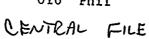
Records Facilities Branch 016 Phil





IN THE MATTER OF:

PACIFIC GAS & ELECTRIC COMPANY

(Diablo Canyon Units 1 and 2)

Docket Non. 50-275 50-323

Place -

Avila Beach, California

Date -

8 January 1979

Pages

7598 - 7884

Telephone: (202) 347-3700

ACE - FEDERAL REPORTERS, INC.

Official Reporters

444 North Capitol Street Washington, D.C. 20001

**NATIONWIDE COVERAGE - DAILY** 

JR.

O

7901220007

Ł • • 4 Ä

UNITED STATES OF AMERICA wb NUCLEAR REGULATIONY COMMISSION WRBLOOM MADELON 3. WELANDON :4 .In: the matter of: CR1934 .5 PACIFIC GAS & ELECTRIC COMPANY. Docket Nos. 50-275 ò . (Diablo Canyon Units 1 and 2) .7. ·S -9 10 3.7 . 12 .13 BEFORE: 14. ELIZABETH BOWERS, Esq., Chairman, 15 DR. WILLIAM E. MARTIN, Member. 16 GLENN O. BRIGHT, Member. 17 APPEARANCES: 13 19 . 20 Phoenix, Arizona 85012. 21 22 25

50-323

Cavalier Room, San Luis Bay Inn, Avila Beach, California.

Monday, January 3, 1979.

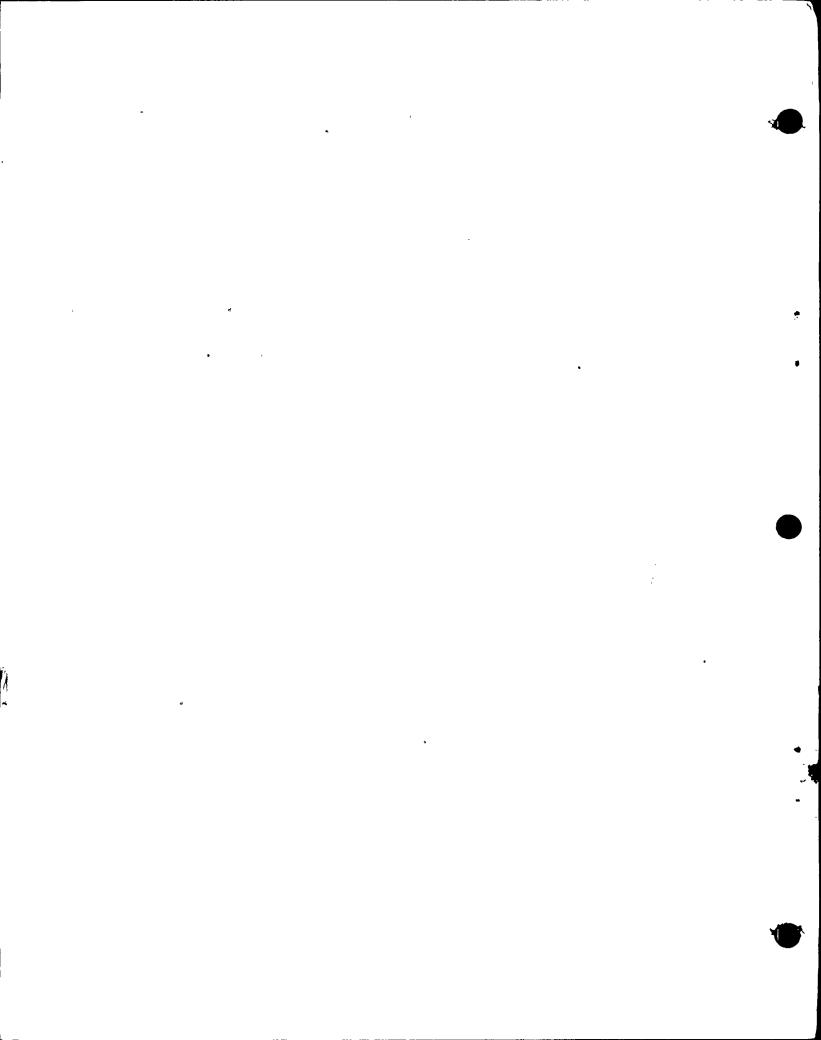
The hearing in the above-antitled matter was reconvened, pursuant to adjournment at 8:30 a.m.

Atomic Safety and Licensing Board.

On behalf of Applicant, Pacific Gas & Electric Company:

BRUCE: NORTON, Esq., 3216 No. Third Street,

MALCOLM H. FURBUSH, Esq. and PHILIP CRANE, Esq., Legal Department, Pacific Gas & Electric Company, '77 Beale Street, San Francisco, California 94106,



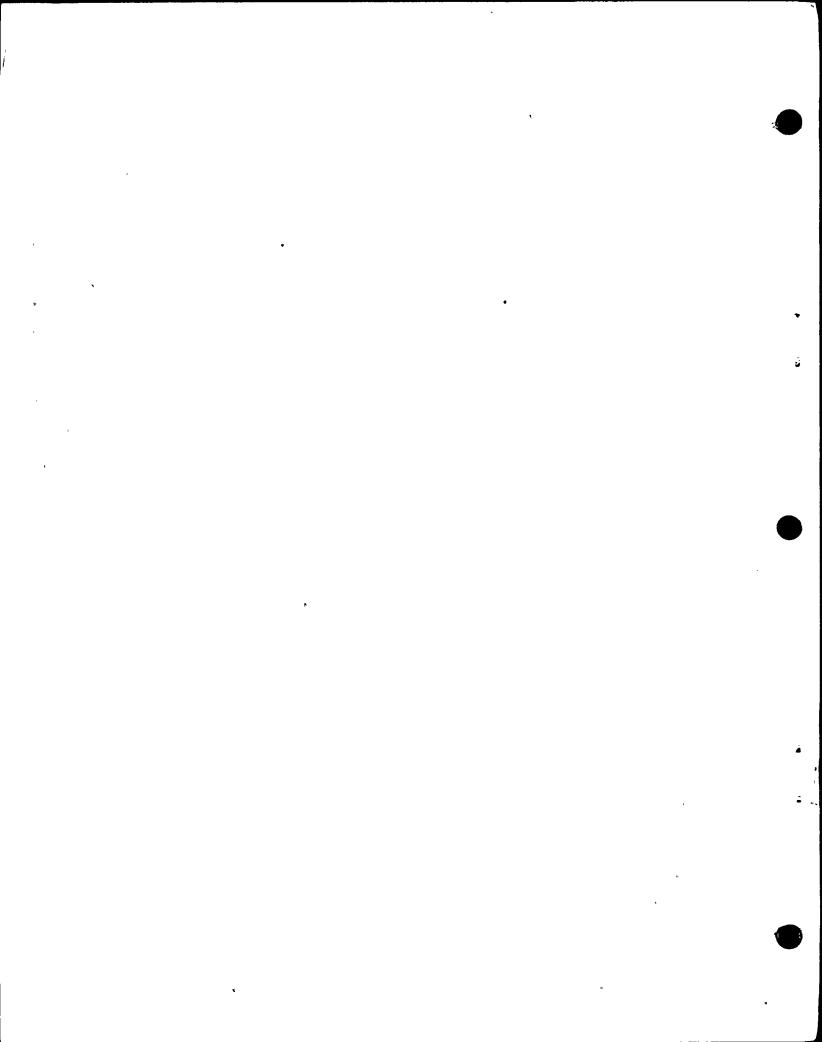
## On behalf of the Joint Intervenors:

DAVID S. FLEISCHARER, Esq., Suite 602, 1025 15th Street N.W., Washington, D. C.

STEPHEN KRISTOVICH, Esq., Center for Law in the Public Interest, 10203 Santa Monica Boulevard, Los Angeles, California 90067.

. On behalf of the Regulatory Staff:

JAMES R. TOURTELLOTTE, Esq., MARC STAENBERG, Esq. and EDWARD KETCHEN, Esq., Office of Executive Legal Director, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555.



1	<u>CONTENTS</u> EXAMICX BY ON VOIS
2	WITNESS: DIRECT CROSS REDIRECT RECROSS BD. BD.DIRE
3	Richard B. Hubbard 7703 7842 ,7855 7856 770
4.	
5	
5	
7.	
8	·
9	• *
10	
11	EXHIBITS: FOR IDENTIFICATION IN EVIDENCE
12	Joint Intervenors 65 7704
13	(Hubbard testimony and professional qualifications)
14	Board 4 (Nuclear Info. & Design 35 7736 (1975) 327-333)
15	Staff 10 (Equation 9 NB3652) 7752
16	
17	
18	
, 19. 20	
21	
. 22	The same of the complete same same same same same same same sam
. 23	
24	
25	

4 . . , •

1A WRB/agbl

**2** 

Ë

.4

5,

6

8,

9

10

11

12

13

14

15 16

**17** 

Į,

,19

2Ò

21

22

23

24

25

## PROCEEDIMES

MRS. BOWERS: We'd like to begin.

Are there any preliminary matters before we start with Mr. Hubbard?

MR. HORTON: Yes, Mrs. Bowers, we have one and that is there was some confusion in my mind, if no one else's, about how you ruled on Friday regarding now the Board would have ruled should there have been a stipulation among all the parties to have the subpoense issued.

MRS. BOWERS: Well if there had been a stipulation that recited exceptional circumstances that the partiesasyraed to, then the Board would have accepted it without reservation. If there was a stipulation that did not recite exceptional circumstances, the majority of the Board would not have accepted it. I mentioned that I would have been dissenting in that case. It doesn't matter, though.

MR. NORTON: Okay.

MR. TOURTELLOTTE: The majority of the Board would not have accepted the stipulation and the subposnes would not have issued?

MRS. BOWERS: That's right, unless the stipulation were citing exceptional circumstances.

MR. TOURTELLOTTE: And you would have dissented from that?

MRS. BOWERS: Yes, if there had been a stipulation

• •

WRB/agb2

that was silent. I probably shouldn't have volunteered that, but for future guidance....

...4.

2

3

. . : 15.

6

7

8

9

10

íí

12.

13

14

15 16

17

18 19

20

21

22

23

24

25

I believe that if the parties enter into a stipulation, even though it doesn't recite exceptional circumstances, that it's appropriate for the Board to accept it. The other Board members do not agree with that.

MR. TOURTELLOTTE: I take it inherent in that ruling also is a rejection of the Staff's position that the exceptional circumstances are there to protect the Staff, and the Staff is in a position of waiving those, the right to insist upon that.

MRS. BOWERS: Well, it would have that effect because the other Board members felt that exceptional circumstances had to be established.

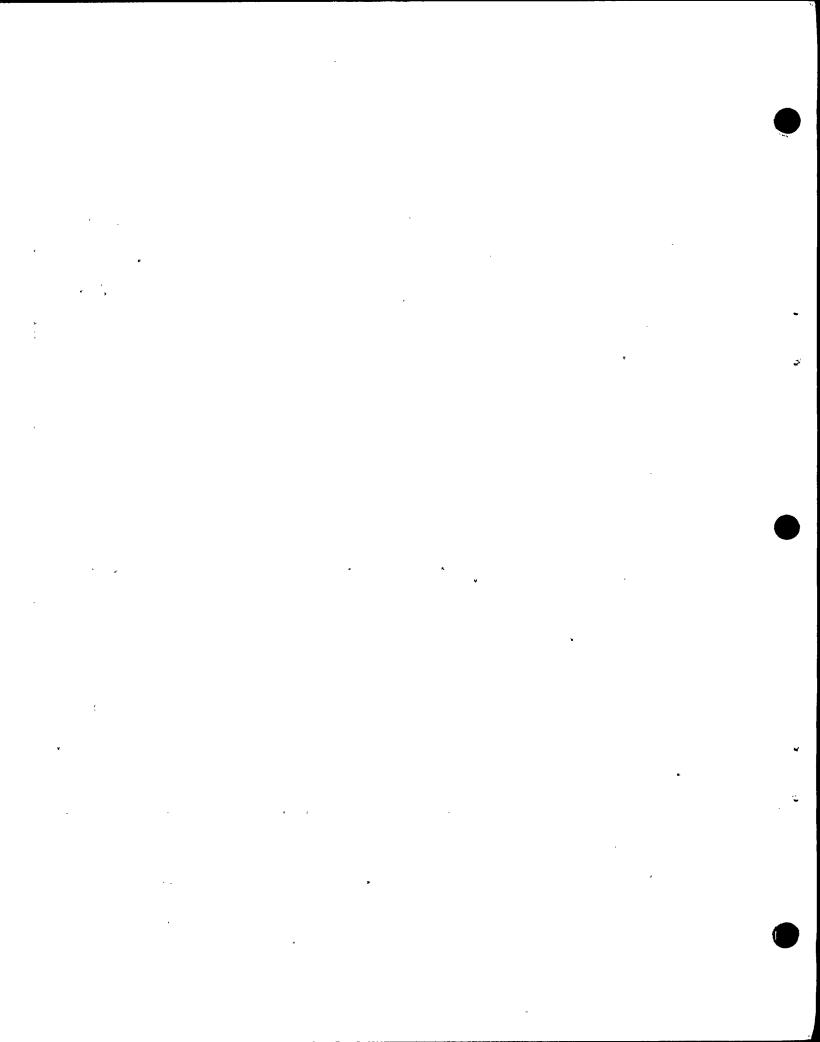
Now, Mr. Fleischaker called Saturday afternoon and said with the approval of Mr. Tourtellotte and Mr. Norton that he had been able to get in touch with Dr. Brune and that, if the Board wanted Dr. Brune here tomorrow to testify that, if he could get plane reservations, that he would be here.

Do you have any more information on that?

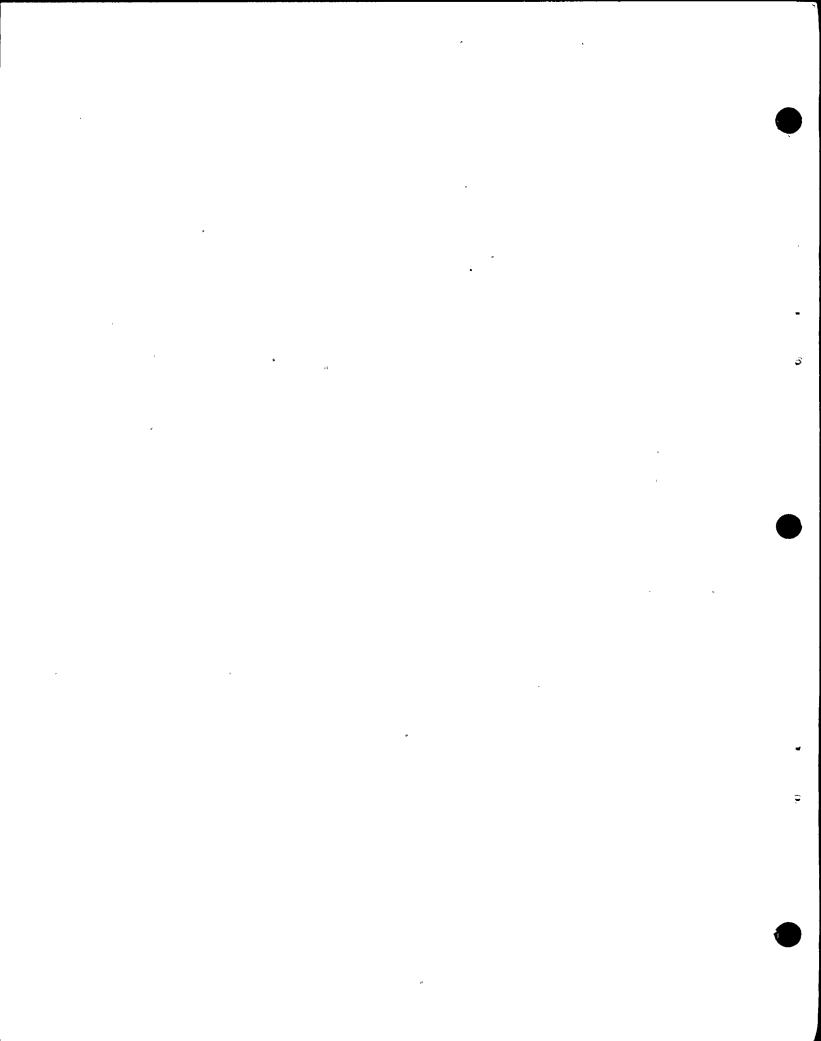
MR. KRISTOVICH: Dr. Brune will be here.

MRS. BOWERS: Fine. Well, the meeting was at the Shamrock Hilton but I understand he was staying with relatives.

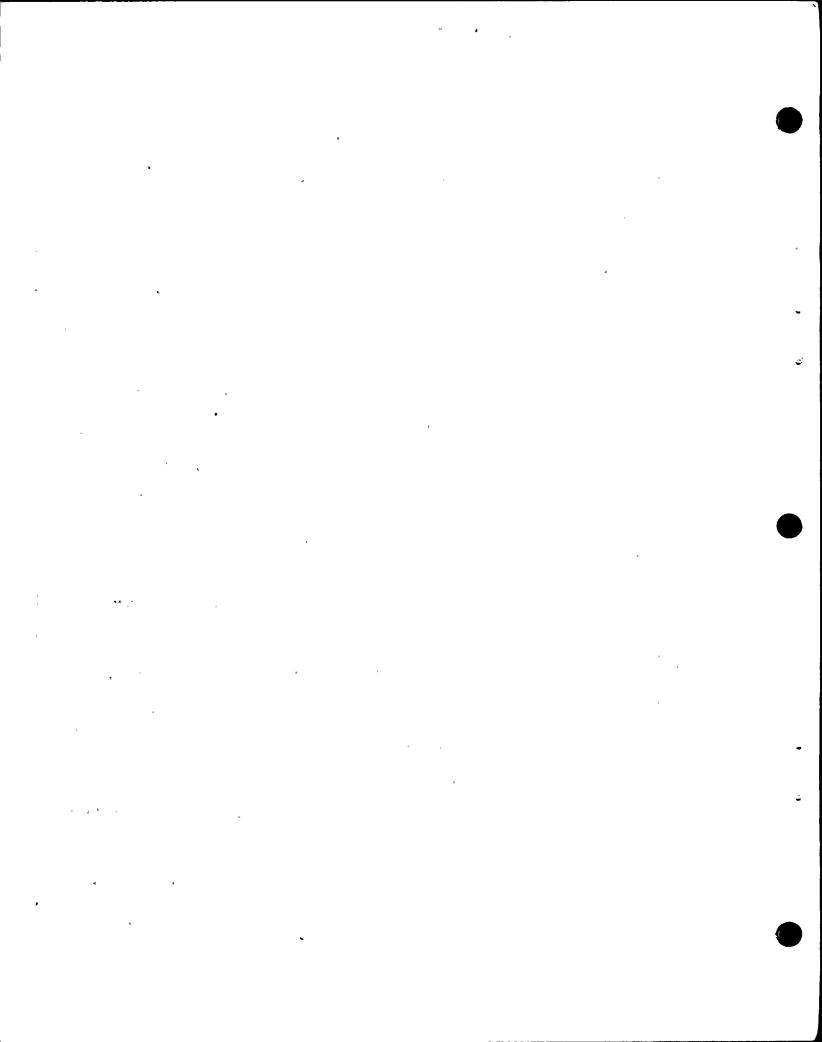
Is there any other preliminary matter? (No response.)



WRB/aqb3 MRS. BOWERS: Well Mr. Kristovich, are you ready 2 to preceed with Mr. Hubbard? 3 MR. KRISTOVICH: Yes. 4 MRS. BOWERS: Now, in order for us to get our 5 paperwork in line, I have two pieces of testimony prepared 6 by Richard B. Hubbard, one dealing with Contention 4 and the 7 other dealing with Contentions 5, 6 and 7. Are we covering 8 both of those? 9 MR. KRISTOVICH: Yes, we are. 10 MRS. BOWERS: Fine. 11 Whereupon, 12 RICHARD B. HUBBARD 13 was called as a witness on behalf of the Joint Intervenors, 14 and, having been first duly sworn, was examined and testified 15 as follows: 16 DIRECT EXAMINATION 17 BY MR. KRISTOVICH: 18 Mr. Hubbard, would you please state your full 19 name for the record? 20 Richard B. Hubbard. 21 Mr. Hubbard, have you prepared testimony for this 22 proceeding? 23 Yes, I have, two separate pieces of testimony. 24 Q Have you also prepared a statement of your 25 professional and educational background?



	j	i .
NRB/agb4	3	A Yes, I have and it's attached to my testimony on
	2	Contention 4 entitled, "Operating Basis Earthquake."
	3	Q I believe you have before you what has been marked
	4	as Joint Intervenors' Exhibit Number 65. Does this document
	5.	contain the testimony that you have prepared and a copy
	. 6	of the professional statement that you're submitting?
	.7	MRS. BOWERS: Wait a minute. The last Joint
_	8	Intervenors' exhibit I have is 64, which is a hand-written
	9	document. You're labeling part of the testimony?
	10	MR. KRISTOVICH: I'd like to mark for identification
	.11	Mr. Hubbard's testimony and Professional Qualifications as
	12	Joint Intervenors' Exhibit Number 65.
n	13	MRS. BOWERS: Is there a separate piece of paper?
<b>O</b> .	1.4	He recites his qualifications in the document dealing with
	15	Contention 4.
,	16	MR. KRISTOVICH: Correct.
,	17	MRS. BOWERS: So that is what will be Intervenors!
	.18	65', is that correct.
•	19	MR. KRISTOVICH: His professional qualifications
•	20	and his testimony which is all in one document.
	21	DR. MARTIN: His testimony and several attachments?
	22	MR. KRISTOVICH: Correct.
	23	(Whereupon, the document previous)
	24	referred to as Joint Intervenors
	25	Exhibit 65 was marked for identi-
	77	fication.)



