if you take any exceptions as to these being the purposes  
22 of the review by Dr. O'Bannon.

23 A I'm sorry I'm kind of stupid, where are you  
24 now?

25 MS. CARROLL: There's three bullet points and

1 then the first bullet point is on that page and it starts -  
2 - and it includes those bullet points.

3 MR. EVANS: It says the purposes of the survey  
4 included the following goals, and then it starts out,  
5 assessment of -- the three subparagraphs.

6 THE WITNESS: Okay, the purpose of the survey  
7 included the following goals.

8 MR. EVANS: Yes.

9 THE WITNESS: (Reading.)

10 THE REPORTER: I can't hear you again.

11 MS. CARROLL: He's just letting you know that  
12 he's reading and let him alone for a minute.

13 (The witness reviews the document.)

14 THE WITNESS: And what was your question?

15 BY MR. EVANS:

16 Q My question is do you take any exception as to  
17 these being the purposes for which the review was made?

18 A I really honestly don't know what the purpose  
19 was for, I didn't have anything to do with it.

20 Q Do you have any reason to dispute the stated  
21 purpose?

22 A I don't any reason because I'm not a  
23 psychologist, I don't know anything about why he did this,  
24 other than what I've heard.

25 Q I'd like to review the summaries with you, or

1 the summarization of the opinions at least of the  
2 industrial psychologist. They don't have numbered  
3 paragraphs, it's the --

4 A Second page?

5 Q Page two. It's not numbered, it's not a very  
6 long report, it's the second page of the report proper.

7 A I'm following you.

8 Q And I'm going down -- I think counsel described  
9 it as the fourth period.

10 A Fourth period.

11 Q Expressions of commitment to the nuclear  
12 research center varied, along functional lines. Health  
13 physics personnel expressed reservations about the efficacy  
14 of the center and its management and operations and  
15 administrative personnel expressed support for the center  
16 and described it as a well-run organization.

17 Do you think that was a fair characterization  
18 as to the split between HP and operations as to their view  
19 of the center?

20 A Probably, yes. One of the conventions.

21 Q Yes, sir. And looking down to the next  
22 paragraph below that. All employees acknowledged a history  
23 of interpersonal conflict between health physics and  
24 operations personnel which had been present for the last  
25 five to six years.

1 A I see that.

2 Q Do you see that?

3 A Yes.

4 Q Is it your opinion that it was actually longer  
5 than this?

6 A There was longer than that, yes.

7 Q And looking at the next paragraph: Tensions  
8 between reactor operators and health physics officers are  
9 often characterized by verbal hostility while work is being  
10 done and there is resentment felt by each group toward the  
11 other.

12 A I think that's --

13 Q Is that part true?

14 A Yeah, I think that's true.

15 Q And then would you say the next sentence, in  
16 general, interpersonal interactions have declined between  
17 the two groups in frequency and quality, hostility has  
18 escalated as a result of lack of communications.

19 Would you agree with that?

20 A I presume that's true, uh-huh, there was  
21 hostility.

22 Q Looking down to the next paragraph: Attempts  
23 by the director of the center to reduce the tension have  
24 not worked. These have included repeated appeals to  
25 individuals and groups as well as attempts to build group

1 spirit through increased social interaction.

2 Would you agree that that is an accurate  
3 statement?

4 A I can't speak for that because I don't know  
5 whether that did or not -- I don't know if the attempt to  
6 do that reduced hostility or didn't reduce hostility. I  
7 just don't know how to answer that.

8 Q Well, you testified earlier that he did have  
9 Christmas lunches for both groups, he tried to bring groups  
10 together at office birthday parties, things of that sort.

11 Is it possible that that's what the report is  
12 speaking about?

13 A It's possible.

14 Q Social interaction.

15 A It's possible, yeah.

16 Q And would you agree with the first sentence  
17 that attempts of the director of the center to reduce the  
18 tension have not worked?

19 A I can't say that it didn't work because I don't  
20 know all of the attempts he made.

21 Q Okay. Well, can you say that whatever attempts  
22 he made, they had not reduced the tension between HP and  
23 operations?

24 A I don't know at that state of the time whether  
25 it did or not, I don't know.

1 Q Would you agree that at that time high tensions  
2 continued to exist between operations and HP?

3 A I would have -- I can't recall the exact period  
4 of time, if that was the case. I'm a little bit fuzzy  
5 seven years down the road.

6 Q Yes, sir, thank you. If we're talking -- I  
7 appreciate that. To be precise, the report was made in  
8 December of 1987. If it was in the time period December  
9 '87 and January 1988, would you say that tensions were high  
10 at that time between HP and operations?

11 A I would say there were tensions, I don't know  
12 how high you might categorize it. I don't know if they  
13 were anything other than normal under circumstances like  
14 this is.

15 Q Okay. The next paragraph: Health physics  
16 officers expressed frustration over the reassignment of  
17 their reporting relationship to the center director. They  
18 feel that this limits their ability to do their work and  
19 they do not see him as sympathetic to their goals.

20 I would assume you would insist and shout and  
21 say yes, am I correct?

22 A Yes.

23 MR. JOHNSON: He didn't shout.

24 Q Going to the next paragraph: Other personnel  
25 see health physics as increasingly assuming a policing role

1 and less willing to contribute suggestions or participate  
2 in planning. On the other hand, health physics officers  
3 feel they are consulted and invited into discussions less  
4 often. Would you agree with both of those sentences, one  
5 or the other, or which?

6 A I think that's true.

7 Q Okay. The next one, neither reactor operators  
8 nor health physics officers were able to offer realistic  
9 solutions to resolving the conflicts.

10 A I don't know what he meant by that, so I can't  
11 answer it.

12 Q Okay. Then he gets onto certain conclusions,  
13 and I would skip to the next page and go down to the third  
14 paragraph. Dr. Karam's management style is characterized  
15 by close monitoring and frequent involvement in day-to-day  
16 activities.

17 We might take this a sentence at a time. You  
18 would agree with that, I assume?

19 A Yes, sir.

20 Q He is seen by his employees as active,  
21 interested and very hard-working. Would you agree with  
22 that?

23 A Yes, sir.

24 Q At times, he is also seen as becoming overly  
25 involved in the work at too fine a level of detail. Would

1 you agree with that?

2 A If that meant that he a lot of times or  
3 sometimes reacted before he thought, then that's true.

4 Q You may qualify your question, but can you  
5 answer yes or no?

6 A No, I can't answer that one.

7 Q You can't answer at times he's seen as becoming  
8 overly involved in the work at too fine a level of detail -  
9 - you can't say yes or no?

10 A I don't know how to answer that, I don't know  
11 what he was asking about that.

12 Q Okay. Then the next one: Those managers  
13 reporting to Dr. Karam are not seen by other employees as  
14 effective leaders. There appears to be little evidence of  
15 strong first line management skill in either health physics  
16 or operations.

17 This would in part refer to you, correct, sir?

18 A I don't know who made that comment or how he  
19 got that -- yeah, that would be in part to me.

20 Q And in fairness, it also applies to the manager  
21 -- I don't know whether you call it the operations staff --  
22 reactor management.

23 A There were three or four different people that  
24 reported to him, or organizations or groups that reported  
25 to him.

1 Q There was a reactor manager also under Dr.  
2 Karam, correct?

3 A I've forgot, but the reactor people did report  
4 to him. I've forgot if there was a named person there or  
5 not. I don't remember if it was Dean McDowell or who it  
6 was or what.

7 Q Well, do you agree with this statement that --

8 A I always thought the way it was written that  
9 everybody reported independently to him, even though they  
10 did have four different chains.

11 Q Do you agree that the managers reporting to Dr.  
12 Karam were less than effective leaders?

13 A No.

14 Q Okay, the next paragraph: It is typical for a  
15 group such as reactor operations and health physics to  
16 experience some degree of friction in their daily working  
17 relationships. In the present setting, these tensions have  
18 escalated above an acceptable level. The long history of  
19 the disagreement and the intensity of feelings had led both  
20 groups to be pessimistic about improving the quality of  
21 these relationships.

22 Is that an accurate -- in your opinion, is that  
23 an accurate conclusion as to the time period involved?

24 A I can't respond to that, I don't know what he  
25 was talking about.

1 Q Okay.

2 A Too wordy.

3 Q The next one: The conflict is unlikely to be  
4 resolved satisfactorily within the current organizational  
5 context and with the individuals currently in place.

6 Would you agree with that?

7 A I don't know why he was even -- I don't know  
8 what he was thinking there. I can't respond to that  
9 because I don't know, that's his opinion.

10 Q And then the next paragraph: A major factor  
11 contributing to the current level of conflict is the  
12 absence of first line management activity in health physics  
13 of a constructive nature.

14 Now they're talking about you there.

15 A I think they are.

16 Q And this group --

17 A He is.

18 Q -- this group does not have regular guidance  
19 and direction, which contributes to the overall  
20 organizational goals.

21 That, again, is talking about you, is it not?

22 A That again is talking about me and I don't know  
23 what he meant by that comment.

24 Q And I take it you would disagree with the  
25 conclusion?

1           A       Well, I don't know exactly what he's talking  
2 about, so I can't disagree or agree.

3           Q       Okay.

4           A       I remember that, and I didn't know what in the  
5 world he was talking about.

6           Q       Okay. Down at the bottom of the page, the  
7 bottom paragraph: It is recommended that health physics  
8 personnel who work directly with reactor operators be  
9 reassigned to other responsibilities appropriate to their  
10 levels of skill and experience. Physical separation of the  
11 work spaces of the two groups may be helpful to ensure the  
12 cessation of dysfunctional interactions.

13                       Did you agree with that conclusion?

14           A       I did, I talked to Dr. Karam about that, I even  
15 suggested that we put Steve Millspaugh up on the campus  
16 where he had great rapport with the faculty and the other  
17 byproduct material work and keep Paul Sharpe down at the  
18 reactor. We wanted to work with the reactor people, we  
19 wanted to work them because that's what we're supposed to  
20 do. And I did suggest that, that -- and it never did come  
21 about.

22           Q       You suggested that Millspaugh, in essence, be  
23 removed from -- physically from the reactor.

24           A       Physically and still take care of the campus.  
25 In the early days of the health physics program, we had the

1 health physics gang was up in the Cherry Emerson building  
2 and we had one or two or three people assigned down to the  
3 reactor because that's where the new hot stuff was. There  
4 was no reason why we couldn't have separated it, it was  
5 just that we didn't have a very big staff and it was kind  
6 of nice to have everybody right together.

7 Q And then if we move to the next paragraph: It  
8 is recommended that an experienced manager be sought for  
9 the direct supervision of the health physics group. In  
10 addition to using sound criteria for technical knowledge  
11 and training, an emphasis should be placed on ability to  
12 provide leadership, build teamwork and maintain stable  
13 relationships with other managers. It would be helpful for  
14 this individual to have a history of work with groups with  
15 conflicting goals and to possess well-developed conflict  
16 resolution skills.

17 Now they recommendation they're talking about  
18 there is your removal, isn't it?

19 A I think so.

20 Q This was the industrial psychologist.

21 A Michael O'Bannon.

22 Q I'll depart from GT-10 at this point and I'd  
23 like to return to GANE Exhibit 51, which I understand to be  
24 your composition entitled "The Wrong Way to Handle  
25 Radiation Safety."

1           A       I have that.

2                   MS. CARROLL: What time is it?

3                   MR. EVANS: 12:20. I'm almost through.

4                   MS. CARROLL: Because he did say yesterday he  
5 was going to go through this line-by-line and I just  
6 wondered if everybody was going to be too hungry to endure  
7 that. Are you going to go through it line-by-line?

8                   MR. EVANS: I'm on my last document.

9                   CHAIRMAN BECHHOEFER: I would prefer to wait  
10 until Mr. Evans is through and then break for lunch.

11                   MS. CARROLL: Okay. I mean, he did say he was  
12 going to go through it line-by-line and that might take  
13 awhile.

14 BY MR. EVANS:

15           Q       I'm asking you to look at GANE 51. This is  
16 your composition or your opinions, correct?

17           A       Correct.

18           Q       A statement of your views.

19           A       Correct.

20           Q       Okay. In the past year, -- first sentence: In  
21 the past year, Georgia Tech has become a site of what  
22 started as a safety nightmare for health physicists and has  
23 ended in embarrassment for a new president.

24                   Am I correct that you viewed -- when did you  
25 write this? Was it '88?

1 A Yes, sir.

2 Q Do you recall when in '88?

3 A I don't recall.

4 Q Past year, were you talking about '87 or what  
5 were you talking about?

6 A I was talking about '87, the Bill Downs  
7 incident and the reorganization.

8 Q Okay. And when you say a nightmare for the  
9 health physicists, of course you were on the scene and you  
10 could make that evaluation. But what about an  
11 embarrassment for the new president. What knowledge do you  
12 have that he was embarrassed?