WRB/agb5	1	BY MR. KRISTOVICH:			
	2	Q Mr. Hubbard, ara there any typographical errors			
	3	or corrections to your testimony or to your prepared Statement			
	4	of Professional Qualifications?			
	.5	A Yes, there are.			
	6	Shall we take the first piece of testimony,			
•	. 7	Contention 4?			
-	. 8	Q Yes.			
	9	MR. TOURTELLOTTE: Excuse me, Mrs. Bowers.			
	10	Are both Contention 4 and Contentions 5, 6 and 7			
	1.1	a part of Exhibit 65, or is it just Contention 4?			
* 2 <b>4</b>	12.	MR. KRISTOVICH: It's all Exhibit 65.			
	13	MR. TOURTELLOTTE: Okay.			
	14	BY MR. KRISTOVICH:			
	15	Q Wr. Hubbard, can you give us your corrections?			
	16	A Yes.			
	17.	On the contention addressed in the Operating			
	18.	Basis Earthquake, the testimony addressed to Contention 4,			
, a	19	tnere arethe following changes:			
•	20	On 4-6, underneath the contention, the fourth			
•	21	sentence, the fourth word in is "controlling." Add another			
	22	*l" to controlling.			
	.23 .	Then on the following line, the sentence beginning			
	24	with "Two," it starts: "Two examples to illustrate where,"			
	25	I would strike from that point all the way through 4-7, and			

, · · · · · · · · · · · t , **v** (**u**) **v**

WRB/agb6

on 4-8 ---

3

5.

6

7

8

.9

10

1.1

. 12

13

14

15

....16 17.

18..

19 **2**b.

23

23.

28 25.

MRS. BOWERS: Wait a minute. What are you doing? You have a sentence beginning: "Two examples," and what are you striking?

THE WITHESS: From that point, "Two examples" --beginning with "Two examples," all the way over to, on Page 4-8.

MRS. BCWERS: To what point on 4-8?

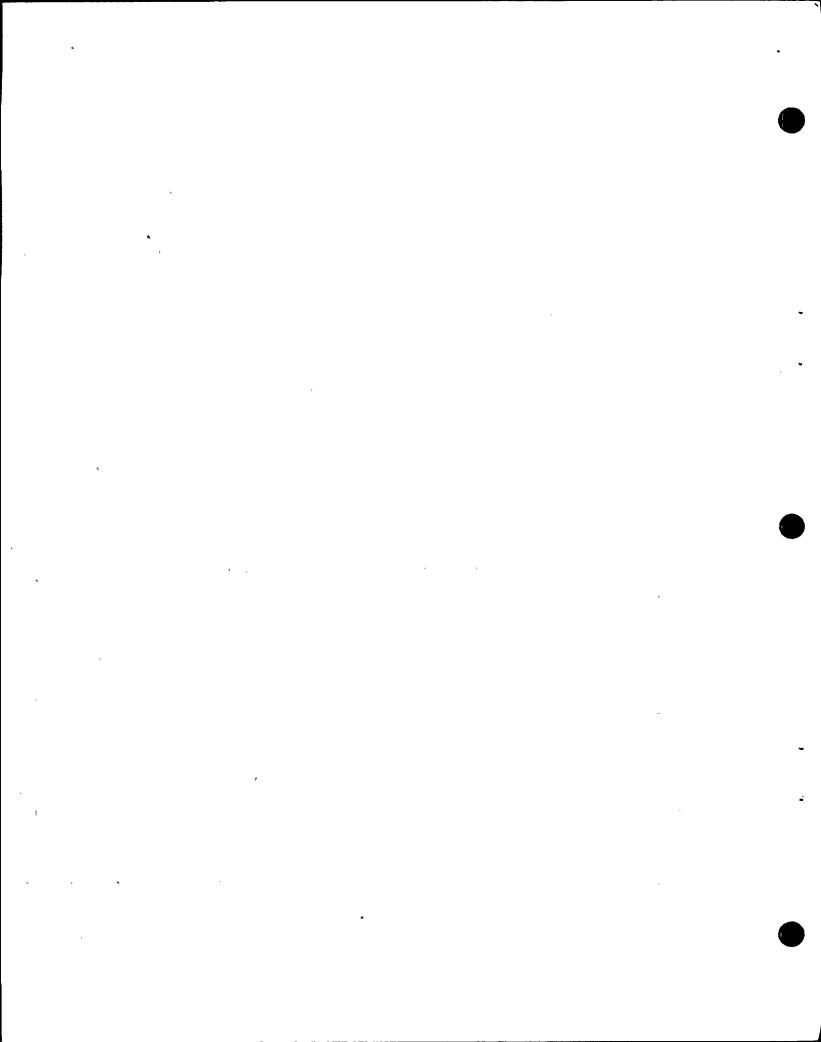
THE WITNESS: The word "design," which ends the paragraph right above the bottom paragraph. It's a complete reference to the work of Dr. Stephenson.

MRS. BOWERS: So on Page 8, you striking averything down to the beginning of the last paragraph, is that correct? THE WITNESS: Yas, Ha'am.

And in essence, what that is, it's all addressed. to the work of Dr. Stephenson.

Then on 4-11, the bottom paragraph starts, "as stated in Attachment C, " and right above that I would put a title, and the title would be "3.5," and then "Difficult to Upgrade Design for Increased OBE."

Then on Page 4-13, in the second sentance I'd put an asterisk after the word "high seismicity," and the asterisk would refer to a footnote, and the footnote would be "Gawthrop, G-a-w-t-h-r-o-p, William H., and then a title in quotations: "Seismicity and Tectonics of the Central



WRB/ggb7

2

3

4

5

6

7

8

9

10

1,1

12

14

15

16

1.7

.

- -

1.37

20

21.

22

23

24

25

California Coastal Region, CDM Report 137. That's the California Division of Mines Report 137.

Then on the second testimony entitled "Contentions 5, 6 and 7, Seismic Re-analysis of Structures, Systems and Components," on Page Three, the third line up from the bottom DR. MARTIN: How do you recognize Page Three?

THE WITNESS: 5, 6 and 7-3.

The third line up from the bottom where it says: "Reactor Site Criteria," "site" should be s-i-t-e. A misspelling.

Continuing on that set of testimony to Page 5, at the bottom of the first paragraph where there is one asterisk, there should be two asterisks. And the two asterisks then refer to a footnote below, which would be:

"FSAR Page 3.2-6."

Then on Page 10, another misspelling. In the first paragraph, the third line up from the bottom of the paragraph, it says: "in contract," and it should be "in contract." Change the "c" to an "s."

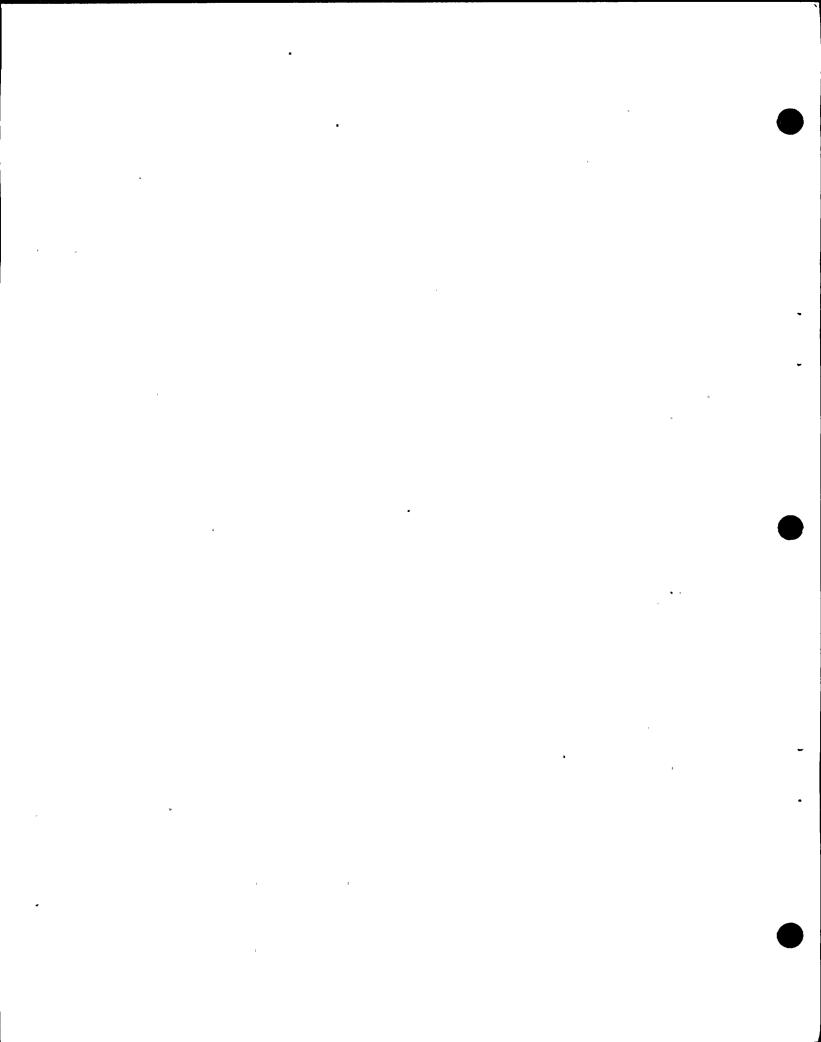
I believe that's all the changes.

BY MR. KRISTOVICH:

Q Mr. Hubbard, will you at this time please summarize the written testimony that you have prefiled in this proceeding?

MR. TOURTELLOTTE: Mrs. Bowers, --

MRS. BOWERS: Just a minute, please.



	WRB/agb	3 <sup>1</sup>
		2
_		3
		4.
		5
		6
-	<b>▶</b> 1-	7:
_		8
-		8 9.
	. ,	10
		; 1:1
•	# 4 # 3 #	12
	-	1:3
	•	14
	1	15
	1	1:6
	1	7
	•	18
	1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	19
	2	20
•	2	21
	2	22·

23

24

25.

Mr. Tourtellotte?

MR. TOURTELLOTTE: Before the summary is made, I would like to conduct Voir Dire and make motions to strike. MRS. BOWERS: Do you want to proceed?

MR. KRISTOVICH: Mrs. Bowers, it just seems inappropriate at this time to conduct Voir Dire. I believe Mr. Hubbard should be allowed a chance to begin his summary, and if he reaches certain points in his summary where Mr. Tourtellotte has trouble with what he has said, then it would be appropriate to have Voir Dira and make motions to strike.

MRS. BOWERS: Voir Dire normally comes at the beginning.

Mr. Norton, do you have a position on this? MR. NORTON: That's what Voir Dira is. MRS. BOWERS: We'd like Mr. Tourtallotte to proceed.

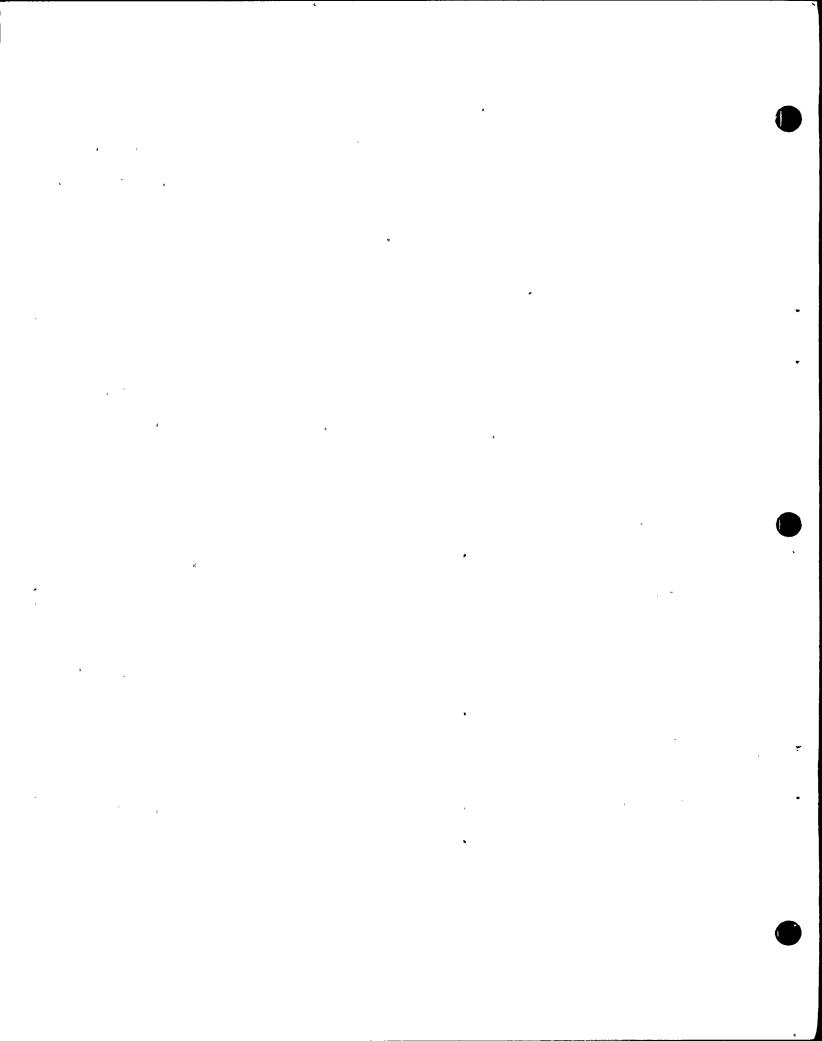
## VOIR DIRE EXAMINATION

## BY MR. TOURTELLOTTE:

Mr. Hubbard, the statement of qualifications set out in Contention 4, is that the sum total of your professional qualifications?

Why I'm sure there are other items, but that is essence, yes, sir.

But if there are other items, what are the other



				7
WR	B/	ag	b	9
		_	••	

items?

4

.5

6

7

8

10

. 9

Pì,

12.

13.

-14··· 15

.16.

17.

18

20:

19

21.

23::

25

A Well I've testified in other proceedings than are listed there. There's a short summary of the work I did at GE. You know, if you had specific areas, I'm sure I could address them.

- Q What other proceedings have you testified in?
- A For example, the Black Fox proceedings. That's not listed there.
- Q. What other proceeding? Just Black Fox, other than those mentioned in your statement of qualifications?
  - A Well that would be one example.

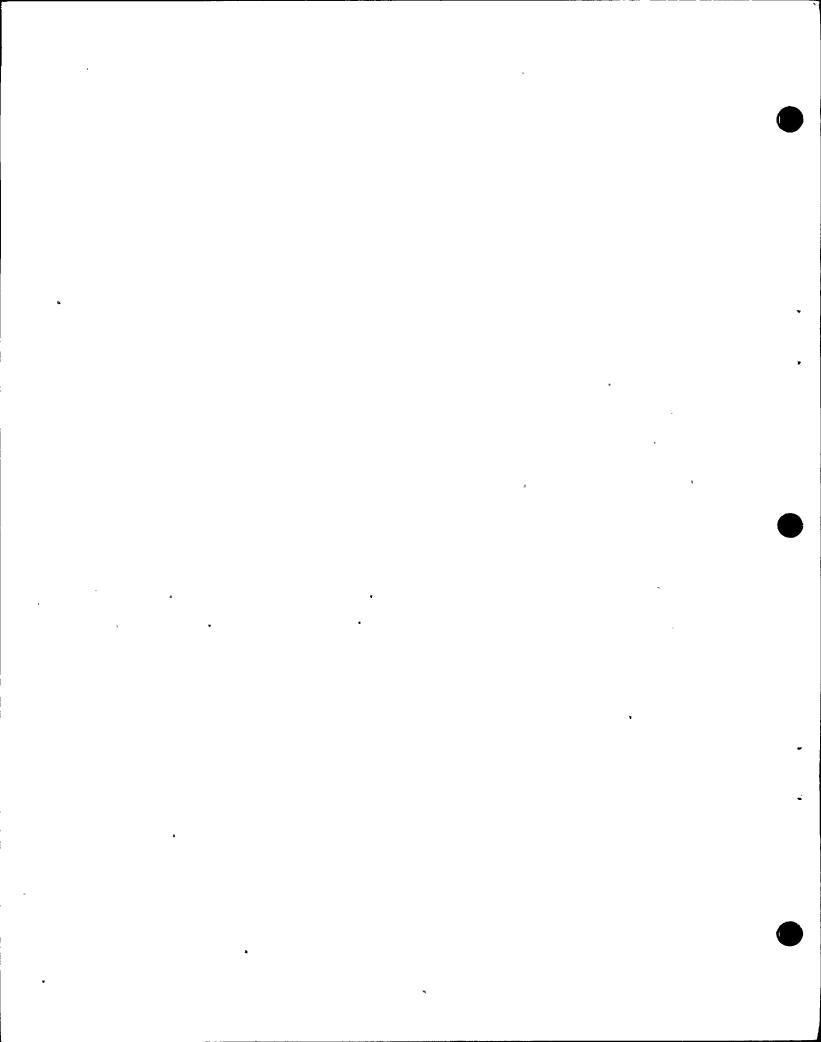
Another example would be before the Public Utility Commission in Baton Rouge, Louisiana on the River Band Plant.

Another example might be before — testimony before the German Government's Department of Research and Technology on their reactor safety program, including specifically on risk assessment. That was in Germany, in Bonn, on August 31st and September 1st of this year.

in Portland, Oregon on the Pebble Springs application that is presently pending before the Oregon Facility Siting Council.

Those are examples that come to mind.

This is not a complese list, but these basically happened in the last three months.



: .	
1B	1
Orre/wb1	2
	3
$\bigcirc$	4
	5
	6
3	7
	8
•	9
	10
•	. 11
•	12
	13
	14
	15
•	16
	17
•	18.
	19:
•	20
	21
	. 22
	23

24

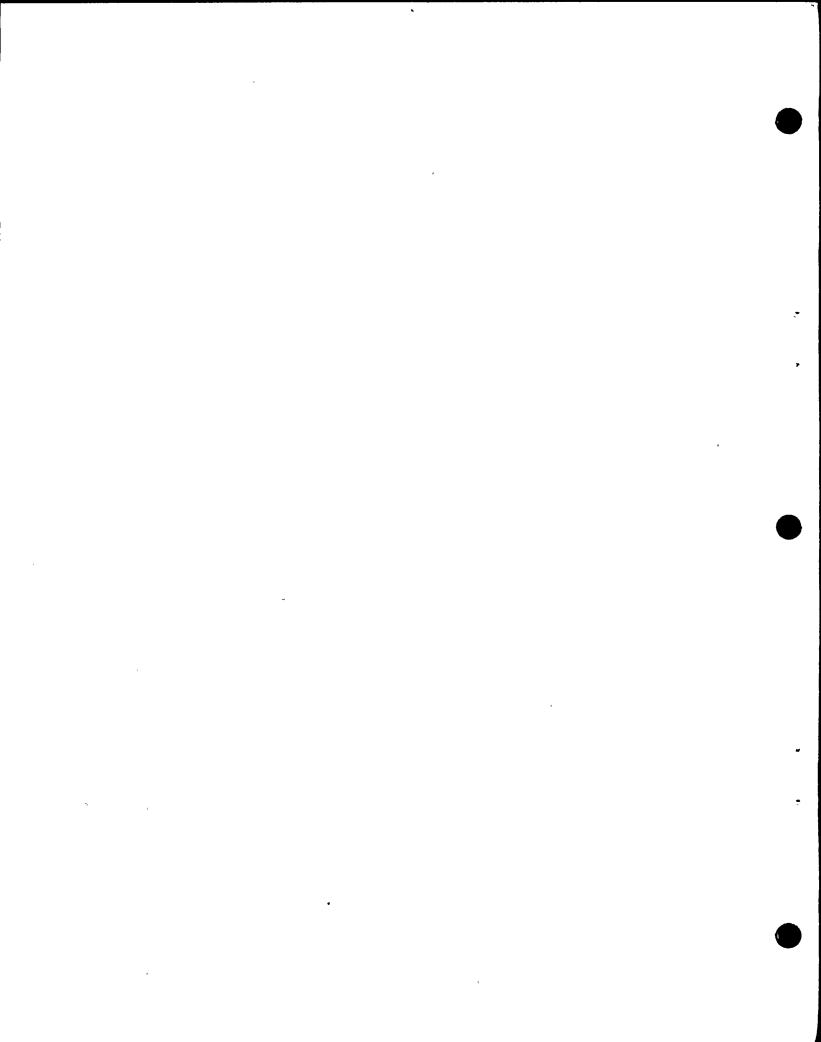
25

- You are a licensed professional engineer? 0
- A licensed quality engineer in the State of A California.
  - A licensed quality engineer.  $Q_{f}$
  - That's right. A.
  - Q -- in the State of California.
  - That's right. Α
- Are you professing any expectise in the field of . Ω geology today?

In a system standpoint would be the only part; and by that I mean it's clear I'm not a geologist: I've not had courses in geology. However, for the last two years I ... have participated as an observer at the proceedings on Diablo Canyon, you know, attending the ACRS meetings, you know, reviewing the information included in the FSAR and the Hosqri amendment, and participating in discussions for the Center for Law with geologists, recruiting them and also obtaining their views.