13 A By his own words, he said he was embarrassed.

14 Q To you?

15 A In some document that we have here -- yeah, I  
16 think he said that to that faculty meeting. I know he said  
17 it somewhere, he was embarrassed and so forth. When he  
18 made the comment that he learned more about radiation  
19 safety in the past than he cared to know, which is a very  
20 supportive comment, and he was embarrassed.

21 And what I was referring to there is that  
22 sentence was promulgated by the fact that if Dr. Karam had  
23 done what I suggested and called the NRC immediately after  
24 the Bill Downs fiasco and just let them know what happened,  
25 I -- in my opinion -- don't think that George Kuzo would

1 have been near as bad on this health physics inspection,  
2 reactor inspection. When he found out about that, I think  
3 he really said well boy, we'd better look into what's going  
4 on here. And I think if he had done that, it would have  
5 showed that we were trying to be open and honest with the  
6 NRC inspectors. Sure we needed correction, there's a lot  
7 of areas where we could improve.

8 Q Now your answer --

9 A That was what I'm saying, it was a nightmare  
10 because I don't think it would have been near as bad a  
11 nightmare if he had told them about it, see.

12 Q Now that answer --

13 A So they didn't have to find out about it  
14 themselves.

15 Q Now that answer -- if we could, I'd like to --  
16 is it accurate to say that your answer is based upon an  
17 assumption that the cadmium spill was a major concern of  
18 NRC, as opposed to events uncovered in connection with the  
19 investigation?

20 A I think that triggered it.

21 Q Sir?

22 A I think that triggered it. They had other  
23 concerns.

24 Q They did have --

25 A Sure.

1 Q Would you agree they had more important  
2 concerns than the cadmium spill?

3 A They had other concerns, I can't say they were  
4 more important, it depends on what they think.

5 Q That's fair enough, they can testify to that.

6 The next sentence you say: A lawsuit against  
7 Georgia Tech and an intensive investigation by the Nuclear  
8 Regulatory Commission has raised fundamental questions  
9 about the rights of employees to report safety violations  
10 to the NRC.

11 Just so the record may be fairly complete on  
12 this, to your knowledge, is it not true that the lawsuit  
13 was resolved in favor of Georgia Tech and against the  
14 employees who contended they had been unfairly terminated?

15 A I'm not exactly sure what the lawsuit was. As  
16 I understand it, it was -- they were trying to get a trial  
17 by jury and if you are saying they were unsuccessful in  
18 getting a trial by jury for their lawsuit, you are correct.

19 Q Do you have any knowledge as to whether their  
20 contentions were in fact dismissed by the court?

21 A The contention of having a trial by jury was.

22 Q Do you have any knowledge as to whether their  
23 case in its totality was dismissed by the court?

24 A Yes.

25 Q Was it?

1 A No.

2 Q You don't know that it was dismissed?

3 A No, I know it wasn't totally dismissed in  
4 totality.

5 Q Do you know that it went on to a hearing, in  
6 essence a bench trial?

7 A I think I remember something like that.

8 Q And do you know that the ultimate result, the  
9 bottom line, was a decision in favor of Georgia Tech and  
10 against the nuclear operators -- the radiation safety  
11 technicians?

12 A No, I don't know that. I don't know what the  
13 thing -- what they officially said it was against or for.

14 Q Okay.

15 A The only thing I do know, or think I know, is  
16 that I read something that Orinda Evans wrote stating that  
17 these two people should not be harassed or something of  
18 that nature back at Georgia Tech now they're employed at  
19 other places, and don't take any action against those  
20 people. So when you say it was totally dismissed, it was  
21 totally dismissed as far as a trial by jury, but it wasn't  
22 totally dismissed as far as saying those guys had a right  
23 to be protected and raise fundamental questions about the  
24 Nuclear Regulatory Commission's ability or whatever to  
25 protect rights of workers. But they're still at Georgia

1 Tech and I don't think that Georgia Tech wants to fire them  
2 now. And I think it's because of what the lawyer and the  
3 judge stated, leave these guys along.

4 Q They were never reinstated as health physics  
5 personnel at the center, were they?

6 A They were asked and they turned it down, is  
7 what I understand.

8 Q Okay.

9 A For fear that they certainly would have  
10 reprisal then.

11 Q I'm very curious, where did you get that  
12 understanding?

13 A I don't know.

14 Q Okay, in your next paragraph, you say what  
15 happened over a period of years -- over a period of a year  
16 that devastated an excellent radiation safety program  
17 which was supported and commended by previous presidents  
18 for three decades. Would it not be more accurate to say  
19 that at least as of the year -- during the year prior to  
20 the change in personnel, that the radiation safety program  
21 was a disaster itself?

22 A Well, that's your words. I would say it may  
23 not have been as I would have liked it. I wouldn't call it  
24 a disaster.

25 Q Well, would it be fair to say that during the

1 last year you can hardly say that it was an excellent  
2 radiation safety program in the year before the change in  
3 personnel? Is that not fair?

4 A Well, I would say it was more like my adequate  
5 program. You might categorize it as a little less than  
6 adequate.

7 Q But you would say that it was no longer  
8 excellent as you --

9 A That's right, I like excellence. But I -- this  
10 is an overall statement, for Georgia State University, the  
11 -- see, this whole thing got involved at the reactor and  
12 everybody seemed to think the reactor was the only thing  
13 that Radiation Safety had to be concerned about. We had  
14 all of Georgia State, all of the rest of the campus.  
15 Everything got -- revolved around the reactor is the only  
16 place these guys operate just because we're physically  
17 there. That isn't the way it was.

18 Q The next --

19 A So it was an overall statement. And it was  
20 excellent in some areas during that time you were talking  
21 about. Better than excellent.

22 Q In your opinion, it was still excellent as of  
23 the time the personnel were changed?

24 A Certainly in some areas. At Georgia State it  
25 was super.

1 Q Well, I'm not -- I'm talking about the HP --

2 A Well, I'm talking about --

3 Q Okay, I've asked the question perhaps not  
4 concisely enough and I apologize. Let's talk about the  
5 Radiation Safety Protection Program at the Georgia  
6 Institute of Technology. Would you agree that that was no  
7 longer excellent by the time the staff was replaced?

8 A It wasn't as excellent as it had been.

9 Q Thank you, sir. Now the next paragraph, you  
10 talk about the problems started when the radiation safety  
11 officer -- that was you?

12 A Yes.

13 Q Acting under the instructions of the Radiation  
14 Protection Committee terminated several research  
15 experiments at the Neely Nuclear Research Center and the  
16 7000 curie hot cell complex because of unsafe conditions  
17 and --

18 A That's my opinion.

19 Q Okay. Do you have any direct knowledge that  
20 that had a thing to do with the reorganization?

21 A Well, I think it's direct. It's direct enough.  
22 I know when we had to go for the enforcement conference,  
23 Dr. Karam, myself and one other, and we picked up Dr.  
24 Stelson up at the -- up at his office and the first and  
25 only thing he said to me when he got in the car was, Bob,

1 how would your people like to not have a pay raise this  
2 year.

3 Q Now who said this?

4 A Stelson.

5 Q Okay. And he's not here to defend himself?

6 A No, but that's what he said. And that was my  
7 first indication that he was mad because he thought --  
8 somebody was telling them that Stelson -- I mean that  
9 Millspaugh and Sharpe were tattling or going to the press  
10 or telling NRC and calling and all of that. So, he didn't  
11 like that kind of thing. He didn't like people to go over  
12 his head.

13 Q Right.

14 A But see, he didn't understand.

15 Q What you're saying now, that has nothing to do  
16 --

17 A Yes, it does.

18 Q -- with the 7,000 curie hot cell complex, does  
19 it?

20 A Yes, because that is one of the reasons why we  
21 got called in there.

22 Q Well, can you --

23 A It was the management of Radiation Safety and  
24 everything.

25 Q Do you have anyway of knowing that he wasn't --

1           A       Just because the hot cell is centered there, I  
2 got the impression right quick that he was not too happy  
3 with the -- with our terminating that hot cell. As a  
4 matter of fact, he -- and he didn't speak again until he  
5 came home and then he made another comment. He said  
6 something to the same effect. I think I wrote it down so I  
7 would not forget it, but I've forgot it right now. And it  
8 was kind of a threat. Just because we had to terminate the  
9 hot cell because of unsafe conditions.

10           Q       Wasn't -- am I not correct that the hot cell  
11 was not an NRC matter?

12           A       Well, the hot cell was part of the reactor  
13 control zone and it is an NRC matter whether they want to  
14 accept it or not. They've got to use the pool; they've got  
15 to use the hot cell when they need it, and we're talking  
16 about the cobalt incident here. I thought that the fact  
17 that whatever money was coming in for this thing -- once  
18 again, money versus safety. When money goes, safety goes  
19 in general. The fact that we lost some money because I  
20 terminated a hot cell because the detector in the hot cell  
21 was not working right. We were violating procedures. We  
22 were violating what we were supposed to do and the  
23 committee actually told me to terminate it. As a matter of  
24 fact. the state told me to terminate the hot cell until  
25 they got those things corrected.

1           Q       I guess I'm a little confused because in your  
2 testimony you say -- you're saying that the problems  
3 started and Tom Stelson -- excuse me, Vice President  
4 Stelson mentioned to you do y'all want to get pay raises.  
5 You were saying that this -- he was angered because someone  
6 tattled to NRC.

7           A       That was my perception. And when I say the  
8 problem started, that's when it came into my mind that he  
9 was thinking about reorganizing. He said, well by gosh,  
10 we'll stop that independent thinking on the part of the  
11 health physicists. We'll put the health physicists under  
12 Karam, the man that was in charge of the 7,000 curie cell.

13          Q       Are you saying that the tattling involved your  
14 shut down of the 700,000 curie hot cell? They're tattling  
15 to NRC about that?

16          A       No, I'm not saying that, no. I'm just saying  
17 that the tattling in my opinion triggered this thing in  
18 Stelson's mind. We're not going -- we're already having a  
19 problem making money. The health physics people are not  
20 helping us make money down there by shutting down this  
21 thing. And the only reason we shut it down -- we bent over  
22 backwards to make the thing make money, but there came a  
23 time when I had to stop the thing.

24          Q       Now you've testified about Tom Stelson being  
25 irritated and talking about not getting a pay raise or

1 whatever --

2 A That's true.

3 Q -- because of tattling to NRC.

4 A That was the way I felt.

5 Q Okay. Does that have anything to do with your  
6 shutdown -- you know, the shutdowns you're talking about in  
7 writing here. What's the tie in, if any?

8 A The wording the problem started.

9 Q Okay. This is some other problem?

10 A No, that's the problem. The problem started --  
11 the problem was the reorganization is what I'm trying to  
12 say. It's the fact that it got reorganized was the  
13 problem. It's still my problem.

14 Q Okay.

15 A And I'm saying that the reorganization  
16 philosophy got started in my mind when Stelson did that  
17 because of what I did in the hot cell.

18 Q Okay.

19 A That was the problem.

20 Q I now understand -- are you really testifying  
21 that what you meant here is the problem started with the  
22 reorganization? Would that be an easier way of saying it?

23 A The reorganization problem started. You might  
24 say that.

25 Q Okay.

1           A       The fact that we reorganized started it. I  
2 might have worded it that way.

3           Q       And you don't believe that the reorganization -  
4 -

5           A       See, I'm talking about the wrong way to handle  
6 health physics.

7           Q       Do you -- and I take it you don't agree that  
8 the purpose of the reorganization was to give Dr. Karam  
9 some means of exercising control, managerial control over  
10 HP?

11          A       Well, if he's using Michael O'Bannon's  
12 summarization, you might assume that.

13          Q       And wasn't NRC, to your knowledge, concerned  
14 about the fact that he did not have -- was not -- had any  
15 control of the exercise over health physics?

16          A       I don't know. He should. He was my boss.  
17 Well, he wasn't my boss at that time, was he? Yeah, he  
18 was. Yeah, he was my boss at that time.

19          Q       Well, he was not before but after?

20          A       Yeah.

21          Q       We can agree on that?

22          A       Well, he was before.

23          Q       Okay.

24          A       He was all the time for that matter.

25          Q       But isn't it true that one of the purposes --

1 would you not agree that one purpose of the reorganization  
2 was to give Dr. Karam managerial control over the health  
3 physics function?

4 A They give it all to him.

5 Q And would you not agree that one reason for  
6 this was to eliminate -- at least what many people,  
7 including the psychologist felt, was an unacceptable level  
8 of conflict between HP and health physics -- I mean --  
9 excuse me, between HP and operations?

10 A That's probably right.

11 Q And it's very difficult for a person to  
12 exercise managerial control over a function which he does  
13 not have any supervisory authority, isn't it?

14 A Right.

15 Q Okay. Moving on, you say here the entire  
16 operating radiation safety staff reported exclusively to  
17 the Neely Research Center director, whereas before, it  
18 formerly had a direct line to the president. Now, as I  
19 understand it, what you're saying there is basically that  
20 you had fear of using these channels because of retaliation  
21 from the -- from Dr. Karam?

22 A I'm just merely stating that we had direct  
23 access to the president in a writing form -- you know, a  
24 written form to him, but we didn't afterwards.

25 Q But when you had that authority -- you said

1 earlier -- I'm not sure if you're -- do I understand your  
2 testimony earlier to have been that you were afraid or had  
3 fear of going to the president because you anticipated  
4 there could be --

5 A Oh, yeah, yeah, that was one of the reasons.  
6 We were fearful to go over Karam's head.

7 Q Now --

8 A I was.

9 Q Now you mentioned here that a figurehead RSO  
10 was appointed who did not work on the research center nor  
11 perform any of the day-to-day functions on the campus.  
12 You're talking here about Bernd Kahn?

13 A Right.

14 Q B-e-r-n-d K-a-h-n?

15 A Yes.

16 Q Now you mentioned that he opposed the  
17 reorganization too, did he not?

18 A I thought he did at this time.

19 Q And is it not true that having opposed the  
20 reorganization, he was appointed head of the surviving of  
21 the combined or surviving committee, the Nuclear Safeguards  
22 Committee, correct? He was chairman?

23 A I've forgotten exactly when he became chairman  
24 but he was the chairman.

25 Q And as chairman at that time, he held the

1 position of radiation safety officer ex officio, did he  
2 not?

3 A Who I call a -- what did I call him? You used  
4 that word while ago.

5 Q Radiation safety officer, RSO.

6 A Figurehead.

7 Q Yeah.

8 A A figurehead RSO that didn't do day-to-day  
9 work.

10 Q Well, didn't do day-to-day work. Are you  
11 suggesting that he did not perform any functions of an RSO?

12 A Absolutely none.

13 Q Huh?

14 A No.

15 Q You think he did not?

16 A No, except he was the chairman of the committee  
17 which was not right either.

18 Q It wasn't right that he was chairman of the  
19 committee?

20 A According to the NRC Reg --

21 THE REPORTER: I'm sorry, NRC?

22 THE WITNESS: NRC Reg Guides on the byproduct  
23 material for a byproduct material license. That's a  
24 byproduct material license not a nuclear reactor license.  
25 But my philosophy was essentially it ought to be the same,

1 but I may be wrong.

2 BY MR. EVANS:

3 Q Would you agree that -- or do you have  
4 knowledge that Dr. Karam supported him for the position of  
5 manager -- excuse me, of chairman of the Nuclear Safeguards  
6 Committee?

7 A I don't know. I know that Dr. Karam in the  
8 beginning was over the Nuclear Safeguards Committee in my  
9 view, the way I understood it.

10 Q This is your view?

11 A Yeah. The way I understood it, Dr. Karam was  
12 over -- the Nuclear Safeguards Committee reported to Dr.  
13 Karam, as well as the rest of us. Dr. Karam was the single  
14 controlling factor for all of radiation safety at Georgia  
15 Tech.

16 ADMINISTRATIVE JUDGE LAM: Did you say you  
17 thought the Nuclear Safeguards Committee reported to Dr.  
18 Karam?

19 THE WITNESS: Yes, sir, when it was first  
20 formed that way. That's the way I felt and that's the way  
21 all of my people felt.

22 BY MR. EVANS:

23 Q That doesn't appear on the organizational  
24 chart, does it?

25 A It may not but that's the way we got the

1 impression.

2 Q Is it fair to say that Bernd Kahn, who opposed  
3 the reorganization, was not retaliated against in  
4 connection with his appointment as chairman of the  
5 committee, was he?

6 A I don't know. I don't think so.

7 Q Okay, health physics log books, we've already  
8 covered. I won't go into that again.

9 Down here, you say that both the new RSO and  
10 the manager of Radiation Safety reported to the director of  
11 the Research Center who was the major user of large  
12 quantities of radioactive materials. Karam was not a user  
13 of it, was he?

14 A Dr. Karam made a flow chart showing arrows in a  
15 little box. I don't have a copy of that. The arrows came  
16 from the Nuclear Safeguards Committee to Dr. Karam with an  
17 arrow showing that Bernd Kahn reported to Dr. Karam. The  
18 manager of Radiation Safety had an arrow to Dr. Karam.  
19 Everybody had an arrow to Dr. Karam, including the  
20 president, I think.

21 (Laughter.)

22 A That was his drawing. I remember telling him,  
23 I said, now, Dr. Karam, I think you've got your arrows  
24 backwards.

25 Q Well --

1           A       It was confusing, very confusing.

2                   MS. CARROLL: GANE has an irresistible desire  
3 to help. It shows that on the chart and that's how we  
4 would interpret it. We can do it on redirect, if you would  
5 prefer.

6 BY MR. EVANS;

7           Q       Well, would you agree --

8           A       He might not have intended it that way but  
9 that's where we got the impression.

10          Q       Would you agree that as of the time -- by  
11 December or January -- by January 1988 when you were still  
12 manager of the Radiation-Safety unit, if I'm getting it  
13 correctly --

14          A       Yes, sir, I've got you.

15          Q       -- MORS, that as of that time, any and all  
16 confusion had been ironed out?

17          A       No.

18          Q       Do you think that the Nuclear Safeguards  
19 Committee was still reporting to Dr. Karam rather than the  
20 other way? Well, when you say reporting, that's not  
21 probably the proper word, but they may be reporting.

22          A       I do think the president had made some  
23 modifications that kind of countered our original thinking.

24          Q       As to the role of the Nuclear Safeguards  
25 Committee, at least as of January while you were still

1 MORS, is it not true that the procedure was for safety  
2 concerns to be reported by Karam and/or the MORS to the  
3 Radiation -- the Nuclear Safeguards Committee?

4 A I would say that it was still kind of shaky in  
5 my mind. I think it was better understood but it was still  
6 a little shaky as to who reported to who.

7 Q Do you have any question as to whether there's  
8 any shakiness today? Do you have any knowledge as to --

9 A I don't have any knowledge but I'm a little  
10 shaky --

11 (Laughter.)

12 Q But you have no knowledge --

13 A I have some opinions. I don't think it's  
14 changed much.

15 Q I would agree to your being shaky.

16 (Laughter.)

17 A Well, I'm that way from my old age.

18 Q But do you have any knowledge as to the  
19 reporting systems in effect today?

20 A Not direct, if you use that word direct and I  
21 think that's what you're talking about. I would like to  
22 know because I would like to see it changed for the sake of  
23 good old Georgia Tech.

24 (Brief pause.)

25 MS. CARROLL: May I have an aside off the record?

1 MR. EVANS: I'm just seeing if I have any more.

2 MS. CARROLL: Oh, okay. I just wanted to make  
3 sure you were hanging in there, Mr. Evans.

4 MR. EVANS: I'm trying not to repeat things  
5 that are in the memo that I've already covered. I'm not  
6 going to do it again.

7 BY MR. EVANS:

8 Q Okay, on the paragraph -- the second paragraph  
9 on page -- there is a page number 2 --

10 A Yes, sir.

11 Q -- where it says on "February 11, 1988, two of  
12 the three professional health physicists, employees of the  
13 Radiation Safety staff were fired by the Neely Nuclear --  
14 Neely Research Center director. The third, the manager of  
15 Radiation Safety was informed by the first time by reading  
16 the newspaper that the president intended to reassign him  
17 to another position. News of the firings and reassignment  
18 made national headlines and the president made some remarks  
19 implying that the health physicists were pseudo-  
20 scientists."

21 A All that's true.

22 Q Okay.

23 A With the exception, I first heard about it by  
24 my daughter calling me at Tallahassee.

25 Q Well --

1           A       But, I didn't read it in the paper until I got  
2 home.

3           Q       When you say that's all true, I assume you  
4 agree --

5           A       I do.

6           Q       -- that the health physicists were pseudo-  
7 scientists?

8           A       No, I'm not agreeing that they were pseudo-  
9 scientists. I'm agreeing he said they were.

10          Q       Well --

11          A       A lot of people think we're bunch of -- I'd  
12 hate to say what they think we are.

13          Q       Well, is it not true -- I'm not talking about  
14 you personally, sir --

15          A       I know what you mean.

16          Q       -- but looking at Millspaugh and Sharpe, is it  
17 not true that Sharpe didn't have any college degree in  
18 anything at this time?

19          A       At that time that's true, but he did have 10  
20 years of experience.

21          Q       And he had -- yes, he had some experience and  
22 actually he flunked out of HP pretty much at Georgia Tech,  
23 didn't he?

24          A       I think that's probably right. I don't know.

25          Q       And didn't Millspaugh have a degree from some

1 university in New York which he never even visited?

2 A That's right. He had a BS degree from New York  
3 University.

4 Q And it was a mail degree?

5 A But he had over 260 hours, I think, at Georgia  
6 Tech but he couldn't pass physical chemistry and therefore,  
7 he couldn't get a degree. He took physical chemistry, I  
8 think, three times and couldn't pass it. So he didn't get  
9 a degree from Georgia Tech. And he wasn't going to get a  
10 degree at all until I heard about this school in New York  
11 and I said, Steve, if you got a BS degree, maybe Dr.  
12 Stelson would give you a thousand dollars a year pay raise.

13 Q So he wrote a letter and paid \$400, wasn't it?

14 A Well, this is common. There are schools you  
15 can do this from. That doesn't necessarily mean they are  
16 not too sharp a people. They're pretty sharp really to go  
17 that far through Georgia Tech. A lot of people fail  
18 physical chemistry at Georgia Tech.

19 Q Do you think it's reputable to have a degree  
20 from a college you've never seen or never visited?

21 A I'm not going to -- that's not my opinion.

22 Q Well based on their education, would you not  
23 agree that pseudo-scientists would be an apt description?

24 A No, I don't think so.

25 Q Okay.

1           A     Because there are a lot of health physicists --  
2                     (Mr. Boyd's beeper starts beeping.)

3           A     Pardon me, sir. I'll try to shut it up.

4           Q     Okay, the next paragraph, we talk about two --

5           CHAIRMAN BECHHOEFER: Let him finish his  
6 answer.

7           THE WITNESS: Wait, I've got a but or whatever.

8           MR. EVANS: I'm sorry.

9           THE WITNESS: I've about forgot what I was  
10 going to but about. Pseudo-scientists. When I -- people  
11 my age -- if you look at people who are RSOs or health  
12 physicists, whatever you want to call them -- we call  
13 ourselves health physicists, some of us do -- that are my  
14 age and came along about my time, you'll find a lot of them  
15 didn't have degrees from a health physics point of view.  
16 They have math or chemistry or biology or something like  
17 that. In later years, more and more schools became nuclear  
18 oriented. As the nuclear power industry grew this demand  
19 grew and so, we had schools like Georgia Tech and Texas A&M  
20 that gave degrees in health physics. But in the meantime,  
21 a lot of these guys like myself gained a lot of vast  
22 experience. Fortunately -- I'm very fortunate to have been  
23 in an experience situation where there was some very  
24 dangerous situations and I kind of liked that. It was  
25 exciting and I learned a lot. I had the opportunity to run

1 a reactor at Georgia Tech; at Lockheed, I had an  
2 opportunity to be a health physicist; I had an opportunity  
3 to do weather; I had an opportunity to teach. I have had a  
4 wonderful opportunity. Not a lot of people get that  
5 opportunity. So you get a lot of experience and a lot of  
6 knowledge from experience that is equivalent to a college  
7 degree. That's kind of what I'm trying to drive at.  
8 College pushing is not all the whole story. I agree with  
9 you -- what you're saying, these guys didn't have an  
10 apparent -- and to the president -- the new president, he  
11 might look at that not knowing any better, but he shouldn't  
12 make such stupid statements like that, I don't think.

13 BY MR. EVANS;

14 Q Would you agree that a formal education could  
15 nonetheless -- and not withstanding experience -- give a  
16 person a bit more of a conceptual depth of a particular  
17 area as health physics?

18 A It might assist him but experience might be  
19 even more important. I think they ought to be together.  
20 As a matter of fact, there are a lot of people that think  
21 health physicists are -- pardon the expression, Your Honor  
22 -- piss boilers. I've been called a piss boiler. That's  
23 all we do, go around and boil piss and try to analyze  
24 what's in it.

25 (Laughter.)

1 A Another thing is -- sorry about that.

2 (Laughter.)

3 Q Go right on. It'll make the transcript a lot  
4 more readable.

5 (Laughter.)

6 A As a matter of fact, I have been called instead  
7 of an RSO, an SOB.

8 (Laughter.)

9 A You SOB, all you're doing is causing conflicts  
10 by criticizing me. Well, in my case, SOB is wonderful  
11 because that means sweet old Bob.

12 (Laughter.)

13 A So it doesn't hurt my feelings. I just want to  
14 let the Court know that we were likely to be called  
15 anything.