So while I do not have direct educational background in geology I do have some familiarity with views of geologists relevant to the Diablo Canyon facility.

- Q Do you consider yourself an expert in geology?.
- I think the previous answer would pretty much say what I am. I've not had educational mackground in geology. From a system standpoint, an overall view of what; you know,



24.

25

people --

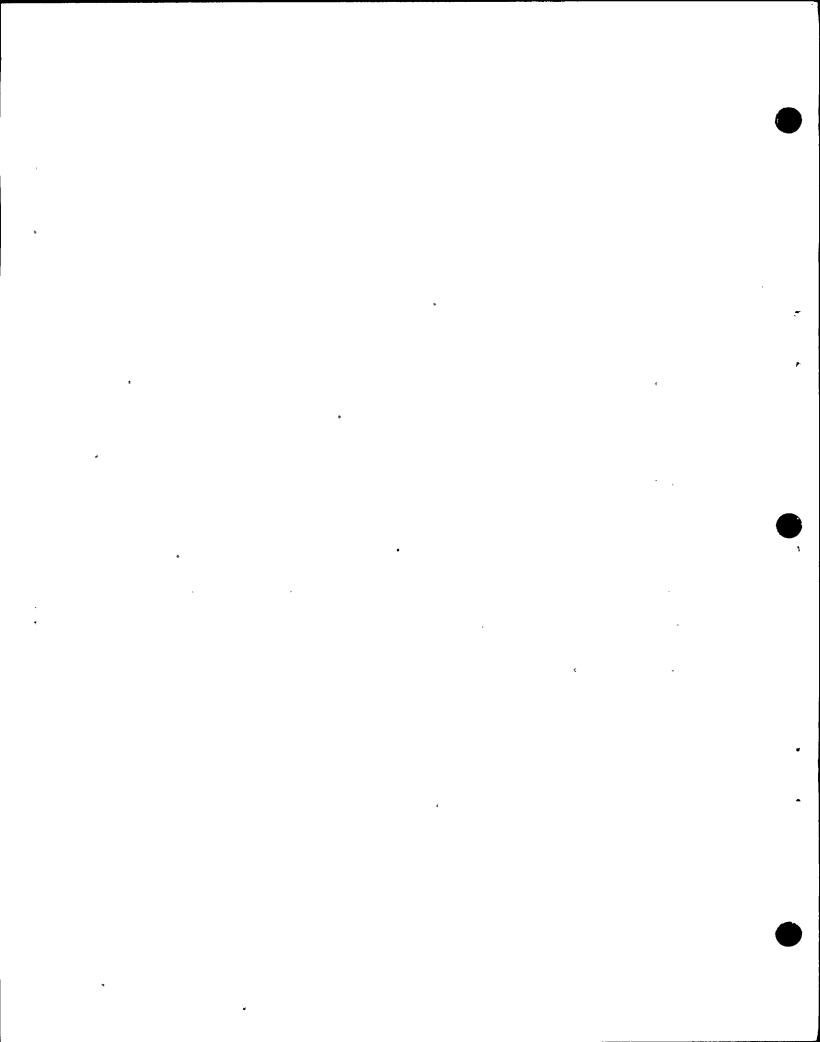
- Q Well, maybe--
- A -- what has been going on in this proceeding.
- Q. Let me ask you this: I read that answer as saying No. I'm not an expert. Am I wrong in that?

A I think it's a combination of yes and no. By purely definition, am I an expert geologist; No, I'm not. But from a systems standpoint, to talk about, you know, general views of geology as expressed by geologists for the Diablo Canyon facility, yes, I am aware and familiar with their views.

- Q . Are you an expert in seismology?
- A I think the previous answer would again apply.
- Q Your previous answer isn't very clear to me.
- A Well, I would have no training in seismology.

  However I have attended the hearings and reviewed the inputs
  by the seismologists and met with people who are seismologists
  to discuss the issues that are being discussed here, and
  have, you know, reviewed their opinions with them.
- Q It's very interesting. I guess not that it makes a lot of difference, I've attended all those meetings, too; do you think I'm an expert?

MR. KRISTOVICH: Objection, Mrs. Bowers. That's irrelevant, what our witness thinks Mr. Tourtellotte's qualifications are in seismology and geology.



Å

19. 

MR. TOURTELLOTTE: I'm trying to figure out what he believes are the standards for an expert. He just told me what he considers the standards for his own expertise.

I'm telling him that the same standards apply in my case.

I've been to the same meetings. I want to know if he thinks everybody is an expert who has attended any meetings.

MRS. BOWERS: Well the objection is sustained.

BY MR. TOURTELLOTTE:

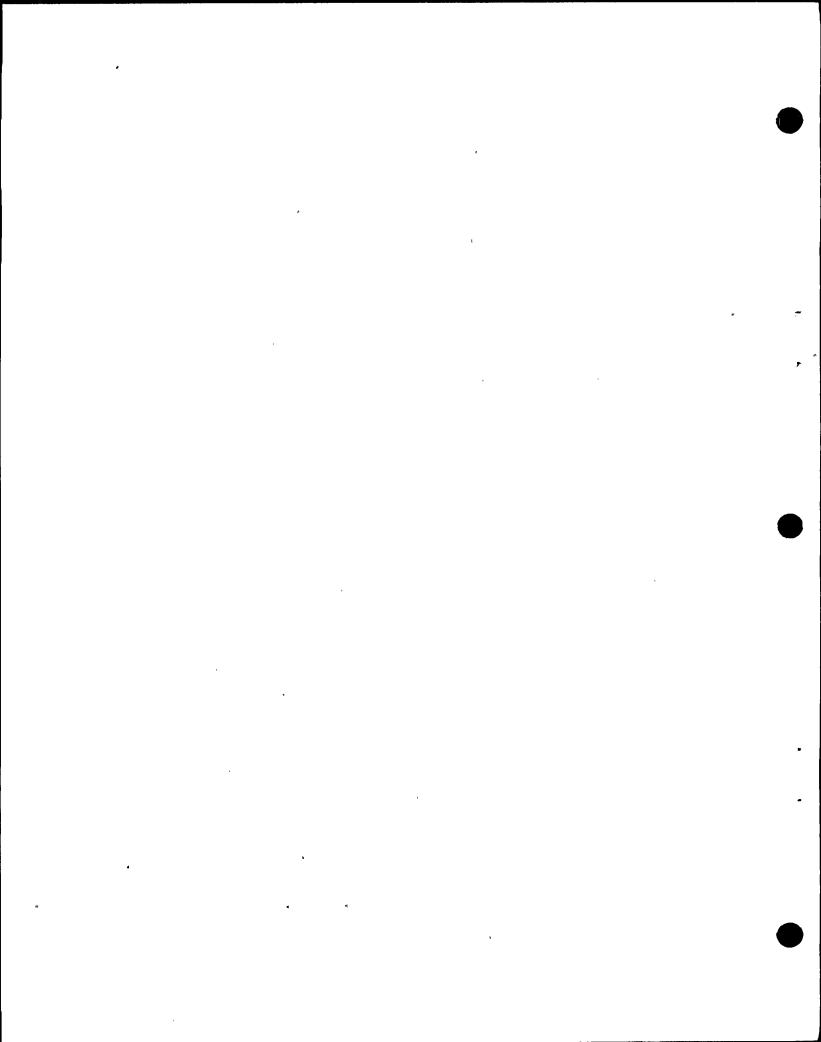
Q Well I'll put it this way: Do you think that people who attend meetings and listen to what goes on about geology and seismology become instant experts? Is that your view?

A My view would be that much like Mr. Hoch and Mr. Bettinger from PG&E expressed opinions about geology and seismology in their capacity as, you know, more or less Project Engineer in Mr. Hoch's case, that that's basically the same sort of function I've done for the Center for Law; that I've looked at things as more or less their project engineer on Diablo Canyon.

I think you have a very valid point on the weight of the evidence that I might give on seismology and geology.

I'm not trying to be evasive. It's quite clear I have not had courses in seismology and geology.

Q How about structural engineering? Are you an expert in structural engineering?



4.

19.

A No, I am not. And the previous answer would again apply, that I have attended the hearings and listened to the discussions, I've met with people, with Trifunac and Luco and gone over their views in detail.

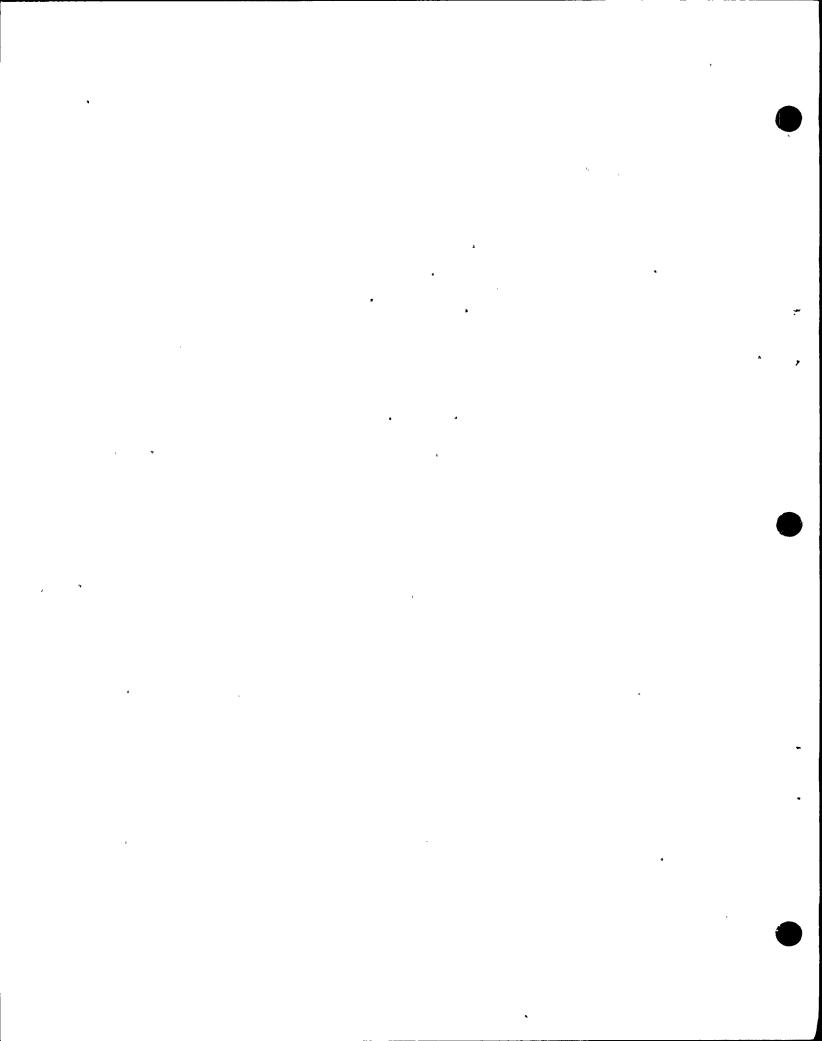
Q Are you an expert in mechanical engineering?

We had an ASME code stamp for both "N" and "NTT" for the —
in other words to make pressure vessels and also to make
appurtnances, and I was responsible for General Electric's
ASME code stamp program, and was responsible in management
for writing the procedures that got us the ASME code stamp
renewed in both 1972 and 1975, and was responsible for the
day-to-day liaison with the State of California's inspector.
And I think that is, you know, stated in my qualifications.
So in that regard I am familiar with the ASME code from a
management standpoint and also, you know, working with the
engineers in G.E. in interpretation of the ASME code.

We also had a "U" and an "S" stamp for other sorts of vessels.

Q Is that a yes or no? Are you an expert in mechanical engineering?

A. I think it would be-- Again, my degree is in electrical engineering, Mr. Tourtellotte: I think that's clear. However I am familiar with mechanical aspects, you know, as I mentioned, with the code. And also, you know, as.



ORB/wb5

2

1

3

4.

5

6

7

8

9

10

11

12

13

15

14

16

17

18

19.

20

21

22.

23

24

25

MR. TOURTELLOTTE: Beg pardon?

e tagen e grang tij de deel

MRS. BOWERS: Do you want to give more information

far as the quality program I was responsible for at G.E., we built a number of the mechanical components for the reactor, like the core internals, feedwater spargers, core spargers, core spargers, inclined fuel transfer tubes, those sorts of things. But I do not have a degree in mechanical engineering.

Q No one has ever hired you for the purpose of designing anything on the basis of a mechanical engineering background?

A That is correct.

Q And you haven't designed any structures from a structural engineering background?

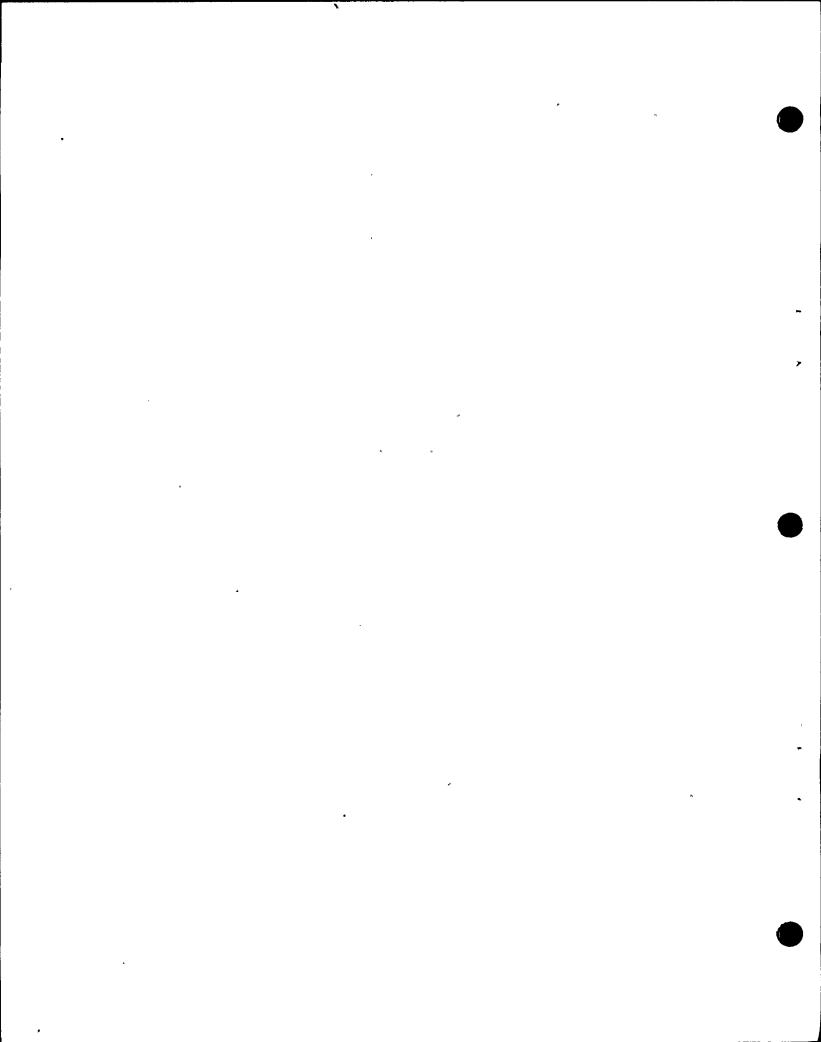
A That is correct.

 $\Omega$ . And no one has asked you for your input on geology and seismology as an expert to design any structure?

A THat is correct.

MR. TOURTELLOTTE: Mrs. Bowers, I don't know whether to go on with this or whether to make a motion to strike now. And I suppose I can make the motion to strike and if the ruling is adverse then I can continue with my voir dire. It may be the best way to do it.

information as the basis for your motion?



D<sub>wb6</sub>

2

1

3

Д

5 ]

6 .

3

9

10

11

12 13

14

15

16

17

18

19

20

21

End 1B

WEL fls

.... 22

23

24

25

as the basis for your motion?

MR. TOURTELLOTTE: Yes. Actually, I just wanted to know if that was an appropriate way to proceed, as far as the other parties are concerned.

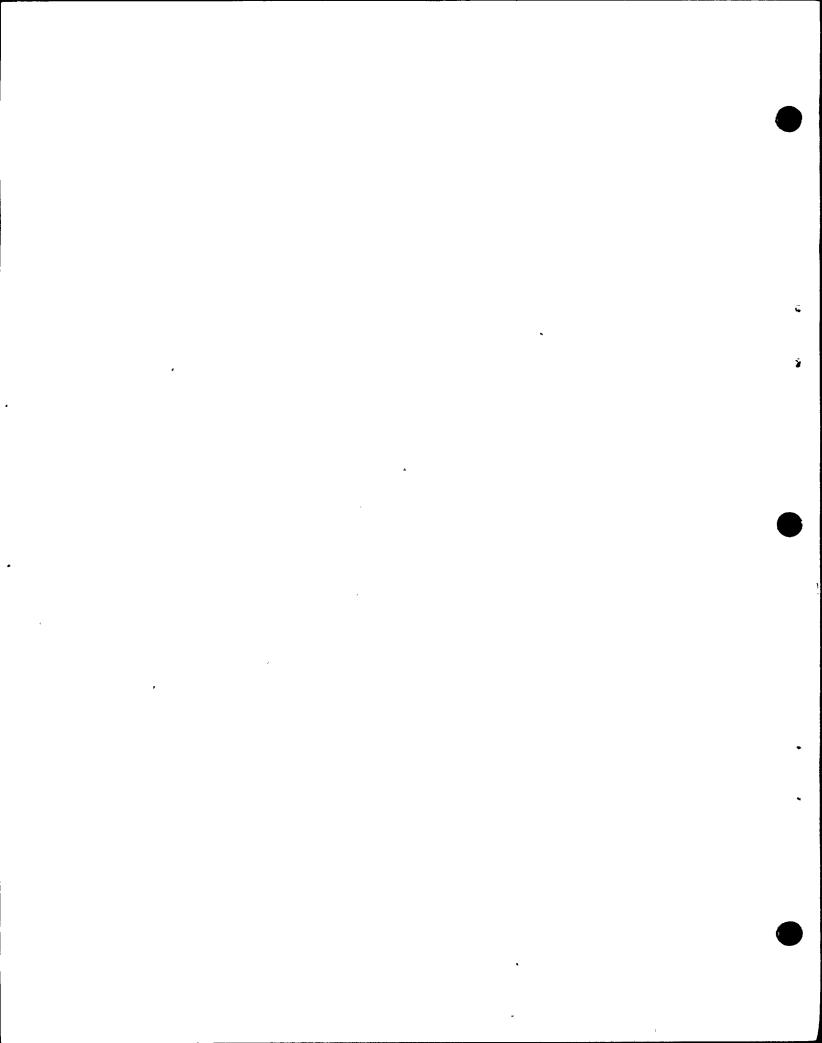
MRS. BOWERS: You can make your motion at any time. But I think what you're asking is: since you only get one bite at the apple, if you make a motion now and you're turned down, do you have an opportunity for further interrogation; is that correct?

. MR. TOURTELLOTTE: Right.

MRS. BOWERS: Mr. Kristovich?

a motion at this time to strike all of the testimony, or were you just asking if you could make such a motion?

MR. TOURTELLOTTE: Well I'll be making a motion to strike virtually all of the testimony. And it would be on two grounds: one is that this witness has not demonstrated the expertise to offer up this type of evidence in the first place, and in the second place, quite different from his expertise, is the fact that much of it is simply a recitation of legal conclusions which he is not competent to make.



fis WRB lWEL/wel

2

3

6

7

8

10

31

12. 13

14

15

16

17

18

20

21

. 22

23 24

The legal conclusion part, of course, has nothing to do with his expertise, but I think we have a statement in the record now from this witness which clearly demonstrates that he isn't an expert in any of the fields in which he is making statements, about which he is making statements in his testimony insofar as the technical part of it goes.

Insofar as the legal part of it goes, why, it doesn't make any difference. If he had all this expertise he still couldn't make those.

So that's the way it'll go.

I'm willing to labor at the point and demonstrate that he's not an expert when he has in fact already admitted that he isn't an expert, but I don't really see the point of that.

MRS. BOWERS: Mr. Kristovich?

MR. KRISTOVICH: Well, I guess I'm a little at a loss as to how to proceed, because it is our belief that Mr. Hubbard is qualified to make the statements that he has made in his testimony . I'm not sure what Mr. Tourtellotte is . . . referring to when he says "recitation of legal conclusions." I'd have to have specific references to what Mr. Tourtellotte is referring to. and the second second second

I'm prepared to ask questions on voir dire and have Mr. Hubbard point -- well, I will ask Mr. Hubbard to point to various sections of the testimony and have him explain why

regriphed which he grap is the restriction of the filter right in a filter in the restriction of the restriction

• 4 . •

**O**,

2

1

3

4 5

5

1

O

9

11

12

14

13

15

16

17 18

19,

20

21

22

23

24

25

he's qualified to make those statements, if you want me to proceed along those lines, right now.

MRS. BOWERS: Well, one bit of unfinished business with Mr. Tourtellotte, you said that the motion would go to strike almost all of the testimony.

Can you identify those portions that the motion does not go to?

MR. TOURTELLOTTE: Well, I wouldn't necessarily need to strike his introduction on Contention 4, which simply is a recitation of what he has done.

I wouldn't strike section 2, Statement of Contention which is an accurate statement of the contention.

Everything on 4-3, 4-4, are legal conclusions and legal statements, which he is not capable of making, whatever his expertise is.

Do you want me to go on with this? I've got something on everyparagraph, so I can go through the entire contention four this way if you like.