16 Q Getting to the bottom of page 2, I'll just ask  
17 you about the last two sentences. It's talking about the  
18 personnel changes --

19 A Yes, sir.

20 Q -- and it states, "Georgia Tech's upper  
21 management defended their actions on the ground that they  
22 were upgrading the health physics staff". Who is upper  
23 management?

24 A I assume the president. I think that's who I  
25 was talking about there. He did come along -- you see, Al,

1 what I think happened was, Dr. Karam made a mistake when he  
2 fired these two guys and they got in a lawsuit and they're  
3 trying to defend themselves. So they are going to come  
4 back with something else and say well these guys weren't  
5 fired, they were -- it was upgrading because they were  
6 stupid. They went to New York University and all this  
7 stuff. I mean, it's a logical defense on the part of  
8 lawyers. I think that's what happened. He fired them, but  
9 then he was probably sorry he did it because they made him  
10 rehire these guys somewhere at Georgia Tech.

11 Q Well, as you recall, I was involved in that.

12 A You probably got it done.

13 Q And then the next sentence, it states "the  
14 president who had only been in office four months stated  
15 his surprise that none of the staff had degrees in health  
16 physics and were unqualified for the job". Is that an  
17 accurate --

18 A Yeah, I think that's accurate. Along with  
19 other people, including Dr. Karam, I think he thought we  
20 were close to kind of nothing, that anybody could do our  
21 work. And there are a lot of people like Dr. Karam who  
22 think health physicists are what I've said.

23 Q Now you state on March 25, 1988, "two need  
24 employees were appointed acting -- two need employees were  
25 appointed acting manager of Radiation Safety and deputy

1 manager by Georgia Tech to take the place of the former  
2 group. Both of these persons had less education and  
3 experience than the former staff."

4 First, I would like to ask you, what were their  
5 educational qualifications to your knowledge?

6 A I think what I was referring to there is, the  
7 president made a big deal about their upgrading the thing.  
8 I think as of now, from what I understand, they have  
9 upgraded things as far as educational background. Dr. Ice  
10 is a highly qualified educational person. We've got a  
11 couple of masters degreed people, I understand, that work  
12 for Dr. Ice.

13 Q Is it accurate to say that the employees you're  
14 talking about were basically interim persons pending  
15 recruitment of permanent personnel, correct?

16 A Well, I didn't know that. I assumed when they  
17 brought in Puckett that was the end of the world. He was  
18 going to be there forever and no one told me this.

19 Q You stated --

20 A And they made Jerry Taylor the Deputy Radiation  
21 Safety Officer, I think. I hired Jerry. He's got two  
22 years of college. You know, he was a good man.

23 Q And you -- in the first top sentence though,  
24 you do say acting manager. They appointed an acting  
25 manager.

1 A Yeah.

2 Q Doesn't that normally --

3 A I was the acting RSO for three years, so  
4 whoever is acting is the guy that does it.

5 Q But doesn't it often indicate -- when you say  
6 manager of Radiation Safety, vis-a-vis, acting manager,  
7 does that often not indicate a temporary position?

8 A Well, that's what I would think. My dad was  
9 acting manager of the Mathematics and Science Department at  
10 the University of Arkansas for 43 years.

11 (Laughter.)

12 A He retired that way. Fourteen thousand dollars  
13 a year -- acting.

14 (Laughter.)

15 A I remember he used to make jokes about that.  
16 He said I don't care what they call me.

17 Q And then you -- at the very last line of the  
18 paper and the last thing I'm going to ask you about, you  
19 say that --

20 A Please go on. I like this.

21 (Laughter.)

22 Q You say that "as of this date, the lawsuit is  
23 still in litigation". Well that's obviously not true  
24 today, is it?

25 A I think that a dead horse now.

1           Q       And you say, "the president of Georgia Tech has  
2 concluded that the reorganization was a mistake". If he  
3 thought it was a mistake, doesn't the president of Georgia  
4 Tech have authority to reorganize yet again?

5           A       He has the authority to do about anything.

6           MR. EVANS: Thank you. I have no further  
7 questions.

8           CHAIRMAN BECHHOEFER: Okay, we'll break for  
9 lunch. Let's make it an hour sharp because we would like  
10 to -- if possible, we would like to finish with Mr. Boyd  
11 today.

12           MR. EVANS: I was originally going to do this  
13 with Dr. Kemp. I think I still will.

14           MS. WOODHEAD: Yeah.

15           MR. EVANS: I'm talking about introducing the  
16 documents. I think I'll wait until Dr. Karam and put them  
17 all in.

18           MR. TURK: Are you going to do this one, the  
19 GT-31?

20           MR. EVANS: Except for -- no, I do want to  
21 offer into evidence -- thank you -- GT-31, which is --

22           MR. JOHNSON: We already numbered and marked  
23 that yesterday, didn't we? It was already distributed to  
24 us?

25           MR. EVANS: No, I distributed it today.

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MS. CARROLL: No, he distributed it today.

MR. EVANS: This is a transcript of the tape recording that Mr. Boyd authenticated as his and we would move it be included in evidence as GT-31.

MR. WOODHEAD: No objection.

CHAIRMAN BECHHOEFER: GT-31 is admitted.

(The document heretofore marked as Georgia Tech Exhibit No. 31 was received in evidence.)

CHAIRMAN BECHHOEFER: Now off the record. I hope that last was on the record.

MS. WOODHEAD: It was. I'm watching.

CHAIRMAN BECHHOEFER: Okay. So off the record.

(Whereupon, a luncheon recess was taken at 1:00 p.m., the hearing to resume at 2:02 p.m.)

AFTERNOON SESSION

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CHAIRMAN BECHHOEFER: Back on the record.

Ms. Woodhead are you handling the cross?

MS. WOODHEAD: I am, sir.

Before we start, I would like to make a point of clarification about various and sundry reorganization charts that were discussed this morning that were in place or submitted or at least discussed concerning Georgia Tech Neely Nuclear Center. I would like to point out for the Board that this is set out in detail as to the sequence of events and the acceptance and rejection, et cetera of the staff in Panel C, the staff's Panel C. And since Mr. Boyd was not at the Neely Center throughout the sequence of events concerning the license amendment -- the amendment to the tech specs, I can't pursue the subject here but I did note that the Board was interested in this. I would just like to point out that Panel C gives the full details about the various submittals and the final acceptance of the organizational chart.

FURTHER CROSS EXAMINATION

BY MS. WOODHEAD:

Q All right, Mr. Boyd, you discussed tech specs a little bit this morning. I assume that you know that to change technical specifications any licensed facility under NRC authority must first ask for an amendment to the

1 license. Is that correct?

2 A Yes, ma'am.

3 Q All right. You're aware of that?

4 A I'm aware of that.

5 Q Well, we talked -- you spoke a little bit this  
6 morning about the NRC inspections after the cadmium spill  
7 in 1987-88. Isn't it true that the major concern that the  
8 inspectors raised was overall management concerns of both  
9 health physics and operations of the entire nuclear  
10 facility?

11 A I think it's true that the concern was  
12 management and -- however, I do feel that Ernst and some of  
13 the others at the NRC, when they went on the radio and all  
14 seemed to emphasize that the root mean problem was  
15 radiation safety. I got that impression. However, I'm not  
16 sure -- the NRC, I think, wanted to make it just a  
17 management concern for everything.

18 Q Correct.

19 A And I got that impression that they were saying  
20 Radiation Safety is the one that's causing most of the  
21 problem, that kind of thing.

22 Q Well, isn't it true that the authority and the  
23 responsibility of the Nuclear Regulatory Commission is to  
24 assure that facilities operate safely?

25 A Yes.

1 Q So isn't it true that the inspectors never  
2 indicated to you that they had any particular ideas and  
3 concerns about the type of management that they would  
4 propose but rather just that they would be good management?

5 A Yes, ma'am.

6 Q You stated two or three times that you felt  
7 that if NRC had been notified of the cadmium spill  
8 immediately after its discovery that the subsequent events  
9 would not have occurred or the problem would not have been  
10 escalated into a major problem. Isn't it true that the  
11 events which the inspectors were concerned about were  
12 failure to keep records? Is that correct?

13 A I think that was one of the concerns once they  
14 got to looking. However, I think if Will Ingram at the  
15 state was correct, the reason George Kuzo came mostly was  
16 to look at the new organization structure and then when he  
17 got there he found these other things.

18 Q Well, I -- let's go back to what you said  
19 previously about when Mr. Kuzo came. You said that at the  
20 time he came in December, you or your staff informed him  
21 that there had been a cadmium spill back in August and --

22 A Somebody did, or they must have. I don't know  
23 how he found out.

24 Q -- someone -- he discovered --

25 A It's true he found that out, yes.

1 Q Right.

2 A We should have told him.

3 Q But isn't it true that the reason that he  
4 seemed to be disturbed or excited or quite concerned about  
5 it was the fact that your staff did not have complete  
6 records as to the amount of contamination?

7 A I think that was -- that bothered him that, you  
8 know, the air sampling wasn't done in the breathing zone  
9 and we didn't have a good documentation of the spread of  
10 contamination. I think that was part of his thinking.

11 Q Yes. Isn't it true that when you measured the  
12 cadmium source, the cadmium wrap in the capsule, that it  
13 emitted a very high reading? It was a hot capsule in other  
14 words?

15 A Yes, ma'am.

16 Q Yes. So --

17 A We had some documentation on that pretty good.

18 Q So it was a legitimate concern of anyone that  
19 Mr. Downs with his history of carelessness might have had a  
20 significant over-exposure, is that correct?

21 A That concerned us.

22 Q Right.

23 A And we tried to later reenact the scenario with  
24 Bill Downs, myself and Bob MacDonald kind of going over now  
25 just what did you do --

1 Q Yes.

2 A -- and how did you do it?

3 Q Yes.

4 A And based on some measurements that were made -

5 -

6 Q Right, yes. Well, isn't it true that if you  
7 had notified NRC on the day you discovered the first  
8 indication of contamination that it would not have altered  
9 your actions in terms of further surveys or  
10 decontamination?

11 A I don't know. The NRC may have wanted to send  
12 somebody out to reenact -- I've been through several of  
13 these things where we inform the NRC on things that  
14 happened. Some were rather significant and some were not  
15 too significant. They wanted to come out and have a  
16 reenactment so they themselves could help us evaluate what  
17 happened. They might have instructed us to be sure you  
18 document this stuff right and we -- you know, they might  
19 have reminded us on that. So, I can't say for sure.

20 Q Well, isn't it --

21 A I would imagine we might have done a little bit  
22 better job really.

23 Q Well, wasn't it the responsibility of you and  
24 your staff to investigate and identify any contamination  
25 that was found in the reactor building?

1 A And we did.

2 Q And also your responsibility to decontaminate  
3 if necessary and correct any matters that --

4 A Assist in the decontamination.

5 Q Yes, sir. Now, you stated that your staff did  
6 not keep records of the contamination that they found --

7 A I may say that we kept some records.

8 Q Yes.

9 A We didn't -- there wasn't just totally a lack  
10 of records.

11 Q Yes, we'll discuss that in a minute. But you  
12 did state earlier that you believed the reason that Mr.  
13 Kuzo was distressed was a lack of complete records of the  
14 extent of contamination?

15 A One of the reasons. I believe that's true.

16 Q Yes, correct. So in order for Mr. Kuzo to  
17 understand what your staff had found in both the initial  
18 surveys and the decontamination, it was necessary for him  
19 to talk at length with you and your staff, is that correct?

20 A Yes, I would agree.

21 Q Yes, right. So since there were -- there was  
22 an incomplete record of the entire event, it was -- the  
23 information provided to the NRC inspectors was necessarily  
24 verbal, is that correct?

25 A That's possible, yes.

1 Q Yes. Now, you will recall that the first sign  
2 of contamination was in Susan Selman's routine maeslin  
3 swipe on the main floor of the reactor, is that correct?

4 A I believe that's correct.

5 Q That's right.

6 A I can't remember whether she notified me or  
7 Steve Millspaugh but I found out about it relatively soon -  
8 -

9 Q That's right.

10 A -- that.

11 Q Now on this routine maeslin swipe that your  
12 office routinely performed, there is no information on this  
13 survey other than an indication that some contamination  
14 about background has been found, is that correct?

15 A I can't remember what was written on that form.

16 Q I have a copy of it.

17 A You have a copy of it?

18 MS. WOODHEAD: May I approach the witness?

19 CHAIRMAN BECHHOEFER: Yes.

20 THE WITNESS: This is a form I let the students  
21 design.

22 BY MS. WOODHEAD:

23 Q This is Georgia Tech Exhibit 11, but it is --

24 A It's been eight years.

25 Q -- in fact the daily maeslin survey report, is

1 this correct? Do you recognize this?

2 A Yeah, August --

3 Q And is this your signature here, sir?

4 A Yes, that's right.

5 Q All right. Now do you agree, sir, that this is  
6 the August 1987 routine maeslin survey of the main floor of  
7 the reactor building?