... MR. KRISTOVICH: Mrs. Bowers -- ...

المعاومة الأنوار والمراج والأخروج المراجع والمراجع

MR. TOURTELLOTTE: The only other thing --

MR. NORTON: Excuse me, Mrs. Bowers --

his attachments, but everything else in between would be stricken.

MR. NORTON: Mrs. Bowers, I don't understand why

n •

3.

**′**5

\_

.19.

Mr. Tourtellotte just doesn't make his motion to strike and proceed as he wants to proceed with it, and I may or may not join in, and I may or may not move to strike the things that he doesn't move to strike.

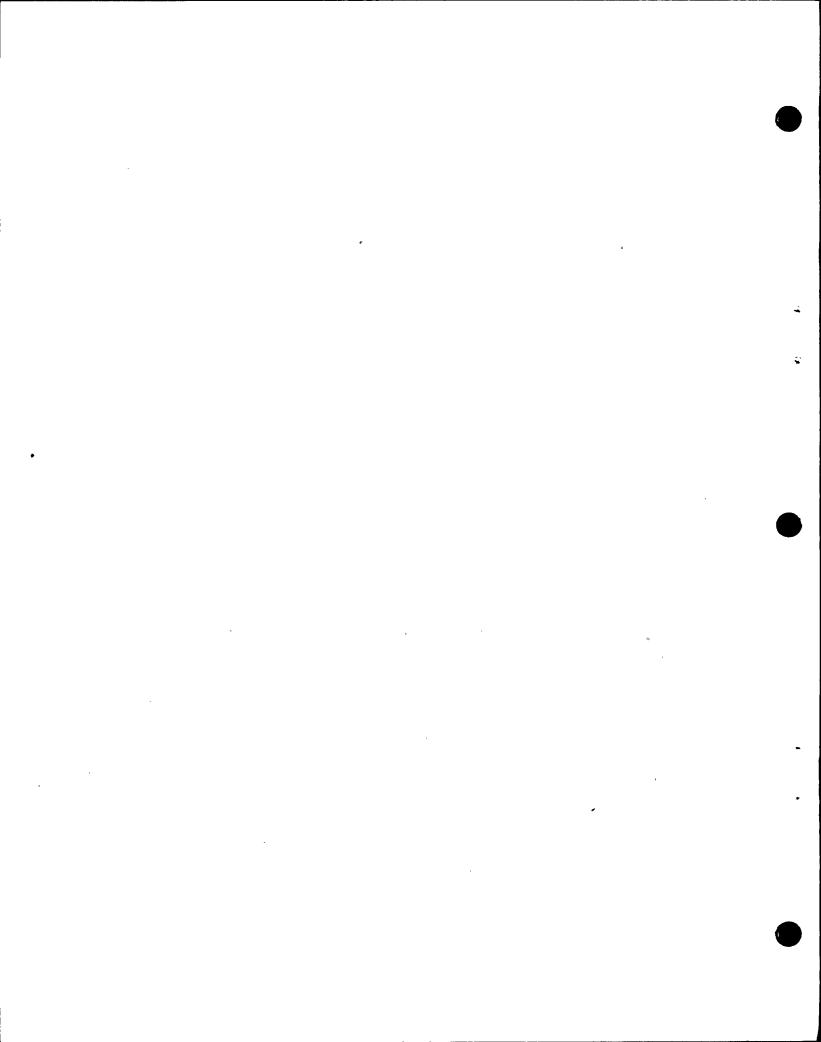
But we're sitting here talking about what are you going to do. Why don't we do it?

MRS. BOWERS: Well, I thought that's what he was doing, was identifying those parts in the document that the motion to strike went to.

MR. NORTON: I think he has specific arguments as to each part, as to the motion to strike, and to identify them without identifying the reason therefor is -- you know, we're going to have to go back and do it all over again, identifying the reason for the motion to strike. We might as well do it all at once, as to do it piecemeal.

MRS. BOWERS: Well, he was giving us a legal conclusion basis for the motion to strike 3.1. How far does that go?

original point, I was at a point in the voir dire where I was simply indicating that I thought that this witness had indicated that he did not have the expertise to offer up the testimony, and I was in a position now -- or was in a position then and am in a position now, where I can follow through on the motion to strike.



G

1 4

19.

However, if it should turn out that a part of my motion to strike would not be granted because of failure to show, to clearly demonstrate, that he doesn't possess that expertise, I am prepared to conduct further voir dire to demonstrate that. But I don't think that's necessary at this time.

I don't want to be cut off, however, from going back, if necessary, and asking him further questions.

I guess I was asking for direction from the Board as to whether I can go back and ask further questions or not after my motion to strike.

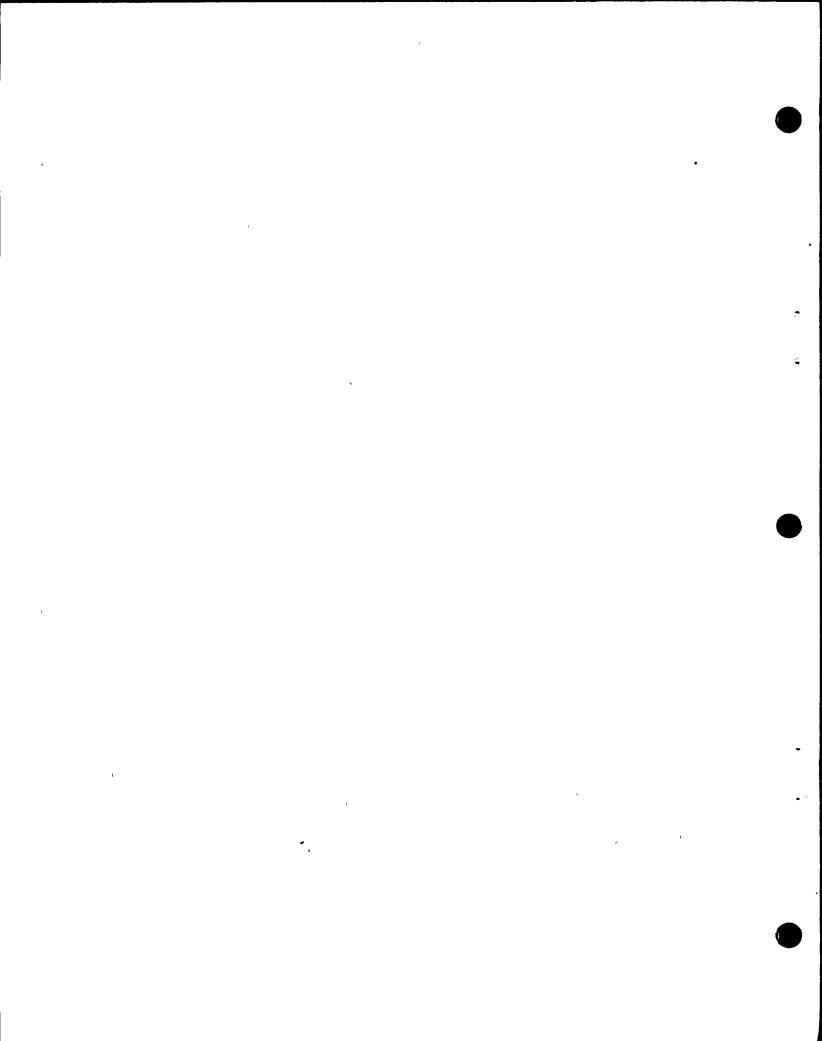
parties on this particular narrow point.

MR. KRISTOVICH: On whether Mr. Tourtellotte can go back and do additional voir dire?

MRS. BOWERS: If his motion to strike is not granted.

MR. KRISTOVICH: It would seem that he could. It would seem that the best way to proceed might be just to start at the beginning of the testimony and go section by section and have Mr. Tourtellotte do the voir dire on that section, state his reasons for the motion to strike, and then have argument on it and then proceed to my voir dire.

It just seems it would be a lot more efficient than going all the way through.



?

examination.

19;

MR. NORTON: Excuse me, Mrs. Bowers. I understand everything that Mr. Kristovich says except "his voir dire."

I never heard of voir-diring one's own witness.

MR. KRISTOVICH: Mrs. Bowers, I think it's appropriate that I could ask questions of the witness to elicit answers also on his professional expertise and training.

MR. NORTON: I believe that's called direct

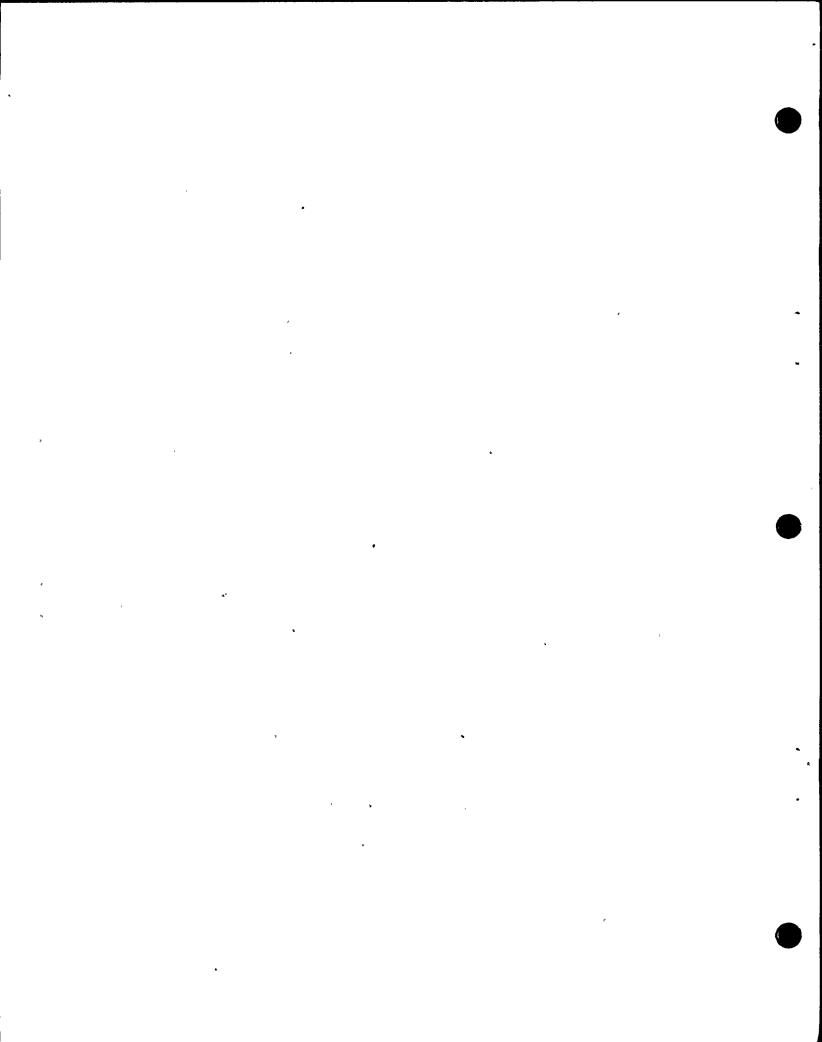
MRS. BOWERS: Does the Staff have a position on that particular point?

MR. TOURTELLOTTE: I think it's the responsibility of the individual who offers up an expert to show that that expert is qualified in the first instance.

If there is some general indication that he might be qualified, then it is a matter of voir dire to overcome whatever indication there is. Even the simple fact that someone offers themselves up as an expert, that once they have offered themselves up as an expert and have indicated that they no longer possess that expertise, it's too late for that party to establish the expertise of their individual.

Their expertise is either there or it isn't there, and if it isn't there the motion to strike should be granted. You can't put something there that doesn't exist.

MR. MORTON: I'd like to respond to that. I don't agree with Mr. Tourtellotte, and I would hate to have error on



that basis.

I think Mr. Kristovich has the right to try to establish the qualifications of his witness. Whether he can or not remains to be seen. But I don't think he can be denied the right.

I was just saying that it's not voir dire; it's direct examination. But I think he has the right to try to establish the qualifications of this witness.

The right and the ability, however, are two different things.

MR. TOURTELLOTTE: Maybe I was speaking to the ability.

MRS. BOWERS: The Board will consider this matter.
(The Board conferring.)

MRS. BOWERS: We believing in approaching this on a first line item. Now, the first item is Mr. Tourtellotte's question to the Board:

If he stopped at this point in his voir dire and proceeds with his motion to strike, and the motion is denied, can he then proceed with additional voir dire?

Our position on that is to proceed with the complete voir dire. We're not going to go down through this piecemeal, with the motion to strike being repeated from time to time until the Staff feels at various stages that they might have enough.

G

7

5

2

3

8

9

11

. 12

13

14

15

16

17

18

19.

20

21

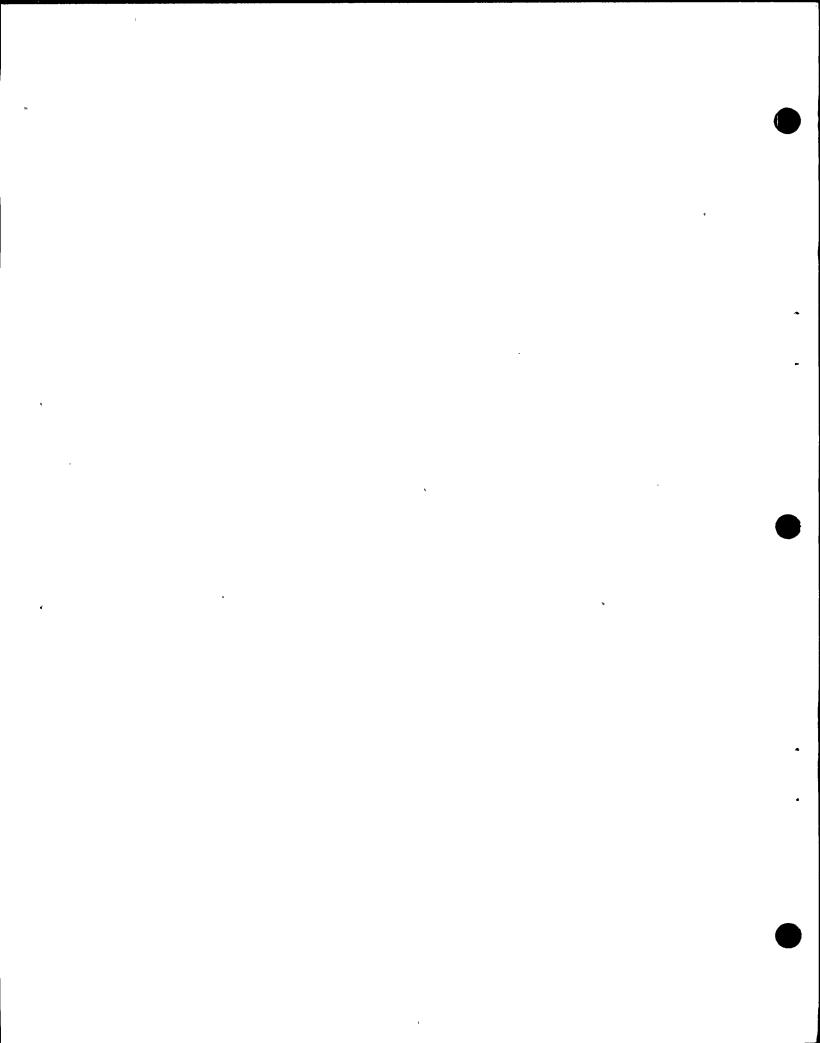
22.

23

\_ \_

وسي

25



3

4

5.

ઇ

7

8

9

11 12

13

14

15 .

16 17

18

19

20

21

- 22:

23

24

25

So, Mr. Tourtellotte, if you'll proceed with the entire voir dire that you think is necessary --

MR. NORTON: Excuse me, Mrs. Bowers, that, of course, does not preclude me from doing the same thing?

MRS. BOWERS: Right.

MR. NORTON: Okay.

VOIR-DIRE EXAMINATION (Continued)

BY MR. TOURTELLOTTE:

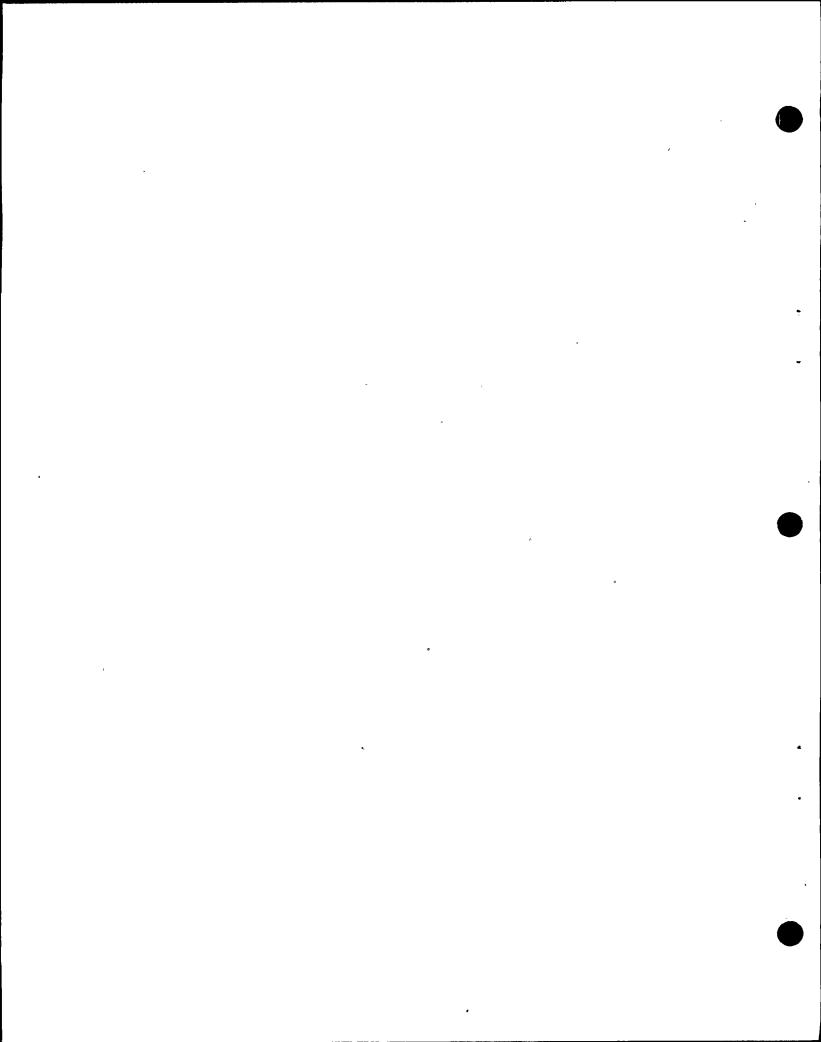
Q In doing your research for Contention 4, what articles did you review?

A I raviewed the FSAR, the SER, the Hosgri amendments, ACRS transcripts.

I reviewed the comments from the technical community that were initially made on Part 100, a stack of comments about this thick (indicating approximately two inches) before it became regulation.

And then I reviewed the comments that were given on Part 100, including specifically the OBE, when the STaff again asked the technical community in 1977, if they would like to, you know, if there were certain areas that were problem areas. For example, I reviewed the comments of Dr. Stepp on problems in interpretation of Part 100 provided to us by Dow Davis.

I reviewed like, oh, YEEE standards for qualification that require so many OBE excitations that I was also



E

.19.

familiar with from the time at GE, because while I was at GE we built a seismic facility to do access multi-frequency testing there of the reactor equipment, and I was responsible from a management standpoint to provide some of the people to conduct some of the tests and review some of the test data, and particularly to review the acceptance of the cycles that would be used to test the equipment in a design review capacity.

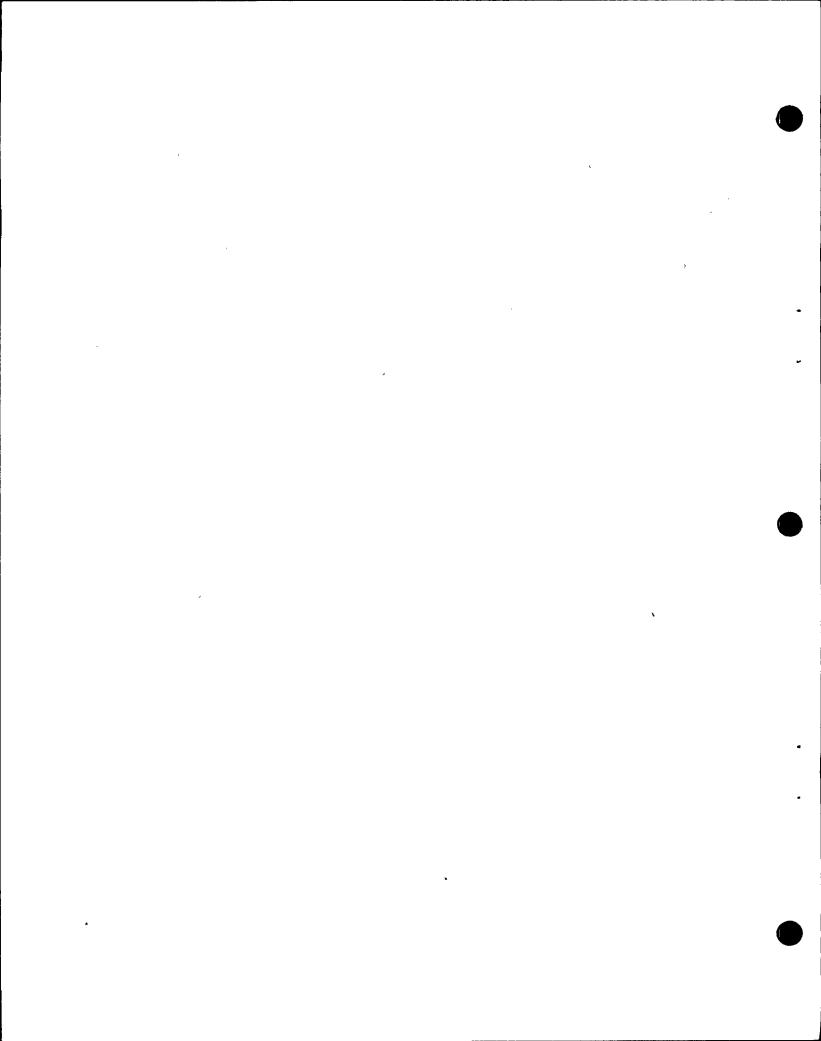
That's basically what comes to mind.

I reviewed some FSARs for San Onofre and Trojan, to find out the values of the OBEs at these plants, and I believe a FSAR for San Onofre number 2 and 3.

I also called -- I believe it's Sandra Wassler of the NRC to find out if these were indeed the right values.

while I was at GE, IEEE-323 and 344 that are referenced here were produced by the IEEE, so I commented on them as part of the GE internal review cycle on these standards and I'm also on the IEEE Standards Committee 8. And as part of that, I have provided review of IEEE standards outside of quality assurance as they cycled them through our committee as well to get comments.

editions, I was, I think, not at that time on the IEEE QA committee. The post-OBE inspection, I've been following generic safety items in the task action plan, so I reviewed



ຣ

you reviewed?"

THE WITNESS: Yes. I also reviewed papers by

task action plans B-49 and B-50, and the Black Fox testimony on generic items, and the ACRS presentation by the Staff on generic safety issues.

I reviewed a copy of the NUREG document that's referenced. As a matter of fact, it's one that's not in the public domain, but had to be obtained straight from the Staff by talking to Mr. Aycock.

I would say, in general, those are the sorts of documents I reviewed for the OEE, in addition to Mr. Gawthrop's paper that I have mentioned concerning seismicity.

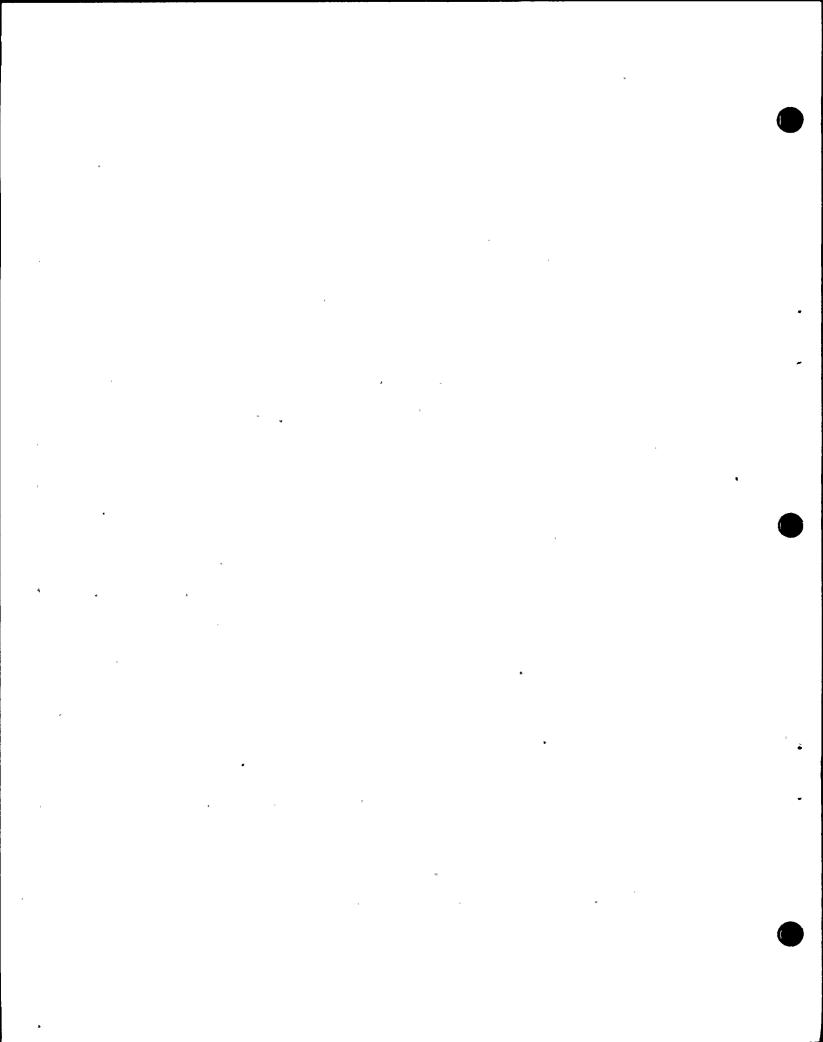
Also in terms of scismicity there are like Dr. Bolt's book that shows seismic hazards. Also Dr. Bolt discusses in other parts of his book what areas of the world have high seismicity, and --

MR. NORTON: Excuse me, Mrs. Bowers. I believe the question was: "What have you reviewed?" Not, "What is the content of what you have reviewed?"

I realize a motion hasn't been made, but I think it's very clear that Mr. Hubbard doesn't have the expertise to be reciting Dr. Bolt's book and what it says off the top of his head. I just think that's wrong.

THE WITNESS: Then I also referred --

MRS. BOWERS: I think the question was, "What have



ÇZ.

Perkins and Algrimos, I believe of the USGS, talking about seismic hazards in the United States.

I think that would give a sense of the sort of things that I looked at in preparation of this piece of testimony on the OBE.

BY MR. TOURTELLOTTE:

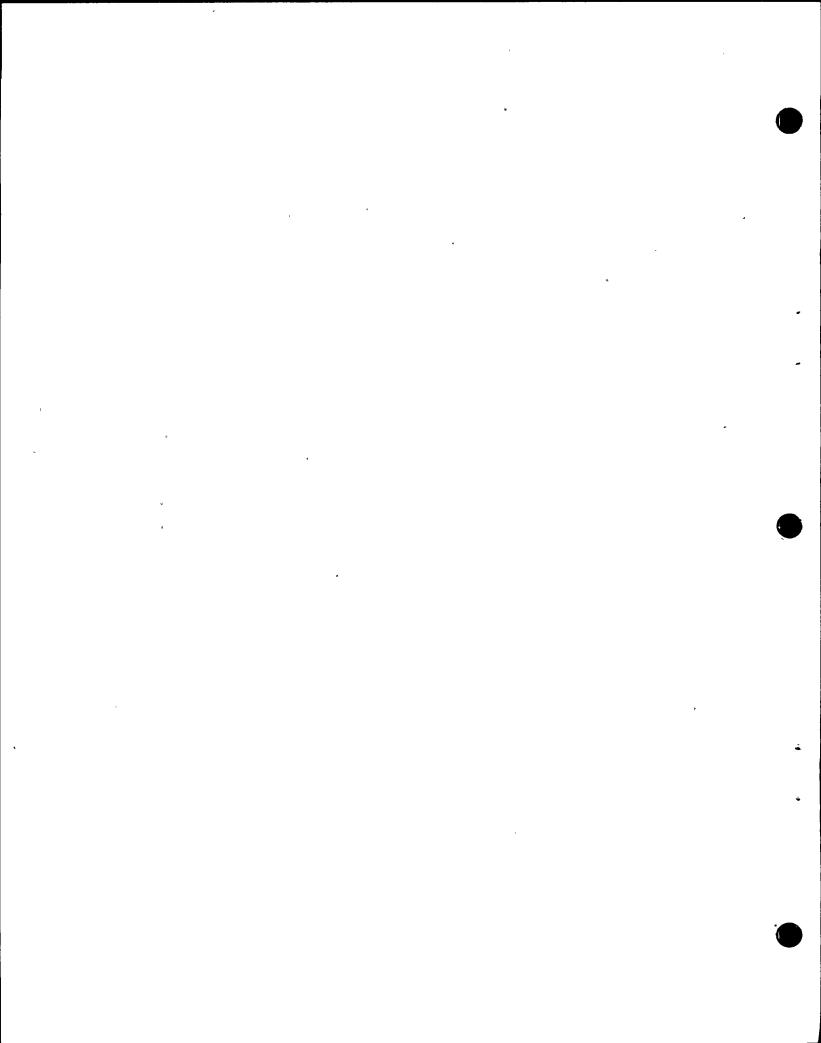
Q When you were at GE, you dealt with quality assurance, isn't that correct?

that I was then manager of application engineering, where I was responsible for the day-to-day liaison, once a contract had been signed between the utility and GE on all the equipment that was manufactured in the controlled instrumentation area; protection systems, reactor sensors, all the control scom panels, the process computers for the plant, mechnical items like containment electrical penetrations, traversing in-core tubes, some of the vessel internals — things of that sort.

Structures?

A No. That was -- had to do with the equipment that was provided in the structures.

But part of what I would do is that I would obtain the seismic information from the utility or his architectengineer, which we would use to qualify our equipment.



2		3
		2
		3
<b>3</b>		4
	۵	5
		ទ
		7
		8
w		.9
		10

So I was the conduit, then, between the utility or his architect-engineer and the GE people, who did the --

- .Q So you got the information from the utility, and you gave it to your engineers? Right?
  - A Yes, and did the technical --
  - Q You passed it on to them?
  - A That is correct. Again, so that --
  - When you were on the QA program leter on -
    MR. KRISTOVICH: Excuse me. Mrs. Bowers, I believe

    MRS. BOWERS: I think he wanted to add to his

11 answers.

13

14

15

16

17

10

19

20

21

22.

23

24

25

MR. MRISTOVICH: Yes. And before he does, could we have someone close the back door? I think I'm sitting in a draft, and I'm freezing.

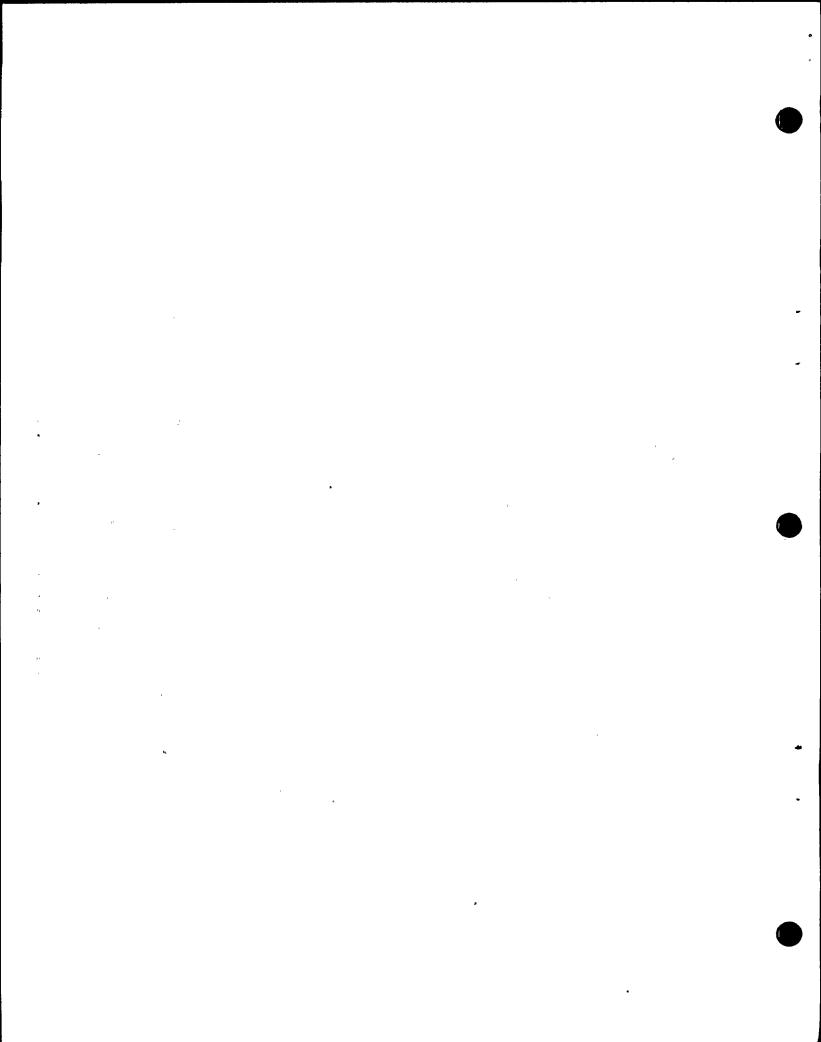
THE WITNESS: I think I was through.

MR. TQURTELLOTTE: Thank you.

BY MR. TOURTELLOTTE:

Q When you were in the QA program, what was the nature of that work?

Mell, that was broader than the project engineering, because in the QA I was responsible for all the equipment that was manufactured in San Jose, and that included -- we had a rather large machine shop there to make special, one-of-a-kind mechanical components for the reactors, as well as to develop the new products, new control rod drives, and things



4.

. 19-

like that. We would build it in San Jose before it went to Wilmington, North Carolina to go into production -- you know, large production. We would build the first few, and come up with the quality plans that would eventually be used at the other manufacturing facilities.

Q When you say, "we would build the first few," you don't mean that you actually designed what was being built, do you?

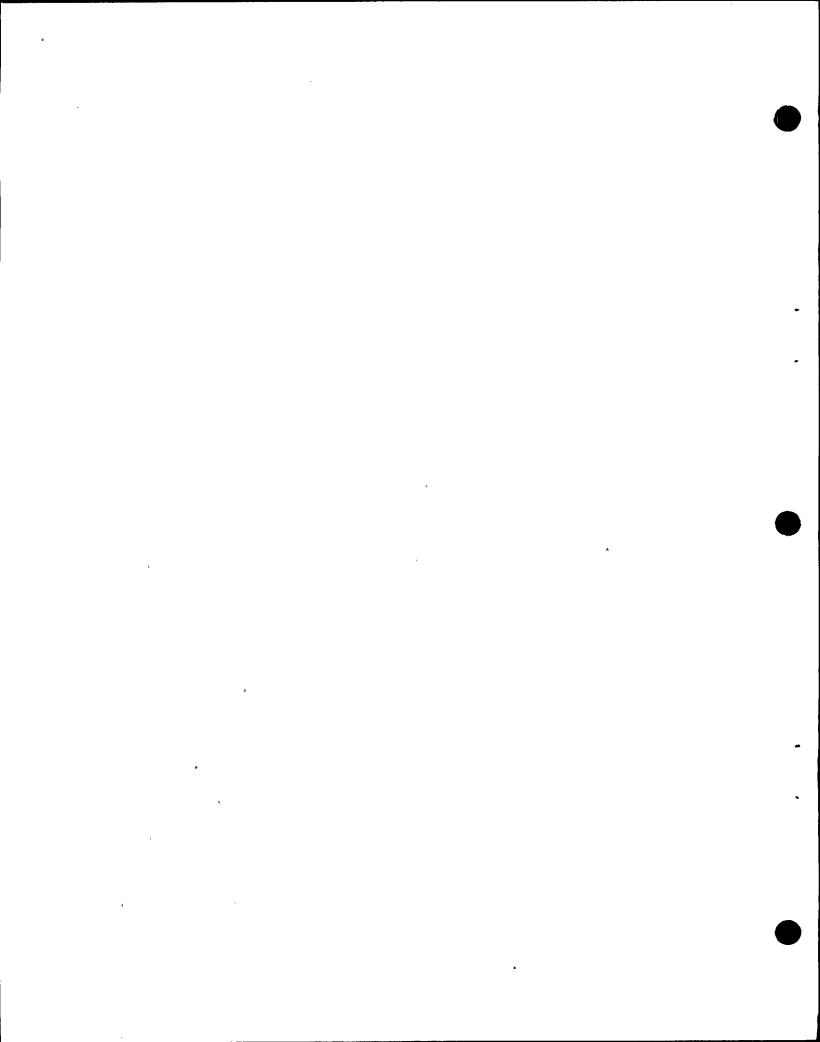
engineers who were located in San Jose, to provide the quality program for those items. So I had people who reported to me who did the day-to-day work to develop the quality plans and inspection programs, and to develop the vendors who would supply the material, and do receiving inspections on the material when it comes in — all the things having to do with verifying the quality of the product and seeing that it was possible to manufacture.

Q Again, you were getting information and you were passing it on, weren't you?

A No. We did the actual -- the people that worked for me did the actual quality assurance testing and inspection.

Q On what?

A Well, let's take a new control rod drive, for example, or a feedwater sparger, or something like that. The



. 

people working for me would sit down with the design engineer who wrote the design spec, and say that material had to be purchased.

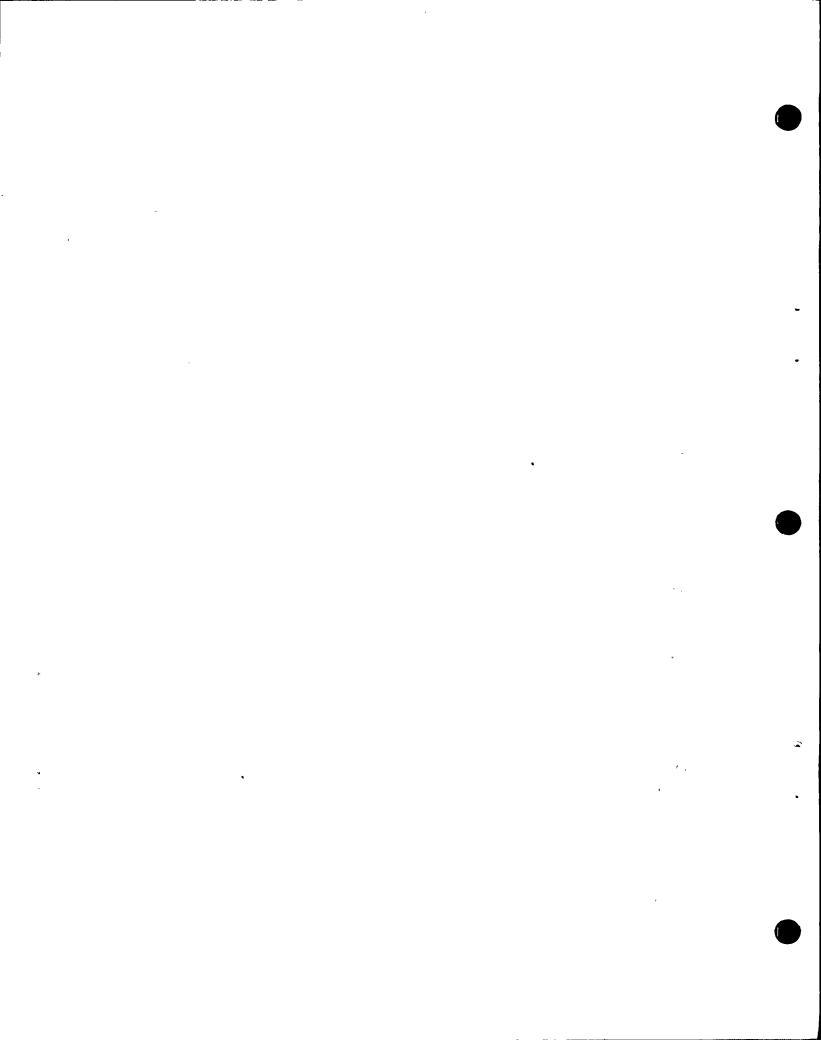
Well, then we would review the material specification, we would eventually approve that, give it to the purchasing department. The purchasing department would send that out for bids.

We would go -- I had people that would go in and inspect the qualification of the vendor, and report back to purchasing that this vendor should be on the approved vendor list.

signing procedure the people working for me had to approve the contract -- the technical aspects of it, not the terms and conditions of sale, but the technical specifications.

Then, once the material or the component was being manufactured by the vendor, I would have inspectors who would go in and, you know, verify that the work was being done.