8 A It sure looks like it.

9 Q All right.

10 A That looks like the way we used to do it --

11 Q Right.

12 A -- to make it easier for the students.

13 Q On the far left there are numbers and don't  
14 those numbers indicate areas of the main floor?

15 A Right.

16 Q And across from number 7, under the date of  
17 August 19th, doesn't it say something in the nature of 100  
18 to 200 counts per minute?

19 A I recall Susan telling me verbally she saw a  
20 maximum of 300 counts per minute on her maeslin.

21 Q I see. Now, this --

22 A It normally ran about 100.

23 Q Background is 100, correct?

24 A Somewhere around that, maybe a little less.

25 Q Yes, sir. Now this survey does not identify

1 the isotope, does it?

2 A No.

3 Q And this survey does not --

4 A Although, I think she -- well, I don't know.  
5 She shouldn't have been identified because she didn't make  
6 an identification. They didn't -- they were just doing a  
7 GM survey.

8 Q That's right. The purpose of this routine  
9 survey is to find --

10 A To get a handle on things and look --

11 Q Exactly.

12 A -- for a bad situation.

13 Q To see if there was any contamination above  
14 background on the main floor.

15 A And there was.

16 Q Right. Now, this survey does not identify the  
17 source of the contamination, does it?

18 A No.

19 Q And you previously stated it does not identify  
20 the isotope or the material that is causing the activity?

21 A No, ma'am.

22 Q So this survey in itself gives very little  
23 useful information about the event which produced to  
24 contamination, is that correct?

25 A No.

1 Q It's not sufficient?

2 A No, it's not correct.

3 Q Pardon?

4 A The fact that it doesn't give very little is  
5 not correct. It gives a lot of information.

6 Q Well, you previously said it does not identify  
7 the isotope --

8 A It doesn't identify the isotope.

9 Q -- and it does not identify the source of the  
10 contamination --

11 A It does not identify the source of the  
12 contamination.

13 Q -- therefore, it is not sufficient information  
14 to make a determination about much of anything, is that  
15 correct?

16 A No, that's not correct.

17 Q What is your --

18 A It does make -- it does help one to make a  
19 determination. A sharp health physicist recognizes that  
20 something has gone wrong and he needs to investigate it  
21 further, that something big has happened maybe.

22 Q Exactly.

23 A And that's exactly what we did.

24 Q Exactly. But if that was the only information  
25 that you ever had, you would not have sufficient

1 information to know that there had been a cadmium spill, is  
2 that correct?

3 A Not cadmium, but we would know that something  
4 was wrong.

5 Q Well, that was my question. You would not know  
6 from that survey the source of the contamination or the  
7 type of contaminating material, is that correct?

8 A But you said or anything else. And we would  
9 know some other things, that there's something wrong.

10 Q Yes, sir. It is only --

11 A We didn't know it was cadmium and we didn't  
12 know any details about it. We just knew that --  
13 investigated further.

14 Q That's exactly my point.

15 A Oh, okay.

16 Q By itself, it tells you nothing but there is a  
17 loosely measured amount of some kind of contaminated  
18 material and it tells you nothing more. It is only an  
19 indication that more investigation needs to be done,  
20 correct?

21 A Yes, ma'am, that's right.

22 Q Now, isn't it true that you told your staff to  
23 take a second survey at the top of the reactor to discover  
24 that there was contamination there?

25 A I believe there was a second survey somewhere

1 out there.

2 Q Right. And isn't it --

3 A I didn't know it was on top of the reactor at  
4 the time.

5 Q Isn't it true that they found contamination at  
6 the top of the reactor reading approximately 24 millirem or  
7 thereabouts?

8 A At what distance? I don't remember.

9 Q I think it was at one foot.

10 A Probably --

11 Q Does this --

12 A Probably at the rope.

13 Q Do you recall the SSA as a reasonable  
14 assessment? Do you recall that they found a hot spot on  
15 top of the reactor and it was approximately 24 millirem per  
16 hour?

17 A I don't remember the exact dose rates but I do  
18 remember they found some relatively hot spots on top of the  
19 reactor.

20 Q Approximately that much, right, yeah.

21 A Which didn't surprise me based on her --

22 Q That's right.

23 A -- first initial --

24 Q That's right. Now, in order for your staff to  
25 identify the isotope, wasn't it necessary for them to take

1 the maeslin swipe into the laboratory and analyze it for  
2 the energy peaks to identify the isotope?

3 A Well, they weren't normally required to do  
4 that. We would do that. They would tell us and we would  
5 do that.

6 Q Well, isn't it true that your staff actually  
7 did use the multichannel analyzer?

8 A I can't remember but they probably did. That  
9 was when I think I was over at Grady Hospital on an  
10 emergency test run.

11 Q Do you recall, sir, that they identified the  
12 contamination as cadmium 115?

13 A I believe somewhere in there somebody did. I  
14 think that's right.

15 Q Yes.

16 A One of the isotopes. I think there may have  
17 been another isotope there.

18 Q Do you recall, sir, that your staff and perhaps  
19 yourself upon inquiry discovered that Mr. Downs had removed  
20 a capsule the previous day with cadmium in it? And isn't  
21 it true --

22 A Paul Sharpe monitored for him.

23 Q Paul Sharpe monitored for him, correct. And  
24 isn't it true that your staff concluded that the cadmium  
25 wrap was disintegrating?

1 A I think that's right.

2 Q Now isn't the top of the reactor approximately  
3 15 feet above the main floor?

4 A That's about right.

5 Q About right, all right. So isn't it true that  
6 if the -- strike that. Isn't it also true that the reactor  
7 building has a ventilation system?

8 A Yes.

9 Q And this ventilation system is like any other,  
10 it blows air in different directions into the building,  
11 which is then subsequently taken into the uptake vent and  
12 taken out of the reactor building, correct?

13 A By way of filtration, yes.

14 Q And when air blows out into a room or a  
15 building it necessarily scatters whatever tiny particles  
16 that are in there in different directions, correct?

17 A It can do that, that's true.

18 Q That's right. So then if this cadmium wrap had  
19 begun to disintegrate and some particles had become  
20 airborne, which I believe is correct -- is this correct?

21 A I believe that the --

22 Q Particles of the cadmium wrap had become  
23 airborne?

24 A They probably did or they wouldn't have been on  
25 the main floor.

1 Q Exactly. And if they became airborne, then the  
2 air flowing to the room and swirling around the room would  
3 necessarily have scattered these particles in various  
4 places on the two floors of the reactor building, is this  
5 correct?

6 A Yes, ma'am.

7 Q All right. Am I correct that there were five  
8 people in your office at the time of the cadmium spill?  
9 Two health physicists and three students, is this correct?

10 A I believe that's right.

11 Q All right.

12 A I know of the two students --

13 THE REPORTER: Excuse me, Mr. Boyd. I can't  
14 hear you.

15 THE WITNESS: I'm sorry. I think that's  
16 correct.

17 CHAIRMAN BECHHOEFER: Do you mean physically or  
18 just under his control?

19 MS. WOODHEAD: In his office, his personnel,  
20 his staff.

21 CHAIRMAN BECHHOEFER: But not physically in his  
22 office?

23 MS. WOODHEAD: Correct.

24 CHAIRMAN BECHHOEFER: I'm just trying to  
25 clarify what your question meant.

1 MS. WOODHEAD: Correct. He was manager of the  
2 Office of Radiation Safety and in his office his staff was  
3 composed of five people.

4 THE WITNESS: I like to say our staff.

5 BY MS. WOODHEAD:

6 Q Your staff. Now do you recall how many of your  
7 staff participated in the decontamination? Was it all  
8 five?

9 A Three to four, I think.

10 Q Three to four of your staff. And didn't Bill  
11 Downs also assist in decontamination?

12 A I believe so.

13 Q So that would --

14 A And maybe Dr. Karam. I'm not sure.

15 Q -- be four to five people who actually did the  
16 decontamination?

17 A That's right. I wasn't involved in it.

18 Q Yes, right.

19 A I wasn't one of them.

20 Q Now when one performs decontamination, isn't it  
21 necessary to use a Geiger counter or some equivalent  
22 instrument to first locate the spots of contamination?

23 A Yes, ma'am.

24 Q All right. And didn't your staff in fact use a  
25 Geiger counter to --

1 A I hope they did.

2 Q You assumed that they used a Geiger counter or  
3 some equivalent instrument --

4 A Yes, ma'am.

5 Q -- to locate the contamination --

6 A I'm sure they did.

7 Q -- and then they decontaminated the spots that  
8 they found?

9 A Yes, ma'am.

10 Q Now do you recall what instruments they used to  
11 decontaminate?

12 A I recall -- I think the type of instruments we  
13 had, whether they used these specific ones or not, I'm not  
14 sure. We -- they probably used an Everline E120 Pancake  
15 Probe HP270 detector --

16 Q Right.

17 A -- or 210 detector. It's a Geiger counter.  
18 And they probably used a Victoreen 470A panoramic dose rate  
19 meter that read anywhere from zero or one to -- one  
20 millirem per hour to 1,000 roentgens per hour.

21 Q I'm speaking more about the materials to use in  
22 decontamination and clean up. Do you recall what they  
23 used?

24 A Our routine emergency kit contained maeslins  
25 and alcohol buds and Kem wipes and paper towels and some

1 corn starch -- not corn starch but kind of like Alcolnox  
2 stuff. They probably used that, maybe some rags. I can't  
3 remember. Cloth rags.

4 Q Right. And isn't it true --

5 A As a matter of fact -- pardon me. They may  
6 have used some Rise shaving soap too because that helped  
7 fix the stuff once they find it. You know how it works.  
8 Well, men know about Rise shaving soap. It'll fix it so it  
9 doesn't move around while they're wiping it up.

10 Q Yes.

11 A We always kept some of that in the emergency  
12 kit.

13 Q Now you previously stated you thought it was  
14 three to four of your staff plus Bill Downs who did the  
15 actual decontamination?

16 A I think somebody else from the reactor people  
17 too. Maybe Dean McDowell.

18 Q Oh, so it might have been five to six people  
19 working, approximately?

20 A I think that's right.

21 Q All right. Didn't it take the five or six  
22 people who did the decontamination two days to clean up the  
23 reactor building?

24 A I think they had the majority of it cleaned up  
25 in about two or three hours, maybe four hours. But it

1 probably did take two days to get it down to --

2 Q Right.

3 A -- to where we would like for it to be before  
4 we could get the janitor to go in --

5 Q Right.

6 A -- and do his thing.

7 Q Earlier you made mention of a draft reg guide  
8 10.5 -- and I will return this to you so you can verify  
9 that the title of this, it's a U.S. Nuclear Regulatory  
10 Commission document and the application -- oh, excuse me.  
11 The title of it is Applications for Licenses of Broad  
12 Scope.

13 A Yes, ma'am.

14 Q Now, isn't it true that this deals with  
15 radiation safety concerning nuclear materials --

16 A Yes, ma'am.

17 Q -- as distinguished from reactor -- or routine  
18 radiation safety, which would be specifically required for  
19 a reactor?

20 A Well with the exception of once the -- once any  
21 of the contamination that might have been on Bill Downs  
22 comes out of the containment building, then suddenly it  
23 becomes broad license.

24 Q This is true. My only point being here is that  
25 --

1 A But what you're saying is generally true.

2 Q -- the regulations in Part 20 apply to the  
3 radiation safety requirements of the Commission for any  
4 contamination of nuclear materials under the authority of  
5 the Commission, is that correct?

6 A In the state of Georgia, not in other states.

7 Q Well, yes, yes.

8 A It might include byproduct material in other --

9 THE REPORTER: I'm sorry, I couldn't hear you.

10 THE WITNESS: I said it may include byproduct  
11 material in other states if it's one of the 21 that are not  
12 agreement states.

13 BY MS. WOODHEAD:

14 Q And I'll just let you verify that I have read  
15 the title of this correctly?

16 A Oh, sure, yes.

17 Q I believe that's your document.

18 A Oh, okay.

19 Q Now there was discussion earlier about the  
20 rights of employees under the Commission's regulations to  
21 raise safety concerns with NRC inspectors or anyone else in  
22 NRC if they so wished. You're familiar -- are you familiar  
23 with the Code of Federal -- Part 19 of the Code of Federal  
24 Regulations?

25 A Very.

1 Q Very?

2 A Yes, ma'am.

3 Q All right. And isn't it true that this part of  
4 the Commission's regulations not only require -- excuse me.  
5 This part of the Commission's regulations requires  
6 licensees to inform their own employees that they have a  
7 right to raise safety concerns with the Commission?

8 A Yes, ma'am. It's also posted on the notice to  
9 employee signs around the areas --

10 Q And this is --

11 A -- where people frequent the areas.

12 Q And this --

13 A It's for anybody that frequents the area, not  
14 just people that work --

15 THE REPORTER: I'm sorry, but I couldn't hear  
16 the last part of your answer.

17 THE WITNESS: The notice to employee sign is  
18 posted so that anybody who frequents areas where  
19 radioactive material is stored has a right to be given  
20 training and informed that this is present there,  
21 radioactive material is present.

22 MS. WOODHEAD: Judge Bechhoefer, the staff has  
23 no further cross.

24 MR. TURK: Your Honor, there is one item that  
25 I'd like just to put into the record and maybe just get Mr.

1 Boyd to verify this. It has to do with Reg Guide 10.5 that  
2 he cited which also applies to materials license other than  
3 to reactor license. I would like to clarify on the record  
4 what it is in there that he is relying on from his  
5 assertion that the RSO should not be the chairman of the  
6 committee, even under the -- under materials license. May  
7 I approach him for a minute for that purpose?

8 CHAIRMAN BECHHOEFER: Yes, you may.

9 BY MR. TURK:

10 Q Mr. Boyd, is this the portion of the reg guide  
11 that you're referring to for relying on the NRC for your  
12 assertion that the RSO should not be the chairman?

13 A It says does not recommend.

14 Q May I read this into the record then? This is  
15 from page 15 of Draft Regulatory Guide DG-0005, which is  
16 identified as the second proposed revision 2 to Reg Guide  
17 10.5. And the portion that Mr. Boyd is looking at, I'll  
18 read into the record. "The RSO's role as a member of the  
19 RSC" -- and parenthetically, I note that is the Radiation  
20 Safety Committee. It continues, "should be to provide  
21 technical expertise to the RSC. The NRC does not recommend  
22 that the RSO and the RSC chair person be the same  
23 individual. The RSO is responsible for the day-to-day  
24 operations of the radiation safety program and may not  
25 realistically be able to manage the whole program and other

1 assigned duties or responsibilities if he or she is also  
2 the chair person."

3 And that is the statement that you are relying  
4 on for your beliefs in this regard?

5 A That's one of the --

6 Q Is there something more in the document?

7 A Yeah, Bob Boyd.

8 Q Okay.

9 A Bob Boyd says it's a good policy not to do  
10 that.

11 MR. TURK: That's all I wanted to bring into  
12 the record, Your Honor.

13 BOARD EXAMINATION

14 BY CHAIRMAN BECHHOEFER:

15 Q Mr. Boyd, I would like you to clarify one bit  
16 of your testimony concerning your approach to Dr. Stelson -  
17 - I guess it's Dr. Stelson -- about what kind of radiation  
18 safety program you ought to have. I think you testified  
19 that Dr. Stelson wanted an adequate program and told you --  
20 what I'm not clear on is whether he told you not to have a  
21 superior program or whether he merely said we will -- we,  
22 the upper management, will only provide funding enough for  
23 you to meet an adequate program or maybe it's bare minimum.  
24 What I don't know is whether he told you -- instructed you  
25 not to have a superior program or whether he just mentioned

1 that he wasn't going to fund anything more than necessary  
2 or maybe I misunderstood completely. If so, please advise.

3 A Your Honor, he never told me not to have a  
4 superior program. He did use the word adequate all the  
5 time. Now adequate to him may have been superior, I'm not  
6 sure. But he said, I don't want anything fancy. I just  
7 want an adequate program. And he also told me -- well, his  
8 assistant who really watched over me more than Dr. Karam --  
9 I mean, Dr. Shepherd -- I mean Dr. Stelson. Dr. Shepherd  
10 was Dr. Stelson's assistant and he watched over me more  
11 than Dr. Stelson did accept at the meetings that we had  
12 once a week. Dr. Shepherd told me that we had budget  
13 problems over there at the reactor and, of course, he was  
14 involved with the reactor more than anything. We were in  
15 day-to-day for the whole safety program. He said if you  
16 want anything extra, Bob, you're going to have to earn it.  
17 That means if you want any fancy equipment, computers or  
18 anything, you're going to have to go out and earn this  
19 money through continuing education, and that's what we did  
20 do.

21 We started a 40-hour radiation safety officer's  
22 training course and made money for our department so we  
23 could buy extra Geiger counters and so forth that we were  
24 not given the money to do so with. We were given enough  
25 money to manage waste. If I needed extra money to get rid

1 of our low level waste, Dr. Stelson would usually come up  
2 with a little extra money. But they told me you've got to  
3 earn it if you want anything more. And so, I got the  
4 impression there that they had money problems and try just  
5 to do the best you can with what we had, which is not a bad  
6 suggestion, I guess. Everybody has money problems.

7 But it just didn't set well with me to have  
8 serious amounts of radioactivity on a university campus in  
9 downtown of a major city and not have superior -- that kind  
10 of shocked me to hear a guy to tell me he just wanted to  
11 have an adequate. Adequate meant to me all along as well  
12 not the best. I would like to hear him say, I want the  
13 best and whatever you need let me know and I'll try to get  
14 it. I didn't get that impression. That's kind of what I'm  
15 talking about, Your Honor.

16 Q I see. Now with budgetary responsibilities  
17 shifted completely to -- now you may not know this because  
18 it may have been after your time. I don't know. While you  
19 were there at least, was there any instance where you  
20 sought a certain budget and Dr. Karam may have also sought  
21 a budget, a total budget -- and assume for the moment the  
22 reactor did not get the budget it sought. Do you think  
23 that in allocating the budget, the health physicists were -  
24 - or radiation safety was short changed in terms of not  
25 what it requested but in terms of the degree of allocation

1 of what the entire reactor got? I don't know if you  
2 understand my question.

3 A I understand completely and my answer is yes.

4 Q Could you give some examples of that?

5 A Well, Dr. Karam took my secretary. That  
6 eliminated that. I couldn't have a secretary. I was  
7 supposed to have half-time or something like that and I was  
8 lucky if I got 10 percent time. So that went out the  
9 window. I didn't have a secretary after a certain time.

10 Then we had -- I always worked through the  
11 people at Georgia State University, the finance people, for  
12 the share of money that they would give to Georgia Tech and  
13 Dr. Stelson's budget paid me to take care of the radiation  
14 safety program at Georgia State. And Dr. Karam took all  
15 that money. I don't know what happened to that. So we  
16 couldn't -- we couldn't buy plastic bags or anything  
17 without it going through Dr. Karam -- or masking tape. And  
18 so, yes, definitely it influenced our budget thinking. We  
19 had to rethink totally because everything went through Dr.  
20 Stelson -- Dr. Karam.

21 Q Well was Dr. Karam's operations organization  
22 also cut from what it sought?

23 A I don't know, sir. Also, the money that I  
24 brought in as far as safety -- as far as the 40-hour  
25 radiation safety officer's course went to Dr. Karam too and

1 I don't know what happened to that money. That money  
2 started going to him instead of through the Continuing  
3 Education Department where some of us could make extra  
4 money legally through Georgia Tech's Continuing Education  
5 Department and the rest of it went to Continuing Education.  
6 And any surplus went to -- originally to the Office of  
7 Radiation Safety Budget so we could buy things. Now it  
8 went to Dr. Karam who was our boss and he could do what he  
9 wanted to with it. I don't know what happened to all that.  
10 But, I might point out that the amount of money we made  
11 extra was kind of peanuts compared to what he needed to run  
12 the operation. It wasn't really peanuts to us because that  
13 was the only money we had to buy Geiger counters and new  
14 stuff like that. But we didn't have that anymore, we had  
15 to go through Dr. Karam if we wanted to get additional  
16 safety equipment. That was the way it was. I don't know  
17 if I answered your question properly.

18 Q You answered what I expected answered.

19 A Oh, okay.

20 Q I better not say whether it was proper. I've  
21 got to look at the entire record.

22 A Okay. Excuse me.

23 BY ADMINISTRATIVE JUDGE LAM:

24 Q Mr. Boyd, in today's testimony you have stated  
25 on the record that both the Nuclear Regulatory Commission

1 and the Georgia Institute of Technology management, up and  
2 down the line, from the president of the university, the  
3 vice president down to the director level, both  
4 organizations blame you for the radiation safety problem  
5 that existed in 1987 and '88. I think the record is clear  
6 on that. Additionally, the licensee's counsel has asked  
7 you questions on a Dr. O'Bannon study, which also  
8 identified you and your staff as a factor in the deficiency  
9 that existed in 1987. So now we have three different  
10 sources that identify either you or your staff as being  
11 deficient. Assuming they are as honest and as intelligent  
12 as you are, do you know why they did that to you?

13 A I think they made a mistake if that's the case.

14 Q But the question is, do you know why?

15 A No.

16 ADMINISTRATIVE JUDGE LAM: Thank you.

17 BY CHAIRMAN BECHHOEFER:

18 Q Mr. Boyd, I have one further question. You  
19 were questioned quite extensively on GANE Exhibit 47 which  
20 has been labeled your impressions of President Crecine's  
21 address to the faculty on February 26, 1988. As far as my  
22 notes reflect, you were asked about -- just about every  
23 sentence in the document except one and that's the last  
24 paragraph on page 1 and I'd like your comments on that.  
25 The one that's in quotes.

1           A     My thing to the file?

2           MR. JOHNSON: No, this is your daughter's  
3 notes.

4           THE WITNESS: Oh, that thing.

5 BY CHAIRMAN BECHHOEFER:

6           Q     Now, I don't know whether I was paying  
7 attention but I -- my little notes --

8           A     The last paragraph?

9           Q     The last paragraph on page 1 is the only one  
10 that I don't recall what your answer to that was.

11          A     He said those exact words. I can even remember  
12 them. He said that. He says now if -- he's talking about  
13 if anybody finds a safety problem on the campus, they  
14 should deal with it within the university first and then if  
15 they don't get satisfaction or a response from the upper  
16 management or somebody, then it's okay to go outside, which  
17 I think is an improper statement for a manager like that to  
18 make in light of the freedom of speech philosophy that the  
19 NRC -- but that's what he said, almost to the word.

20          Q     Right. And would you -- and was it your  
21 understanding that that applied to going to the NRC as well  
22 as going to --

23          A     Yes, sir.

24          Q     -- say the newspaper?

25          A     Well, he was also concerned about the

1 newspapers.

2 Q Yeah, I understand that. I don't think he  
3 wanted anybody reporting anything to the newspapers.

4 A I think he was really pointing that to the NRC,  
5 but I'm not sure. He may have been talking about the TV  
6 stations and everybody else.

7 Q Well there may be a statutory difference as to  
8 obligations in that regard. A regulatory difference  
9 anyway.

10 A Another confusing issue to our minds. The  
11 director of the Natural Resources Department of the state  
12 of Georgia, which doesn't have anything to do with the  
13 feds, I'm sure. But he has posters all over the state of  
14 Georgia that state any of my employees, anybody in this  
15 organization can speak to anybody, any time, anywhere about  
16 any matter and we don't want to suppress anybody's freedom  
17 of speech to anything. And so, maybe my people and myself  
18 feel that we can talk to anybody, even though the better  
19 method would be to talk to the university officials first  
20 and then go to the NRC or then go to the TV. Personally, I  
21 never went to the TV station or any people like that over  
22 anybody's head but I can't vouch for other people in my  
23 organization. They may have, but I'm not going to hold it  
24 against them. As a matter of fact, I'm going to praise  
25 them.

1 CHAIRMAN BECHHOEFER: That's all the questions  
2 the Board has. What I'm going to about now is a question  
3 of timing. How much time other parties will need? We're  
4 gauging whether we should attempt to make our 5:05 plane or  
5 attempt to change.

6 MS. CARROLL: Are you open to changing? I  
7 mean, I wouldn't impose that on you.

8 ADMINISTRATIVE JUDGE LAM: Good.

9 CHAIRMAN BECHHOEFER: We would be able to get  
10 on it if you finish in another 15 or 20 minutes.

11 ADMINISTRATIVE JUDGE LAM: Our flight leaves at  
12 five o'clock.

13 MS. CARROLL: So you need to --

14 ADMINISTRATIVE JUDGE LAM: It's a very narrow  
15 time window.

16 CHAIRMAN BECHHOEFER: Relatively narrow. I  
17 don't know how fast or slow the driving --

18 MS. CARROLL: Well, my question is, don't you -  
19 - wouldn't you really rather take that five o'clock flight  
20 than a later one?

21 CHAIRMAN BECHHOEFER: Well, our personal  
22 preference is yes.

23 MS. CARROLL: That's what I thought. Did I  
24 hear you right, you guys have finished? The Board is  
25 finished with their questions?

1 CHAIRMAN BECHHOEFER: The Board is finished.

2 MS. CARROLL: Now, we do have some redirect.

3 CHAIRMAN BECHHOEFER: Yeah, I was wondering  
4 about that.

5 MS. CARROLL: Do you guys anticipate anymore  
6 recross?

7 CHAIRMAN BECHHOEFER: It may depend on you.

8 MR. EVANS: It depends on what you do on  
9 redirect.

10 MS. WOODHEAD: It depends on you.

11 MS. CARROLL: I'm just going to suppose that  
12 there will be at least a couple of questions now. I could  
13 go for it and we might make it by 3:00. Are you available  
14 in June if it were required? June 24th, I think is the  
15 magic day.