We had about 75,000 items that would come into inventory, and those would come in -- a number of them -- through receiving and inspection. And I had the receiving and inspection group of about 20 people that would receive the material at the GE facility. Then we'd put it into the manufactured components and do the inspection and tests on



wel 14

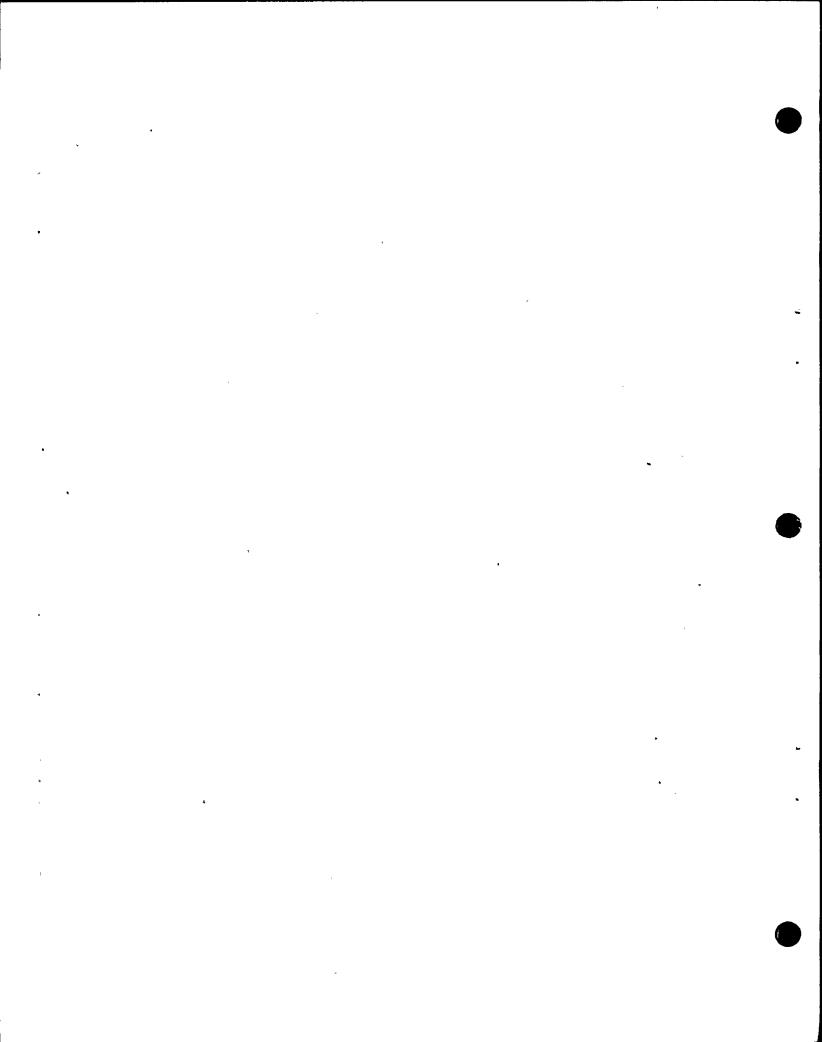
MB fls

•

22.

that. And then we'd eventually do a functional test, say, like maybe for a control rod drive let's say we had to do a couple thousand cycles on it, we would actually design the test facility, have the test equipment and do the testing.

I personally did not do that. I was the manager in charge of all of that.



MADELON c3 mpb12

Q You're talking about instrumentation, aren't you?

A No, I'm talking about — in the quality program we were responsible, as I said before, for all the equipment manufactured in GE's San Jose facility. That included instrumentation, it included boiler code items, like the containment electrical penetrations, it included reactor internals, like the feedwater spargers and core spray spargers and various piping lines, like jet pump sensing lines. It included the first of new designs that were eventually going to be made at GE's Wilmington facility, like control rod drives.

We would do the vessel internals in San Jose and send parts of them to the Chicago Bridge and Iron Operation at Memphis, Tennessee, and they would put it inside the pressure vessel there. We did the inclined fuel transfer tube, which would be a combination of things like valves, tubes, things of that sort.

So they are a combination of electrical items and electrical mechanical items.

Q Why did you leave GE?

A I left GE because of a number of reasons.

MR. XRISTOVICH: Objection, Mrs. Bowers.

I don't see the relevance of the question.

MR. TOURTELLOTTE: Sure it's relevant.

MR. KRISTOVICH: It has nothing -- if we're trying

 $\bigcirc$ 

6

5

4

8 :

7.

9

10

11.

12

13

14

15

16

17

18

19

20

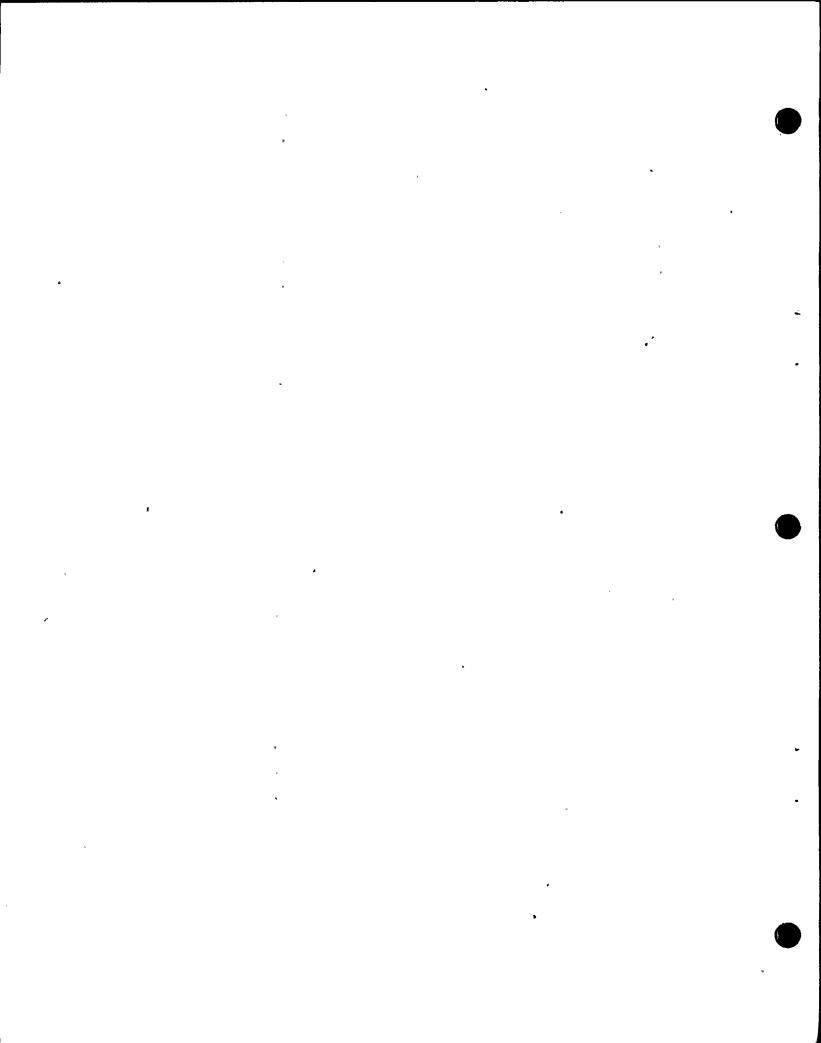
21

22

23

24

25



24

25

to get at his professional qualifications and training, the reasons why Mr. Hubbard left GE do not go to that issue.

MRS. BOWERS: Well, would you say the same thing if he had been fired. for incompetency?

MR. KRISTOVICH: No.

But Mr. Tourtellotte could ask that question.

MR. NORTON: Excuse me, Mrs. Bowers.

That's what he is asking: why did you leave GE?
You don't know why until you ask the question.

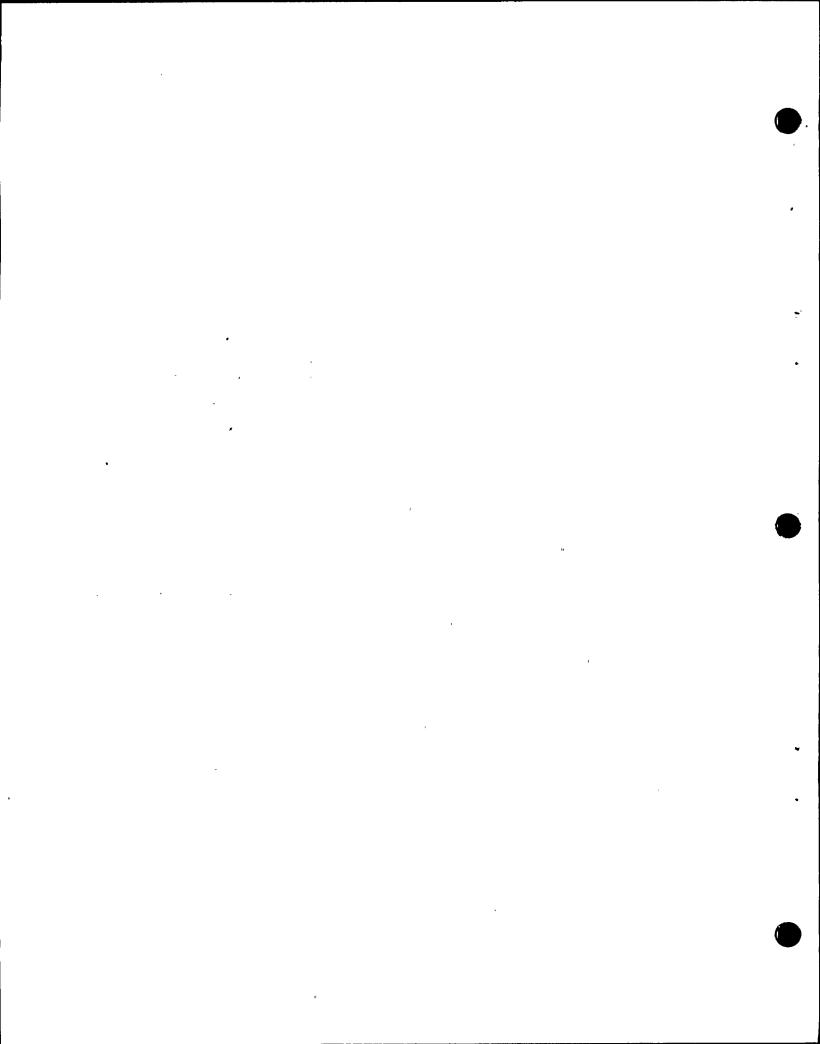
MRS. BOWERS: Well, we think it is relevant.

So why don't you proceed?

THE WITNESS: Well, there could be a long answer to that and a short answer to it.

I think the short answer would be that I came to GE to get into the nuclear program because, like many other people in the 1960s, I was very interested in working on something that was a new technology, a high technology, and one that I thought offered a great deal of promise. And so in 1964, when I came to work in the nuclear business, I was very proud to be there. I mean I chose to be there instead of in the defense industry working on weapons.

you feel differently? Well, I'd say that in those 12 years there being in the management -- I was one of four managers of a department of 1000 people, and we would hear week after



Edqm

5. 

17.

21.

ကဘ်

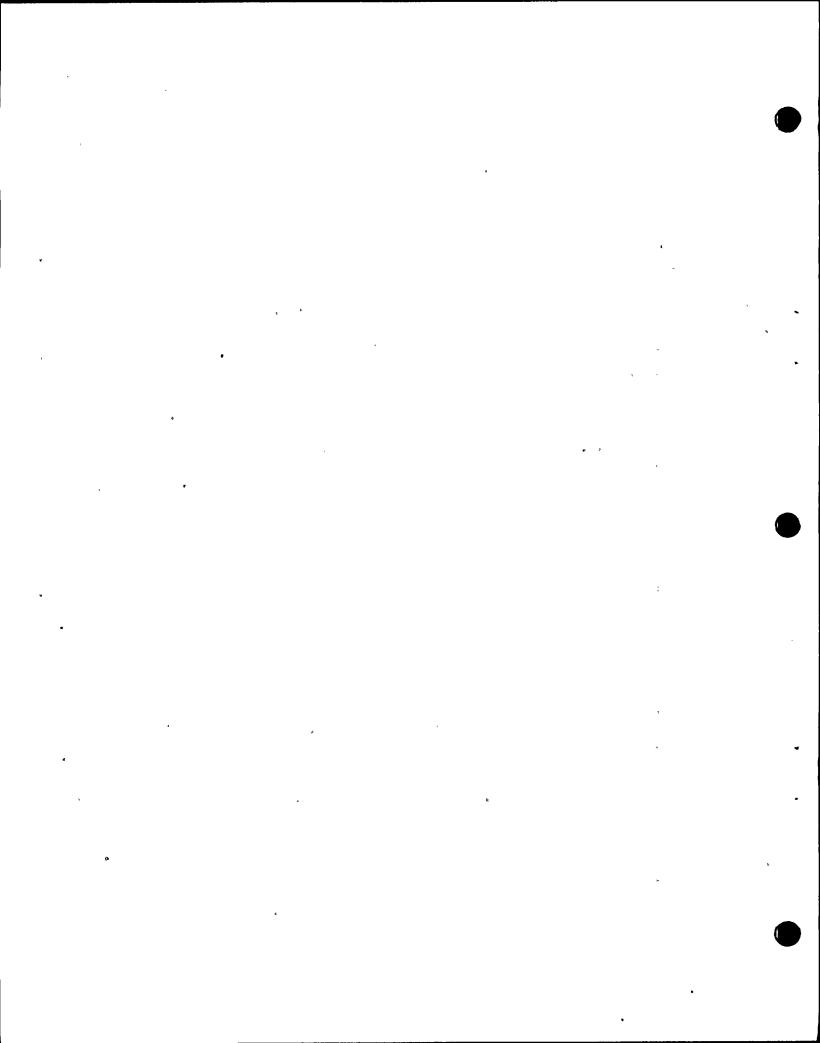
week after week the reports not only of the equipment that we manufactured, but of GE's nuclear business in general, how it was doing. And what I found after 12 years was that what we had hoped the way it would be in 1964, it was not turning out to be that way in 1976. And that's true in terms of technical problems, it's true in terms of economics, it's true in terms of a number of philosophical areas.

had seen in 1964 had not and was not being fulfilled; and not only was that true, but that we had not really told the public what was going on. And so I then went through somewhat of a procedure to decide would I tell the public; because having been in management of a large corporation. I knew that, you know, once you explained to the public some of your views or looked like you might have some dissenting views, that that made you virtually unemployable in large industry, or at least that was my impression.

However, after thinking about it for a while, I decided that at that moment in time it was worth, you know, explaining to the public, you know, what I had experienced in 12 years. And so that was really my reason for leaving GE.

And the short answer is that the promises in my opinion had not been fulfilled.

And, two, I felt that I had some personal experience



that other people might want to hear, and then they could make their own judgment.

MRS. BOWERS: Did you resign voluntarily?

THE WITNESS: Absolutely. Yes.

In fact, I had recently been promoted, so....

BY MR. TOURTELLOTTE:

Q Your testimony on Contention 4 today, you offered and did strike all of that testimony pertaining to a summary of an article by J. D. Stevenson, pages 4-6 through 4-8.

Did you strike that because you don't have the expertise to evaluate that kind of information?

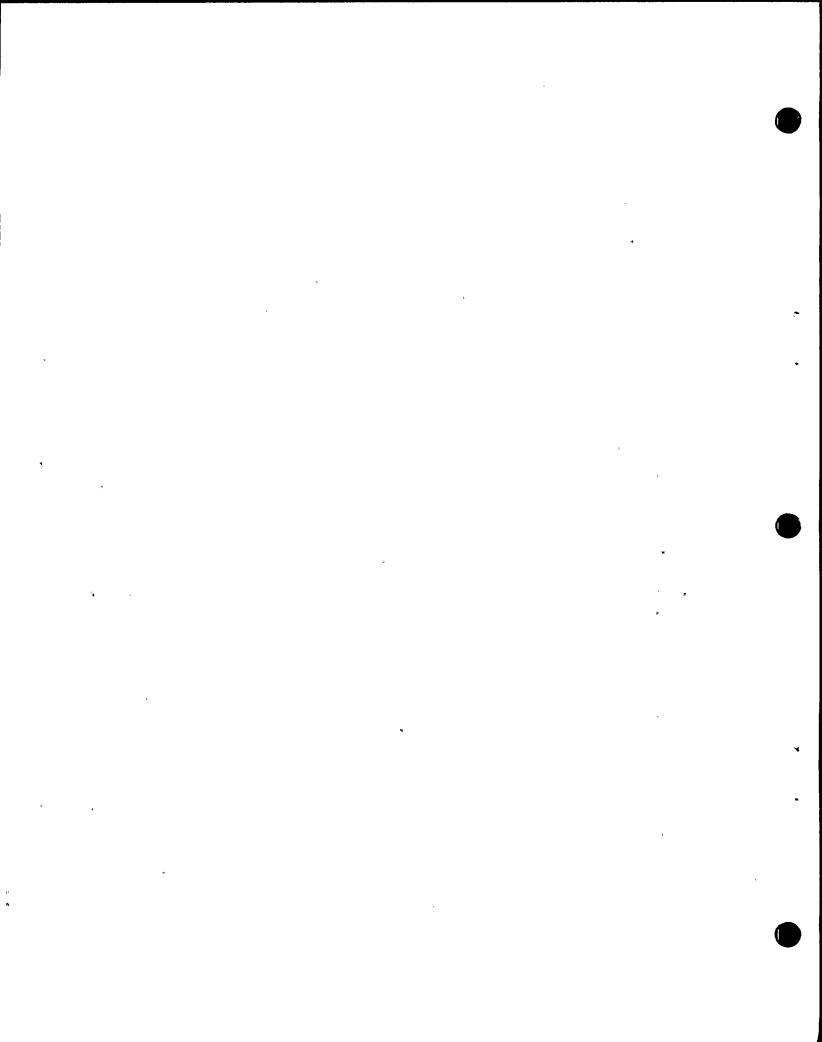
did not appear directly applicable to Diablo Canyon. These were not the equations, you know, that we used for Diablo Canyon. And it was equations that appeared to apply in general. And so it appeared to me that it might not, you know, be relevant for the discussions we're having about the specific analyses that were done for Diablo Canyon.

Stevenson article, then?

Well, I went back to check some of the things --

That testimony has been withdrawn, and I don't think it's appropriate to ask questions on it now.

I also don't think it would be appropriate for



Mr. Tourtellotte to bring in a stack of books of equations, a stack of books of analyses and ask Mr. Hubbard if he is familiar with this or familiar with that.

MRS. BOWERS: Why do you think it would not be appropriate?

MR. KRISTOVICH: Well, I'd have to see the particular books before I could respond.

MRS. BOWERS: Mr. Norton, does the Applicant have an opinion on this particular point?

NR. NORTON: Well, I think he just withdrew his objection with his last statement.

MRS. BOWERS: Is that correct, Mr. Kristovich? MR. KRISTOVICH: The Board can rule on it.

MRS. BOWERS: I'm sorry, I didn't understand you.

MR. KRISTOVICH: No. The Board can rule on it.

(The Board conferring.)

MR. NORTON: Excuse me, Mrs. Bowers.

I really thought he had withdrawn the objection.

If he hasn't, I would like to comment.

And that is, just because he withdrew the specific portion of the testimony dealing with the Stevenson article, the Stevenson article very clearly deals with OBE.

And to ask if he understands the formulaes and how they work is very relevant as to whether or not he's qualified to testify in the area of OBE. Whether the testimony was withdrawn

• • . 

mpb6

or not doesn't really have anything to do with that .aspect of it if he understands the formulaes and how they work.

3

So I think it's clearly a relevant area of inquiry

MR. TOURTELLOTTE: And moreover, it is one of the

4. 5.

2

articles that he did review, and it is an article that is

6

written by a mechanical engineer. And while he does not --

7

and while he says he is not a qualified expert as a mechanical

8

engineer, he has indicated that in some vague way that he's

9

familiar with mechanical engineering.

10

And I have the right to use any article I want,

11

whether it's J. D. Stevenson or anybody else, to ask him

12

questions to point up whether he does know or he doesn't know

13

and how much he knows about mechanical engineering.

14

MRS. BOWERS: Is your point, Mr. Tourtellotte.

15

even if this example had not appeared originally in the

16

direct testimony that you would consider it appropriate to

17

ask questions on the Stevenson work?

18

MR. TOURTELLOTTE: Certainly.

19

(The Board conferring.)

20

MRS. BOWERS: Well, we think it is relevant to ask questions about the Stevenson analysis, since it appar-

21 22

ently is an analysis that exists in the community.