16 MR. TURK: I'm going to oppose that, Your  
17 Honor. We have two staff panels that have to be out of  
18 here by Wednesday evening of that June week. We have Dr.  
19 Karam. If you've got something to do with Mr. Boyd, I  
20 would suggest that you do it now. Just speed it up to  
21 whatever extent you can.

22 MS. CARROLL: I'll do it.

23 CHAIRMAN BECHHOEFER: We would prefer that.

24 REDIRECT EXAMINATION

25 BY MS. CARROLL:

1           Q       Mr. Boyd, this line of questioning is going to  
2 follow pretty much the sequence of events. I mean they  
3 were all questions that occurred to me as you had your  
4 cross examination this morning. So there's no particular  
5 rhyme or reason except it follows that.

6                       Yes?

7           MR. JOHNSON: And I just think that it's in  
8 everybody's interest if we could ask you to try and answer  
9 this next bunch of questions very directly and concisely,  
10 Mr. Boyd.

11 BY MS. CARROLL:

12           Q       Did you think it odd that you were pressured to  
13 quit, but Bill Downs was apparently not?

14           A       Yes.

15           Q       Thank you. I'm making A list and B list  
16 questions in case we run out of time.

17                       May I approach the witness?

18           CHAIRMAN BECHHOEFER: Yes.

19           Q       Last September, Georgia Tech did their most  
20 recent management change, I believe this is the current  
21 one, and as an expert, I'd like to ask you to comment --

22           MR. TURK: Objection.

23           MS. CARROLL: Thank you, counsel.

24           MR. TURK: I'll let Ms. Woodhead express it.

25           MS. WOODHEAD: Mr. Boyd is not an expert in NRC

1 regulations for --

2 MS. CARROLL: This is the management structure  
3 and I'd just like for him to comment. We've been asking  
4 him about all this old time management.

5 MR. TURK: It's not part of his direct, it's  
6 not part of his cross.

7 MS. WOODHEAD: You're opening a new area.

8 MR. TURK: He indicated he's not aware --

9 MS. WOODHEAD: You're opening a new area.

10 MS. CARROLL: No, I'm not.

11 MS. WOODHEAD: You can only go --

12 MS. CARROLL: Mr. Evans asked cross about --

13 MS. WOODHEAD: No, no, no, not the present  
14 organizational structure. He asked about the original in  
15 '87.

16 MS. CARROLL: Do you want this to go on into  
17 June? I mean, you're wrong about that. We'll get the  
18 record out. We asked about the old time -- it's  
19 irrelevant, he's an expert on management, let's ask him  
20 what he thinks about the new structure.

21 MR. EVANS: If I may, my position is he is not  
22 an expert on the management, the overall management of a  
23 research facility, hasn't contended or offered himself as  
24 an expert in that area.

25 Second point, it is beyond the scope. My

1 questions were on the organization as he knew it and his  
2 testimony was that he doesn't know the status of things  
3 after May 1988. Counsel is now asking about the current.

4 MS. CARROLL: Well, he doesn't unless I show it  
5 to him. This is the status, he ought to be able to relate  
6 to it since he had so many opinions about how it should be  
7 structured.

8 MR. TURK: It should have been raised on  
9 direct. If it's something that you wanted to get into, it  
10 should have been raised originally.

11 MS. CARROLL: Well, you raised it on cross,  
12 maybe you shouldn't have.

13 MR. TURK: It was not.

14 MS. WOODHEAD: It was not raised on cross.

15 CHAIRMAN BECHHOEFER: It was not raised on  
16 cross.

17 MS. CARROLL: Management structure?

18 MR. TURK: Not at that time.

19 MS. CARROLL: I mean it's just that we keep  
20 going over this '87 management structure and I thought we'd  
21 get his comment on this.

22 Anyway, we have plenty of testimony but this  
23 was sufficient, so we just won't add Mr. Boyd's to it.

24 CHAIRMAN BECHHOEFER: You will have several  
25 staff witnesses if none other to ask questions on that.

1 Panel C, if not panel B.

2 MR. EVANS: You did get into a safety issue --

3 MS. CARROLL: What?

4 MR. EVANS: Did you touch on --

5 MS. CARROLL: Don't get me rattled, I mean, you  
6 know, I have to read the question.

7 BY MS. CARROLL:

8 Q Mr. Boyd, you were answering questions of Mr.  
9 Evans this morning and you testified -- I don't remember  
10 his question, but you testified that you spoke with state  
11 regulators and NRC regulators about the management change -  
12 - I think it was the management change. Can you remember  
13 the context for this?

14 (No response.)

15 Q Okay, I'd better move on, maybe I'll come back  
16 to that. I feel that people are kind of cheated when  
17 they're having to rush in an unfamiliar arena but we want  
18 everybody to be happy, especially the judge.

19 Okay, no matter what they say, this all came up  
20 out of cross. GANE Number 46. Okay, near the end of this,  
21 the third paragraph, near the end of it: Fur urgent,  
22 dangerous or unresolved situations of importance, the  
23 office of radiation safety has an obligation to report and  
24 inform their direct supervisor and so on.

25 You were asked several questions about this and

1 I believe that you answered it; however, since it wasn't  
2 clear to me what the intent of your answer was, I'm asking  
3 again. What I understood you to be testifying to is that  
4 you didn't understand who was meant by the office of  
5 radiation safety. Did you mean you didn't know if it  
6 referred to Dr. Kahn --

7 A Well, I probably did. This was a confusing  
8 situation, Dr. Karam is now over the manager of radiation  
9 safety, the manager of reactor, the manager of operations,  
10 coordinator of experiments and all that. He's also, at one  
11 time, over the Nuclear Safeguards Committee, who was the  
12 RSO was Bernd Kahn. So I'm not exactly who he's talking  
13 about there.

14 Q So it could have been Dr. Kahn or Dr. Karam or  
15 you?

16 A Right.

17 Q Now another thing --

18 MR. EVANS: Excuse me, but I think I would have  
19 to object to any testimony that Dr. Karam ever at any point  
20 in time was ever over the Nuclear Safeguards Committee.  
21 It's factually unso and I don't know of any evidence to  
22 even come close to supporting that.

23 THE WITNESS: May I continue on that same  
24 subject?

25 CHAIRMAN BECHHOEFER: Are you --

1 THE WITNESS: I wasn't through with her. Maybe  
2 I have to stop because he objected.

3 CHAIRMAN BECHHOEFER: You should not try to  
4 link Dr. Karam as supervisor of the Nuclear Safeguards  
5 Committee, that's contrary to all the charts at least.

6 THE WITNESS: Well, Your Honor, the wording  
7 there is a little bit in conflict with the chart on the  
8 next page because he's addressed -- it says the manager of  
9 the office of radiation safety, which was my position, has  
10 now a straight line to the Nuclear Safeguards Committee.  
11 The manager of radiation safety, that was me, does not have  
12 a line to the president. They have a line to the radiation  
13 safety officer, who was Dr. Bernd Kahn, who in turn has a  
14 line directly to the president. So the manager of radiation  
15 safety did not have a direct line to the president, so when  
16 he talks about the office of radiation safety, you could  
17 assume anything. If he had said the manager of the office  
18 of radiation safety, that would have been more clear.

19 ADMINISTRATIVE JUDGE LAM: The licensee's  
20 counsel's objection has to do with your earlier statement  
21 that the Nuclear Safeguards Committee reported to Dr.  
22 Karam, which is not correct.

23 THE WITNESS: Well, okay, I'll address that.  
24 At the first redrawing of that situation when Dr. Karam  
25 started this thing, he had an organizational chart that has

1 arrows on it showing that the Nuclear Safeguards Committee  
2 arrowed to him. There was definitely a chart like that  
3 involved, and everything arrowed to him.

4 CHAIRMAN BECHHOEFER: That chart isn't in our  
5 record.

6 MR. JOHNSON: GANE 43.

7 CHAIRMAN BECHHOEFER: Pardon?

8 MR. JOHNSON: GANE 43.

9 CHAIRMAN BECHHOEFER: Wait a minute.

10 THE WITNESS: Anyway, that was the  
11 interpretation we got.

12 MR. EVANS: Also, I would point out whatever  
13 the arrow shows, that could show who directs who and if the  
14 arrow is going down to Dr. Karam, that would show that the  
15 Nuclear Safety Committee is above Dr. Karam, it doesn't  
16 necessarily mean that's reporting.

17 But in any event, there's no indication -- if  
18 the chart shows that, there's no indication that that ever  
19 existed in fact.

20 THE WITNESS: Well, it did.

21 CHAIRMAN BECHHOEFER: Well, these arrows are  
22 handwritten.

23 THE WITNESS: Anyway, it was confusing in my  
24 mind as to that.

25 MS. WOODHEAD: That's the point, he was

1 confused.

2 MR. EVANS: We would agree that it may be that  
3 the chart is confusing. I would not have any question with  
4 him finding the chart confusing.

5 MS. CARROLL: Do you guys have to go to your  
6 hotel on the way to the airport? You're ready to rock?

7 BY MS. CARROLL:

8 Q Okay, my next question then is if there were a  
9 safety problem and you took this letter, this GANE Number  
10 46, to heart, would you be uncertain if the reporting  
11 responsibility were yours or Dr. Kahn's, or would you have  
12 been uncertain?

13 A Oh, yeah, that's what I'm talking about.

14 Q Okay. I do want to note --

15 A I assume any time they talk about the radiation  
16 safety officer or anything like that, they're talking about  
17 Dr. Kahn.

18 Q Well, I see that the term is not precise for  
19 either of the two offices that are designated, I think  
20 everybody can see that.

21 I'd also like to point out and I expect that  
22 you'll agree with this, but the text of the letter, which  
23 says you report to the president or vice president just  
24 isn't in agreement with the chart, and you would have to  
25 choose which one to rely upon?

1           A       That's the way I read it. Maybe others read it  
2 differently.

3           Q       You were asked in your cross examination by Al  
4 Evans about the GANE claim, which I'm sure we can refine in  
5 the last two years of exposure to this, that the radiation  
6 safeguards committee has a distinct flaw in not being  
7 concerned with health issues, which I think is very  
8 clumsily stated myself at this point.

9                    If I may approach the witness and show him the  
10 makeup of the current committee and see if he can identify  
11 in his expertise where human health expertise is  
12 represented on this committee, that would be my wish.

13           MS. WOODHEAD: Are you impeaching your own  
14 witness? He testified that they were concerned with  
15 safety.

16           MS. CARROLL: What happens if he gets  
17 impeached, does he get dragged out of retirement and go  
18 back to work? I don't understand that comment.

19           MS. WOODHEAD: I'm asking you if you are  
20 intending to impeach your own witness.

21           MS. CARROLL: Well he doesn't know, he isn't on  
22 the committee right now.

23           MS. WOODHEAD: This is irrelevant to the  
24 purpose of his testimony.

25           MS. CARROLL: Well, I think he said that it's

1 supposed to have -- I understood his testimony to mean yes,  
2 in theory the Nuclear Safeguards Committee is supposed to  
3 address health issues.

4 ADMINISTRATIVE JUDGE KLINE: Nuclear health  
5 issues, I don't think --

6 MR. TURK: The very first thing that Mr. Evans  
7 established with this witness was that he was not aware of  
8 current matters at the reactor.

9 MS. CARROLL: That's why I'd like to show him  
10 something.

11 MR. TURK: Excuse me. He has not been there  
12 since May of 1988.

13 MS. CARROLL: That's why probably he needs me  
14 to show him this list.

15 MR. TURK: Every question that followed had to  
16 do with his tenure at the reactor during the period leading  
17 up to 1988 when he left. What you're now attempting to do  
18 is try to use this witness as a supposed expert, if he is  
19 one which has not been established, to give an opinion with  
20 respect to the current membership of the NSC. It's not  
21 within the scope of his testimony, it's beyond the cross,  
22 he's not been offered as an expert and this is an improper  
23 question at this time.

24 CHAIRMAN BECHHOEFER: And by the way, there are  
25 other witnesses to ask that question on the current -- the

1 same question could be asked staff and I think Dr. Karam  
2 could --

3 ADMINISTRATIVE JUDGE LAM: He's not the right  
4 witness for you to ask that question of.

5 MS. CARROLL: Well, he's someone we trust and  
6 we don't trust everybody else and that could be a  
7 shortcoming on our part, but --

8 I take it -- I didn't hear your ruling.

9 CHAIRMAN BECHHOEFER: We will sustain the  
10 objection to that question.

11 MS. CARROLL: I'll tell you, they try to twist  
12 something that's on the record to make it sound different,  
13 so I want to go back and twist it back the other way, and  
14 it seems a little redundant. Now tell me how you weigh  
15 this out --

16 CHAIRMAN BECHHOEFER: That --

17 MS. CARROLL: -- do you believe one more than  
18 the other? If we get two one way and one the other way --

19 CHAIRMAN BECHHOEFER: That could be --  
20 statements that could be interpreted differently on the  
21 same question, that would be something that would be open  
22 for you to inquire.

23 MS. CARROLL: Okay. And it would be important  
24 that I remedy that or else I totally leave it up to your  
25 judgment.

1 CHAIRMAN BECHHOEFER: I don't know how  
2 important it is, it depends on what the question is.

3 ADMINISTRATIVE JUDGE LAM: And furthermore, I  
4 want to give GANE the instruction again what happened in  
5 1987 and 1988 carries very little weight other than in the  
6 context of establishing a background anchor point.

7 MS. CARROLL: It's hard to stay there when you  
8 see our esteemed colleagues that have had a lifetime in the  
9 legal profession working this issue over so effectively.  
10 The temptation is very strong to go back and remedy what  
11 looks to us like a twisted, distortion of the truth.

12 CHAIRMAN BECHHOEFER: That's legitimate.  
13 BY MS. CARROLL:

14 Q At the time of the cadmium spill -- I think  
15 this is really a short answer question -- at the time of  
16 the cadmium spill, were you an independent manager of the  
17 office of radiation safety? Did you have independent  
18 management?

19 A I didn't.

20 Q Now Dr. Kahn -- I just need to be sure I've got  
21 this right -- Dr. Kahn was appointed RSO?

22 A That's right.

23 Q What impact did that have on your authority and  
24 responsibility?

25 A I wasn't exactly sure, it was a confusing issue

1 at best.

2 MS. CARROLL: I wanted to ask him about his  
3 notes documenting his cooperative attitude and I hope that  
4 the Court will hear that he had several pages of notes  
5 countering an old accusation, and I'm not going to ask him  
6 to list them, but I would --

7 CHAIRMAN BECHHOEFER: Mr. Evans has already  
8 told you you could.

9 MS. CARROLL: What?

10 CHAIRMAN BECHHOEFER: I said Mr. Evans already  
11 told you you could.

12 MS. CARROLL: Mr. Evans told you I could. And  
13 I would love to hear them and so I guess we'll just let it  
14 rest that he has many samples he can provide.

15 MR. EVANS: I'm not sure what we're talking  
16 about. If it's anything that I asked the witness about on  
17 direct, I would quite agree that it can be -- excuse me, on  
18 cross -- you can redirect on what I've asked on this cross.  
19 I did not ever agree that you can go back to something that  
20 I haven't asked him about and ask about that.

21 MS. CARROLL: No, you asked him about Bob  
22 McDonald accusing him of not cooperating or that was his  
23 answer and he said he had a lot of evidence that he did too  
24 cooperate and you said well, I'll let counsel for GANE ask  
25 that. And I wanted to, but that seems time-consuming, so

1 let it go on the record that there are examples.

2 CHAIRMAN BECHHOEFER: Well, that we can't take

3 --

4 MS. WOODHEAD: That we will stipulate.

5 MS. CARROLL: Maybe we'll have time and we'll  
6 come back to that.

7 BY MS. CARROLL:

8 Q Bob, when you were in Florida and your daughter  
9 called and told you that there were newspaper headlines  
10 concerning your office with your name in it, what happened  
11 to your office and the records you'd kept on behalf of the  
12 facility?

13 MR. EVANS: I don't believe I asked anything  
14 about what happened to offices -- records in his office.

15 MS. CARROLL: Well, you asked questions about  
16 this firing and everything that he heard about.

17 MR. EVANS: I didn't ask anything about records  
18 in his office and I didn't say he was fired, I talked about  
19 Messrs. Millspaugh and Sharpe being fired.

20 MS. CARROLL: Right, and that's the time frame  
21 and incident I'm referring to.

22 MS. WOODHEAD: Yes, we object, it's beyond the  
23 scope of cross examination.

24 CHAIRMAN BECHHOEFER: I think a proper  
25 question, if you want to ask it, is in terms of your

1 discussion of the firing of Messrs. Millspaugh and Sharpe,  
2 do you have any records of the matters about which you  
3 spoke, documenting that.

4 MS. CARROLL: Well, that's not what my question  
5 is about.

6 CHAIRMAN BECHHOEFER: Well, okay, that's what I  
7 thought it was about and that would be appropriate but I'm  
8 not sure general records are a proper subject. So to the  
9 extent the objection was made to the more general question,  
10 it's sustained.

11 MS. CARROLL: What time is it?

12 CHAIRMAN BECHHOEFER: About six after three.

13 MS. CARROLL: You can get to the airport in  
14 half hour easy.

15 CHAIRMAN BECHHOEFER: Yes, right, but the other  
16 parties have to have a chance to recross and all that.

17 MS. CARROLL: Well, that's their problem. I'm  
18 taking care of my judges, they can if they want.

19 BY MS. CARROLL:

20 Q Do you have any records of the time when your  
21 health physics technicians -- I think they were your  
22 technicians -- were fired?

23 A I'm sorry, I don't quite understand the  
24 question. Do I have any records?

25 Q Uh-huh.

1 CHAIRMAN BECHHOEFER: Concerning the firing.

2 MS. CARROLL: Uh-huh.

3 A Yes, I have some notes and things concerning  
4 the firing, yes.

5 BY MS. CARROLL:

6 Q Were there any other records that were impacted  
7 or involved in the entire scenario?

8 A Well, the entire office of radiological safety  
9 records, the film badge records, the inventory and all were  
10 totally gone when I got back from Tallahassee, I didn't  
11 know where they were. So I couldn't operate, I was non-  
12 functional.

13 Q Did they destroy them?

14 A They were moved to another room in the  
15 building.

16 MR. EVANS: May I ask what relevance the  
17 records of two people who we all concede were initially  
18 fired, then transferred laterally out of the center --  
19 Messrs. Millepaugh and Sharpe -- may I ask what relevancy  
20 this has?

21 MS. CARROLL: Because they're records of the  
22 entire radiation safety office.

23 MS. WOODHEAD: This is far beyond the scope of  
24 Mr. Evans' cross examination.

25 CHAIRMAN BECHHOEFER: The way you're asking it,

1 it's far beyond what the questions were about. The records  
2 concerning Messrs. Millspaugh and Sharpe may or may not be  
3 relevant but would seem to be relevant. But I don't know  
4 what they prove or would prove.

5 BY MS. CARROLL:

6 Q Were your health physics technicians replaced  
7 when they were fired? Did you get replacements?

8 A No, not immediately.

9 Q Were you able to keep up with your work?

10 A No.

11 MR. EVANS: May I suggest that we take official  
12 notice that the reactor was closed down during this time  
13 period.

14 MS. CARROLL: May we take official notice that  
15 the man's job extended to the entire Georgia Tech campus  
16 and the Georgia State University campus?

17 MR. EVANS: Oh, you're talking about Georgia  
18 State University or Georgia Tech?

19 MS. CARROLL: When the man was manager of the  
20 office of radiation safety at Georgia Tech, he also was the  
21 oversight radiation safety officer for Georgia State.

22 CHAIRMAN BECHHOEFER: But the extent of the  
23 employment --

24 MS. CARROLL: There was a lot of reactor stuff  
25 at Tech and --

1 CHAIRMAN BECHHOEFER: The extent of employees  
2 needed to service the other facility is not really relevant  
3 to this proceeding.

4 BY MS. CARROLL:

5 Q There was extensive discussion about management  
6 surrounding the -- well, actually before and after the  
7 cadmium spill, from the NRC, there was extensive management  
8 discussion at Georgia Tech as well that the NRC noted.

9 THE WITNESS: May I go back to that original  
10 question?

11 MS. CARROLL: I don't know, I'm having a hard  
12 time following.

13 THE WITNESS: Because it does apply to the  
14 reactor even though it was shut down. We had to make  
15 surveys around there even though it was shut down.

16 CHAIRMAN BECHHOEFER: Okay.

17 BY MS. CARROLL:

18 Q And you were strapped to do your work without  
19 personnel?

20 A Certainly we were. And it does apply to the  
21 federal license.

22 Q Did you have control over hiring and firing  
23 your personnel after the management change?

24 A No.

25 Q So this was another material need your office

1 had that wasn't being met by Georgia Tech management?

2 A Yes.

3 Q Okay, now this management issue, and I was  
4 starting to ask this other question, but there was quite a  
5 bit of input from the NRC, I could even get some exact  
6 language. I think everybody here understands that the NRC  
7 cited a need for management control of the program. What  
8 do you think they meant by management, who was they talking  
9 about?

10 MR. TURK: Your Honor, that's going to be  
11 speculative on his part. The NRC witnesses were here, the  
12 document was introduced when the witnesses were here. What  
13 he thinks is irrelevant to what the NRC actually did or  
14 thought when they issued the orders.

15 MS. CARROLL: I'm asking for his  
16 interpretation, I mean he's reading this, he's part of the  
17 management structure such as it is. I mean he's lost some  
18 authority and responsibility but he's still part of the  
19 management structure. There's certainly been a lot of  
20 blame attempted to be pinned on him.

21 MR. TURK: The objection is that it calls for  
22 speculation.

23 MS. CARROLL: And so I'm asking him for his  
24 interpretation. It is his opinion, what that word invokes  
25 in him, who is being talked about, who's management, his

1 take on that.

2 CHAIRMAN BECHHOEFER: I think we will permit  
3 that.

4 BY MS. CARROLL:

5 Q Do you remember the question?

6 A No.

7 Q There was a lot of talk about management and  
8 the NRC cited management and need for management control of  
9 the program, not maybe their exact words. And I want to  
10 know who you think of when you hear about the NRC's citing  
11 management.

12 A Me.

13 Q You thought of you?

14 A I think I was singled out as what they were  
15 really talking about, the manager of radiation safety is  
16 what they really were pushing, but I think they also had an  
17 overall management problem too, but I do think based on  
18 some remarks that Ernst made, that the root mean cause was  
19 the radiation safety office. So I got that feeling.  
20 However, they may have had a totally different philosophy,  
21 I can't speak for them, I'm just speaking for your answer  
22 to my opinion.

23 Q So you didn't think of the director?

24 A No.

25 Q Or the vice president or the president?

1           A       No.

2                   MS. CARROLL: All righty, I think that'll --  
3 did that do it for us?

4                   MR. JOHNSON: Yes.

5                   MS. CARROLL: That'll do it.

6                   MS. WOODHEAD: Very good.

7                   MR. EVANS: I have one question. I think I'm a  
8 little confused as to what it is I'm responding to, I  
9 believe it was a question from the panel, it had to do with  
10 obtaining safety equipment, as I recall it.

11                                   RE CROSS EXAMINATION

12       BY MR. EVANS:

13           Q       I just have one question. When you're talking  
14 about obtaining safety equipment, and I believe you wanted  
15 the best, -- I believe the testimony is you wanted the best  
16 and a lot of times what you got was barely adequate, if I  
17 understood your testimony.

18           A       Yes, sir.

19           Q       I'd like to ask you, would you agree that  
20 before the reorganization, that Dr. Karam purchased for you  
21 or obtained for you, a liquid scintillation counter which  
22 cost \$25,000?

23           A       I remember we got one, I don't remember where  
24 the money came from. But I do remember we made \$16,000 at  
25 the Navy in Albany, Georgia that I thought part of that

1 money went to Dr. Stelson and he shuffled it around  
2 somewhere. We then did a course for the Marine Corps Depot  
3 Center in Albany.

4 MR. EVANS: Okay, thank you, sir, I have no  
5 further questions.

6 MS. WOODHEAD: No further questions.

7 CHAIRMAN BECHHOEFER: We don't have any further  
8 questions. Do you have any follow up on just that one last  
9 --

10 MS. CARROLL: I've got to say I didn't even pay  
11 attention to what happened just now. I don't have the art  
12 of talking to my counsel and listening to their counsel.

13 CHAIRMAN BECHHOEFER: I think we'll then excuse  
14 the witness.

15 MS. CARROLL: Did you get upset or anything?  
16 Was it a cool question for you?

17 THE WITNESS: Not yet, unless the stock market  
18 goes down tonight.

19 CHAIRMAN BECHHOEFER: We'll excuse you and  
20 thank you for being here and for all your effort.

21 (Witness excused.)

22 CHAIRMAN BECHHOEFER: And I hope we can adjourn  
23 for the day rather quickly.

24 Anybody have anything to raise?

25 (No response.)

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CHAIRMAN BECHHOEFER: We will resume in June  
with Dr. Karam's testimony.

(Whereupon, the hearing was adjourned at  
3:17 p.m., to resume at 9:30 a.m. on Monday,  
June 24, 1996.)

C E R T I F I C A T E

This is to certify that the attached proceedings before the  
U. S. Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Georgia Tech Research Reactor

Docket Number: 50-160-REN

Place of Proceeding: Atlanta, Georgia

Date: May 31, 1996

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.

*15/* *William Warren*

---

WILLIAM L. WARREN  
Official Reporter

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