23

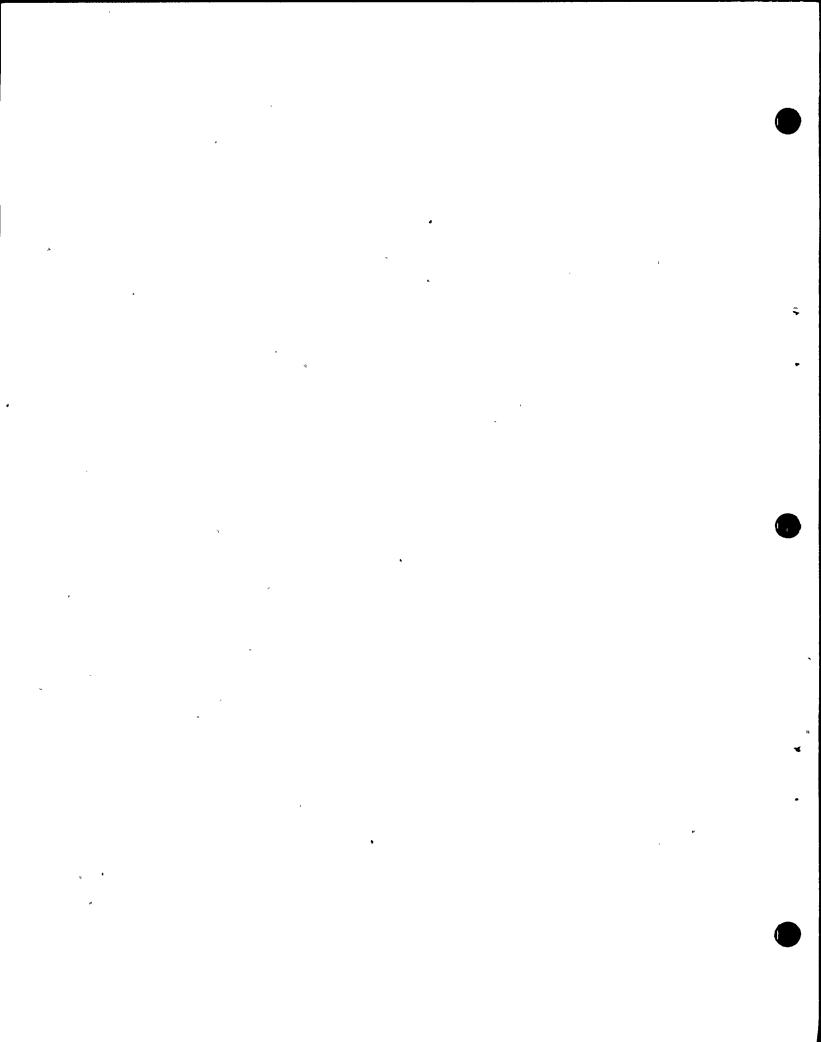
We happen to have a document in front of us

24

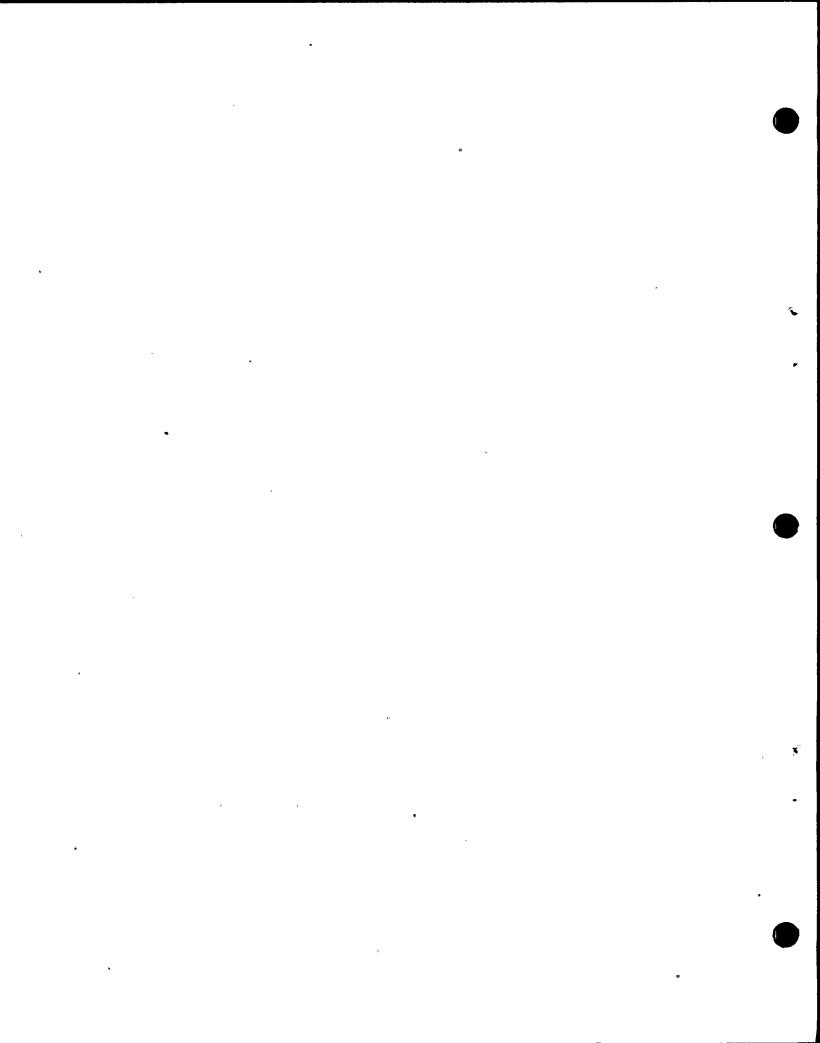
that recites that. Dr. Martin says it's now invisable to him

25

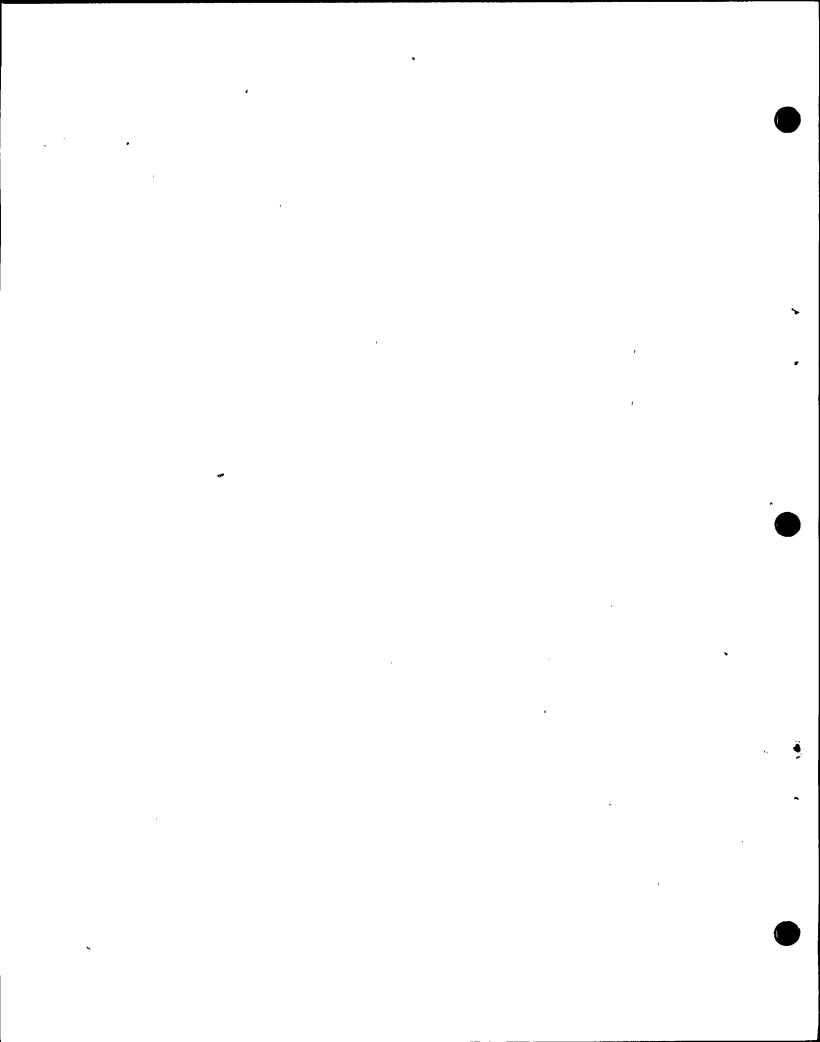
since it's been stricken. But I think we could manage to read



mpb7 it. 2 DR. MARTIN: Well, I'd like to see the whole 3 article, if we're going to be talking about it. 4 MR. NORTON: If you'll wait just a moment, I'll 5 give it to you. 6 (Distributing documents.) 7 MR. KRISTOVICH: Is this going to be an Applicant 8. exhibit? 9 MR. NORTON: Or a Board exhibit. They wanted to 10 see a copy of it. MR. KRISTOVICH: Then is this a Board exhibit? 11 DR. MARTIN: I guess so. I asked for it. 12 MRS. BOWERS: If we're correct, this will be 13 Board Exhibit number 4. 14 (Whereupon, the document 15 referred to was marked 16 as Board Exhibit number 4 17 for identification.) 18 MRS. BOWERS: And to further identify it --19. Mr. Norton, why don't you further identify it? Is this a 20 Nuclear Engineering and Design publication? 21 22 Nuclear Information and Design 35 (1975) 327-333. 23 It's an article by J. D. Stevenson, Rational Determination 24. of the Operational Basis Earthquake and Its Impacts on Overall 25



8dam Safety and Cost of Nuclear Facilities. 2 MRS. BOWERS: Well, I think the page numbers are 3. 227 to 333% 4 MR. NORTON: 327 to: 333. 5 BY MR., TOURTELLOTTE: 6 Do you have a copy of the article? 7 MR. NORTON: As Mr. Hubbard knows, Dr. Stevenson And if they want his professional qualifications 8 for the sponsoring of the article, they can be given also. 9 BY MR. TOURTELLOTTE: 10 Do you have a copy of the article, Mr. Rubbard? 11 I have a copy, but not the one that Mr. Norton 12 passed out. I assume it's the same thing, unless Dr. Stevenson 13 made some corrections or adjustments. 14. MR. NORTON: They are the same. We've seen the 15 one that Mr. Hubbard had at his deposition, and it's the same: 16 as this copy. It's just not published in the same place, but 17 the words are the same. 18 , (Document nanded to the witness.) 19 BY MR. TOURTELLOTTE: 20 Q I hand you the copy that Mr. Norton gave me, and 21 I ask you if that is the same copy as the one you have? 22' A. It appears to be, yes. 23 Q: Thank you. Okay. 24 (Document handed to Counsel.) 25



Q Okay.

I'll invite your attention to page 329.

In the right-hand column, about halfway down, there's a formula there: 1.4D ÷ 1.7L + 1.9E, where D equals dead: load, L equals live load, E equals OBE load, and E' equals SSE load.

Do the numbers 1.4, 1.7, and 1.9 have any name or term that is used to identify them?

(Pause.)

Mr. Hubbard, I'm asking this directly. I'm not asking you to read the article.

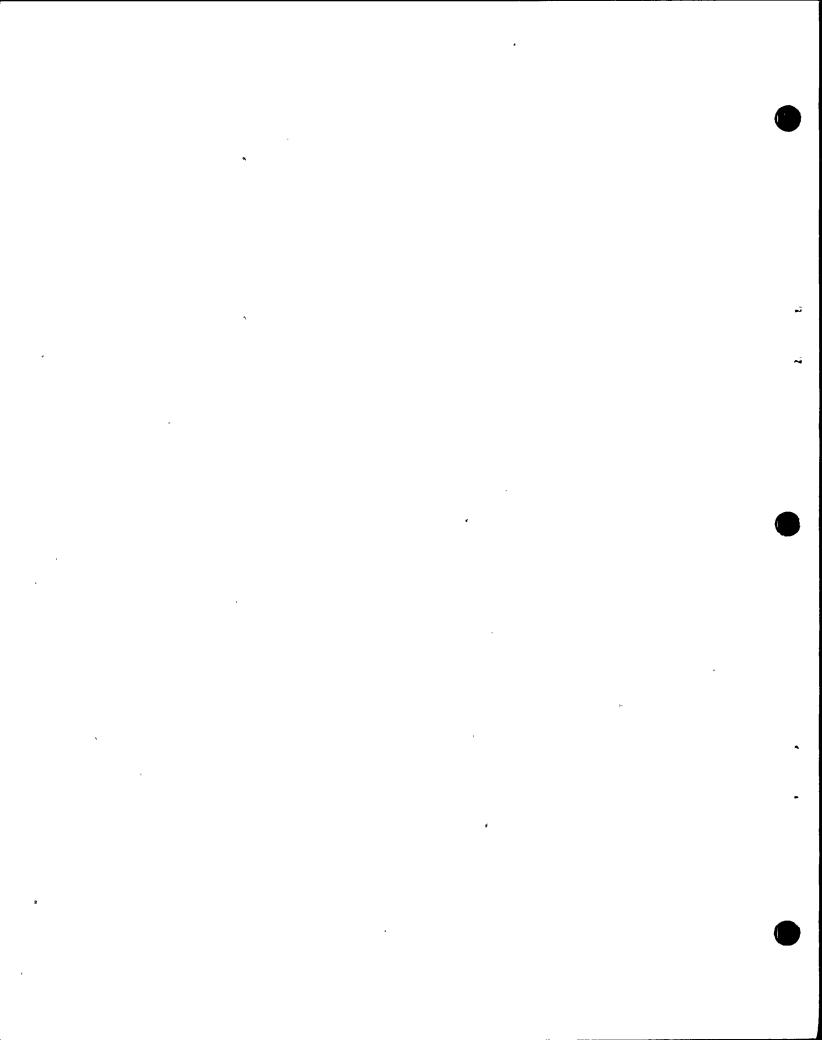
Do you know if they have any term -- any term is used to describe those numbers?

A I'm not aware of what that term might be.

Q Okay.

A I am familiar that in structural codes and standards there are factors like this that say, you know, when you're combining loads what sort of factors to use. That is also one reason why I another reason why I took out this particular piece of testimony, because I could not — did not know what provision of the Standard Review Plan 3.84 that was used, and I did not have the standards that these came from that I could verify that these were indeed a true and accurate representation of what were in the standards.

And then, finally, I did not have the detailed



mpb10 1

19:

22;

calculations to see how PG&E did it for Diablo Canyon. So based on all of that, I looked at it and I said, Well, I don't have either the input or what they did. So I lost interest in the equations at that point.

And the reason that I had originally cited this article was that I thought Dr. Stevenson made an interesting point, that in both structural --

MR. NORTON: Excuse me.

Are we getting into the testimony now about what you thought this article said, or have we answered the question about what those numbers represent?

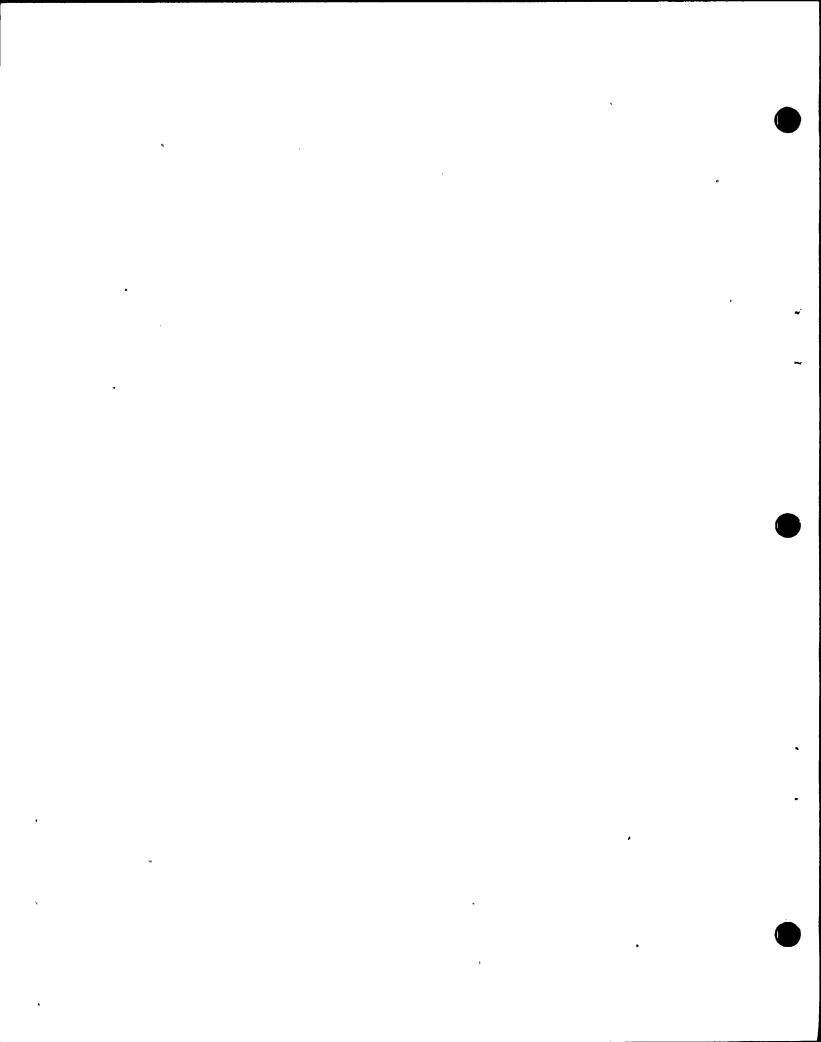
Mrs. Bowers, I don't want to get the testimony in through Voir Dire.

MRS. BOWERS: The question went to the particular numbers that Mr. Tourtellotte identified. And I think he responded to that.

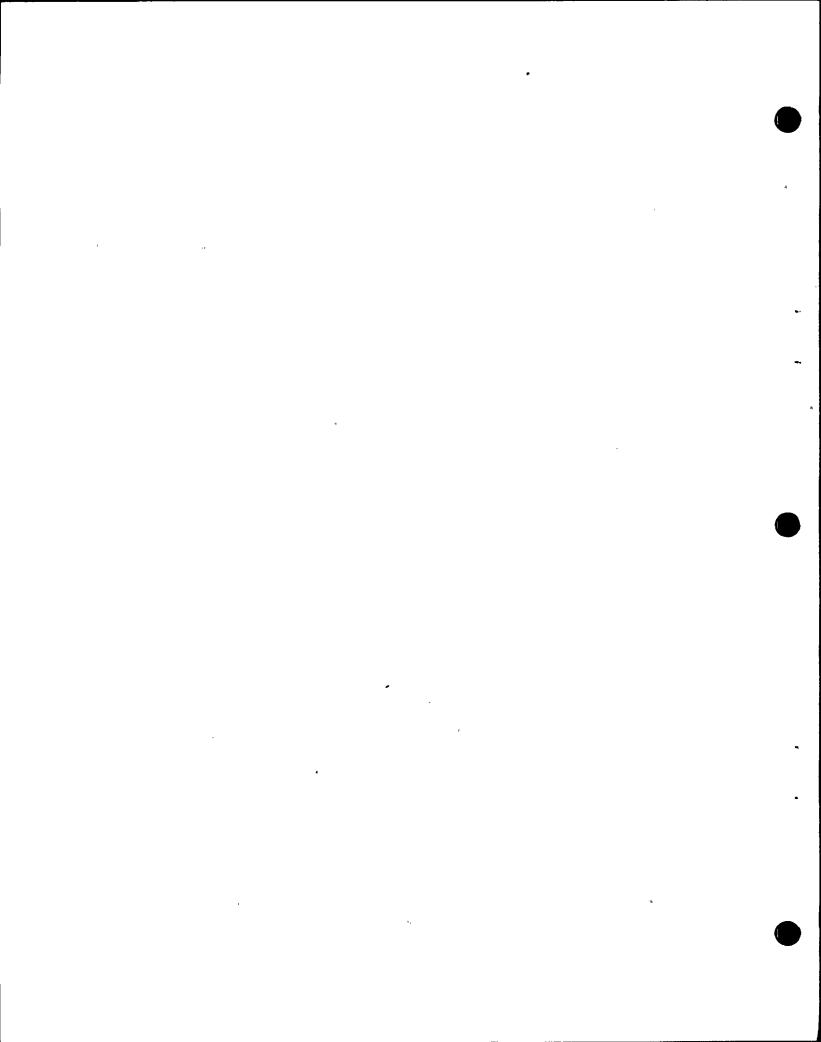
MR. TOURTELLOTTE: Long since: He long since answered that question.

## BY MR. TOURTELLOTTE:

A As I had earlier answered, I assumed that those came from - it said up above the Standard Review Plan, and also some structural codes. And I tried to obtain those, and at that point decided that I could not verify where they came from. And so that is also part of the reason we took out that



mpbll 1 part of the testimony. The equations themselves were to me not the key, 2 but rather the conclusion. 3 4 In other words, you're telling me that you think the basis for these numbers is simply out of some other book, 5 6 is that right, it may be out of some other book? 7 A Dr. Stevenson I believe said right before those 8 numbers that the current --I'm not asking you what Dr. Stevenson said. 9 asking you what you think. 10 Do you think they came out of the Standard Review 11 Plan? 12 MR. KRISTOVICH: Mrs. Bowers, I believe Mr. 13 Hubbard was trying to answer the question, and he should be 14 allowed an opportunity to complete his answer. 15 MR. TOURTELLOTTE: It becomes quite clear that 16 he is not answering the question that I'm asking. 17. I'm asking him what he thinks, and he's telling 18 me what Dr. Stevenson is saying. I don't care what Dr. 19. Stevenson says. If I want to know what Dr. Stevenson says 20 I'll ask him. .21 MRS. BOWERS: Well, the objection is overruled. 22 You were asked a specific question. 23 . THE WITNESS: Okay. 24: I have no reason not to believe Dr. Stevenson. 25



mpb12 1

б

S

12.

thought that those came from the Standard Review Plan and the structural specifications. But I went to get those and, you know, couldn't verify where this came from in there on the structural. I couldn't obtain it on 3A4. I didn't see where this particularly came out. And I didn't know which revision of 3A4.

## BY MR. TOURTELLOTTE:

 $\Omega$  Does the information derived from the Statement 1.4D + 1.7L ÷ 1.9E have any part in the calculation of stress and structural elements?

A I have no reason to believe that Dr. Stevenson is either right or wrong.

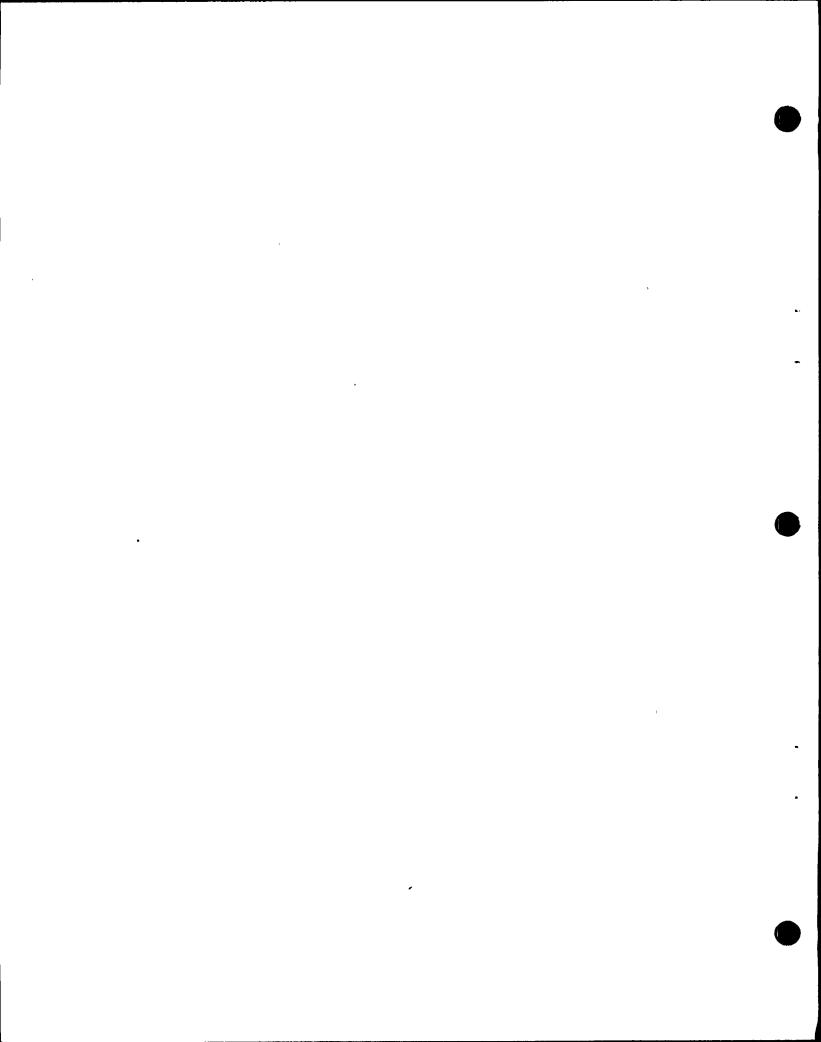
Q I'm not asking whether he's right or wrong. I'm asking you whether they play any part in the calculation of stress and structural elements?

MR. NORTON: Excuse me, Mrs. Bowers.

I think the whole thing has now become moot, if
we just look back at Mr. Hubbard's last answer. He has no
reason to know whether Dr. Stevenson is right or wrong. To me,
that answers the question.

He is not qualified. And to pursue this can only further establish that. He's just now admitted that he's not qualified to comment on this article.

MR. TOURTELLOTTE: I'm not asking him about the article, I'm asking him about the formula. The formula is a



mpbl3 1

2.

3

5

6

8

9

10

11

12

13

14

15

16

17

18

19.

20

21

22

23

24

formula which has some use. It's not just Dr. Stevenson's. formula, it is a formula that is recognized by mechanical engineers and it has a use. And I'm asking about the use.

And he either knows how it can be used, or he doesn't know how it can be used. And if he doesn't know how it can be used, then that goes to indicate further how little information he really has about being a machanical engineer.

If he does know how it can be used, then maybe he's smarter than I think he is.

MRS. BOWERS: Mr. Kristovich, before the Board rules, do you want to comment?

MR. KRISTOVICH: No.

(The Board conferring.)

MR. KRISTOVICH: Mrs. Bowers, excuse me.
What are you ruling on before I.... I didn't

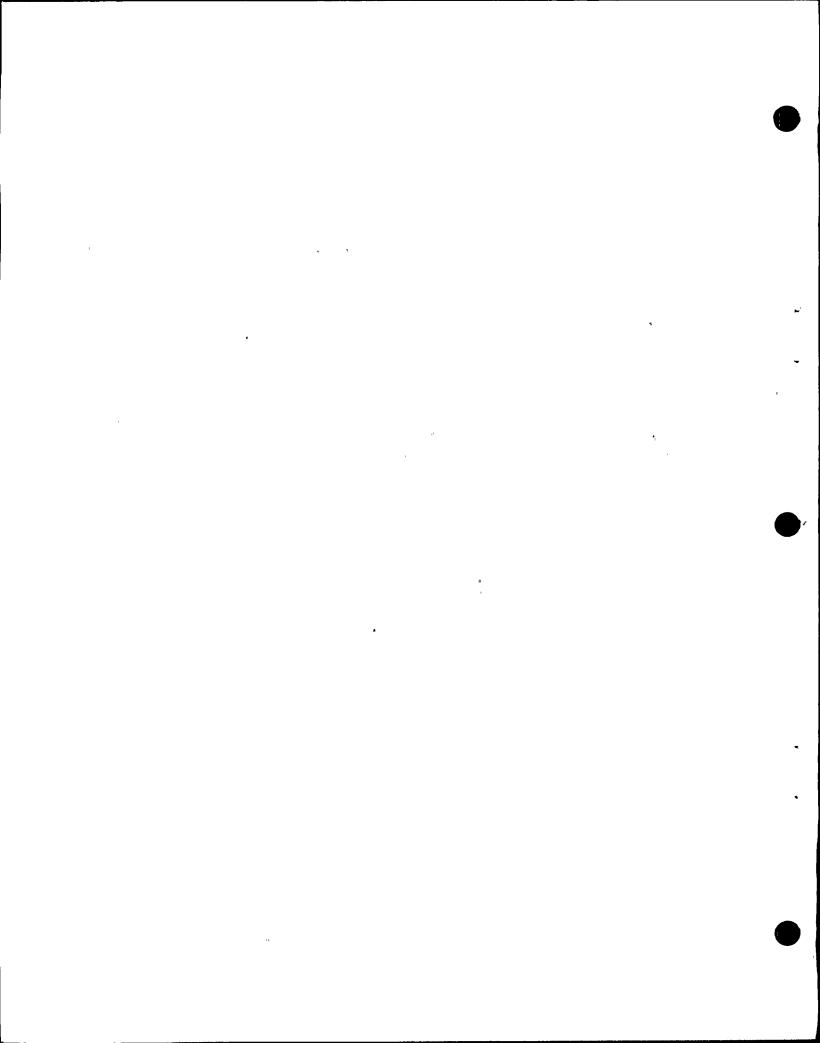
realize there was ---

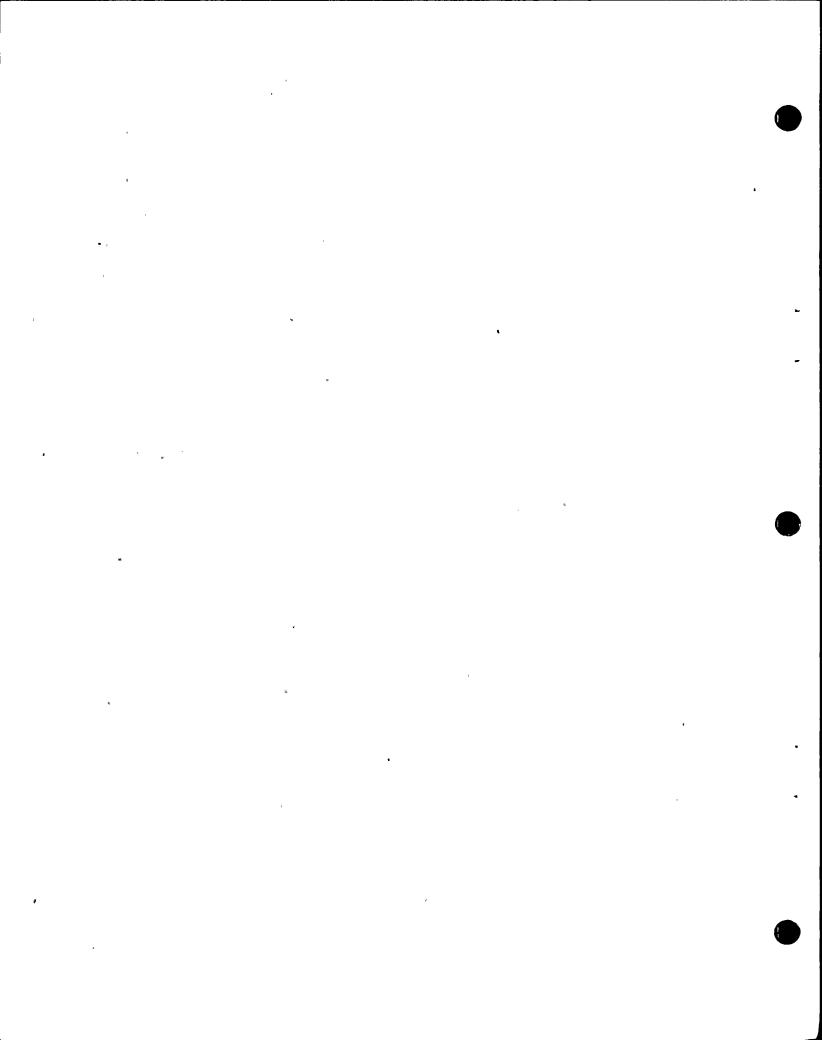
MRS. BOWERS: Well, Mr. Tourtellotte asked a question which Mr. Norton thought was inappropriate because he thought the matter had been settled. And when Mr. Hubbard testified that he had no way of knowing whether Dr. Stevenson was right or wrong in the use of this formula that's been identified — well, the numbers that are shown in front of the (1), and Mr. Tourtellotte's point was that this is a general what he called equation that is used in the community, and

.

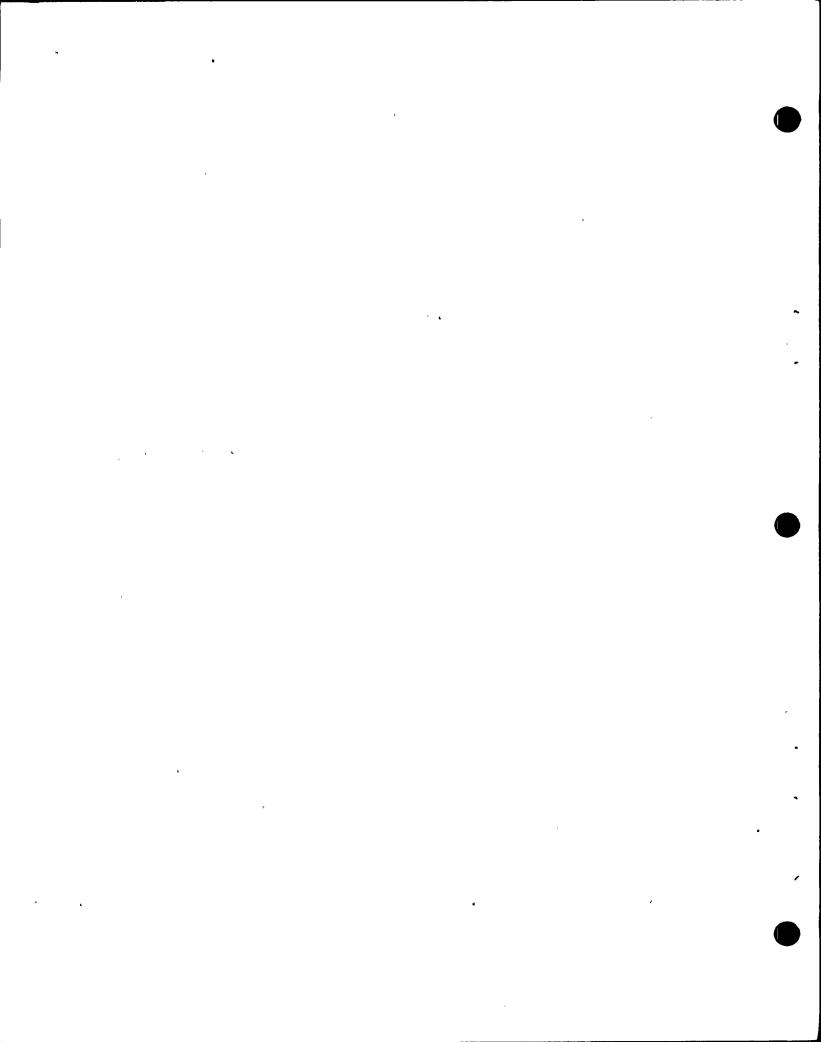
(C.)

25





mpbl4 1 that he should be able to express an opinion to tell what he 2 knows about it. 3 MR. NORTON: Well, if that's Mr. Tourtellotte's question, as you've rephrased it, I have no objection to it. But I thought Mr. Hubbard had already admitted 6 that he didn't have the expertise to discuss this article. 7 And that's fine with me. 8 MRS. BOWERS: Well, Mr. Tourtellotte, did I 9 express your question correctly? 10 MR. TOURTELLOTTE: Yes. 11 MRS. BOWERS: Will you proceed to answer the ques-12 13 THE WITNESS: I'm trying to think of how you introduced the question, because I have no knowledge --14 BY MR. TOURTELLOTTE: 15 I'll ask the question again, if it will make it 16 Q. clearer for you. 17 I have no knowledge that this is a standard 18 , equation used by mechanical engineers. Either it is or it 19. isn't. 20 Or by structural engineers. Q-21 A ... Or by structural engineers. . 22 Õ Okay. 23 So that, in response to your question. 24 Is stress mentioned in the statement? Do you Q 25



mpb15 1

7.

8.

. 22

know whether stress is mentioned in the statement or not?

A I would have to go through and actually look. I assumed that he was talking about stresses.

Q. You don't really know? Is that correct, you don't really know right now?

A Well, later on when we get to the steel he does talk about  $S_{\rm h}$  and  $S_{\rm m}$  and calls them dead load stresses and pressure stresses.

Again, when we decided not to use this as past of the testimony --

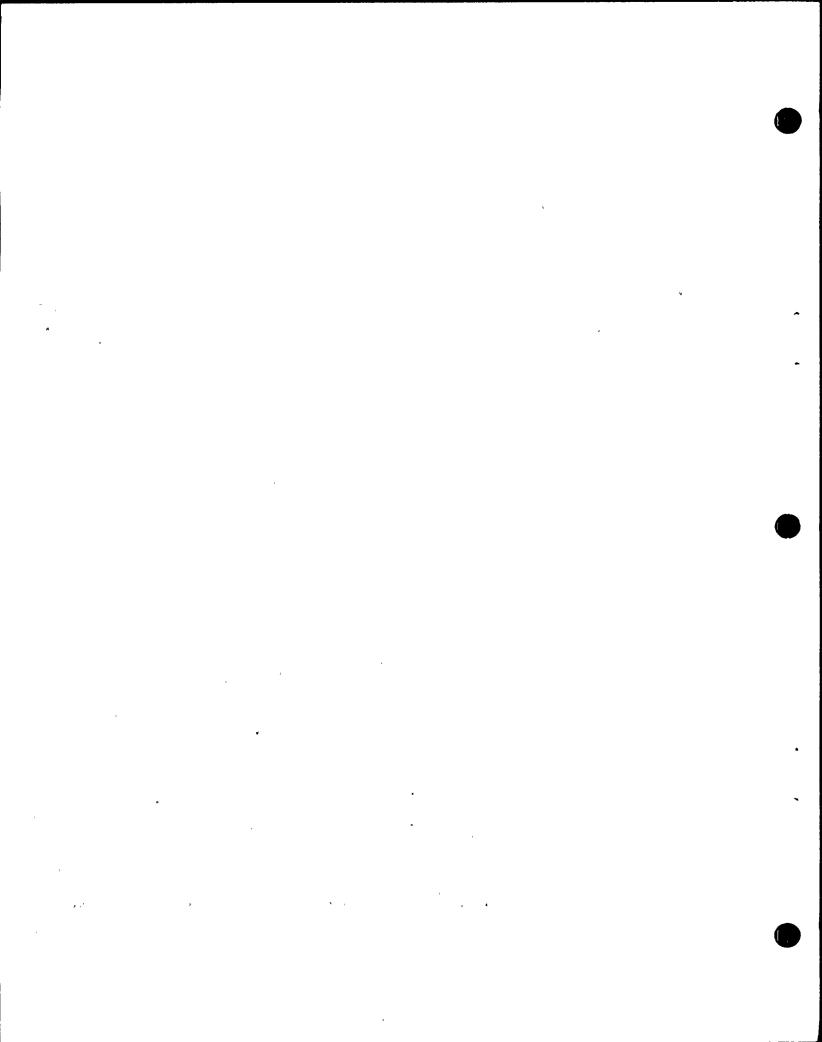
MR. TOURTELLOTTE: Mrs. Bowers, I would like you to direct the witness to be responsive to my question.

My question was a simple question about what he thinks about this, about what he knows about this. About whether he knows stress is mentioned in the statement.

I'm not interested in what Dr. Stevenson says, or later on in the article. I want to know what he knows right now. And it's of little benefit to us to sit here and let Mr. Hubbard read Dr. Stevenson's article to determine whether or not he can answer the question.

That's not what the questions are for. The questions are to investigate his present knowledge. I'm not. sure the witness understands that.

MRS. BOWERS: Well, but Mr. Hubbard testified that apparently the decision was made some time ago to delete



mpb16

1

2

3.

Δ

5

. 6

7

8

70

11.

12

13

14

15.

16

17

18

19

20

21

22..

23

24

25

that part of the testimony. He says he simply would have to review it; that he hasn't read the article.

MR. NORTON: Excuse me, Mrs. Bowers, I suspect the statement you've made is a misinterpretation of Mr. Hubbard's testimony, because I don't believe that the decision to strike the testimony was quite some time ago.

MRS. BOWERS: The witness says he's not intimately familiar with an article, and he certainly would be entitled to an apportunity to so through it.

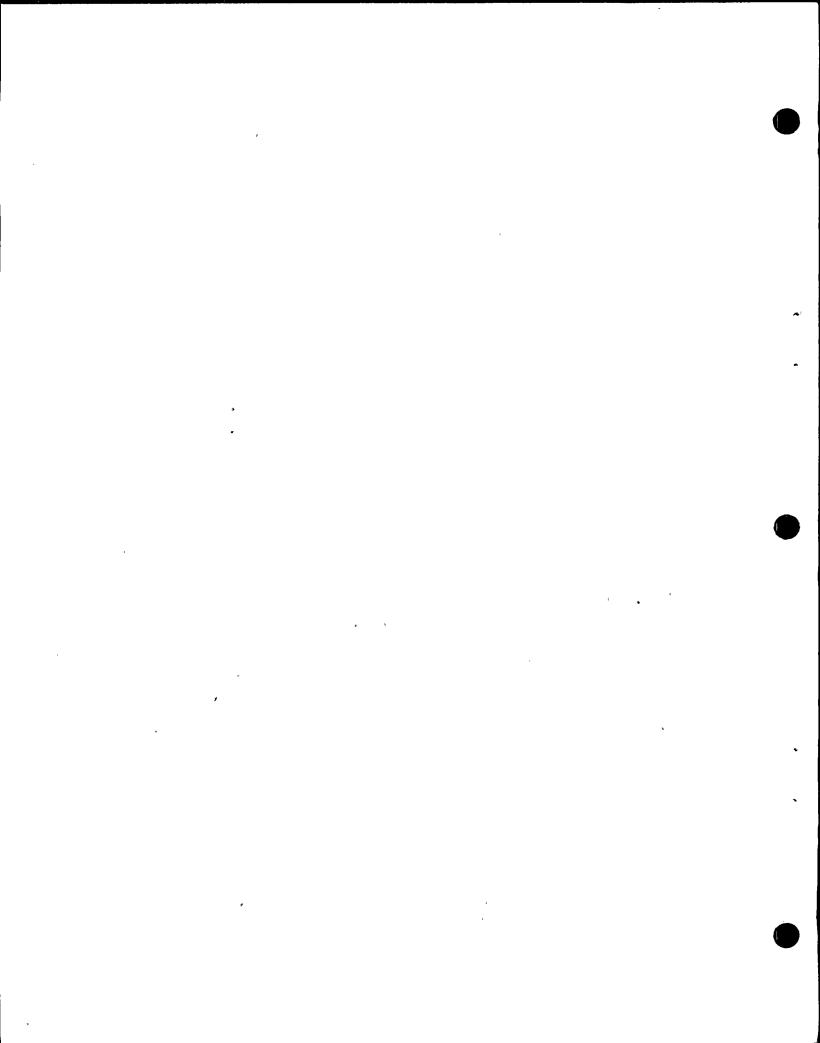
MR. TOURTELLOTTE: That's not the point.

I'm not asking him about the article, I'm asking him about a formula. And all I'm asking him is whether he knows if the stress is mentioned in this statement. If he doesn't know whether it is or not and has to refresh his recollection by looking at the article then he cught to answer that way. But we shouldn't have to sit here with silence on the record while he's reviewing the article so that he can answer the question.

I'm trying to determine the level of expertise.

If necessary I'm making an offer of proof that anyone who's a structural engineer can answer that question right off the bat, anyone who has any expertise at all. They don'thave to review the article to answer it.

MRS. BOWERS: When you say "statement," what do you mean? Are you distinguishing "statement" from "article?"



mpb17 1

2

3

4

The statement of 1.4D + 1.7L + 1.9E. That is a statement.

And anybody who is a structural engineer or probably a mechanical engineer, it's one of those areas that crosses over, could answer that question right off the top of their head. They don't have to read Mr. Stevenson's article or

MR. TOURTELLOTTE: The statement is the formula.

MRS. BOWERS: Mr. Kristovich?

MR. KRISTOVICH: Well. I'm not aware that Mr.

Tourtellotte is a structural engineer or a mechanical

engineer. We only have his testimony that that's the case.

MR. TOURTELLOTTE: That's why I said I'm willing to make an offer of proof that that's what they would do.

I'm not just making that as my representation; I know that's what they do.

DR. MARTIN: What was the foundation for that, your theory that structural engineers would immediately know what you're talking about?

MR. TOURTELLOTTE: It's because all of my structural engineers know and all of my mechanical engineers know.

DR. MARTIN: Have they testified?

MR. TOURTELLOTTE: They will if you want them to.

DR. MARTIN: Well, I'm having difficulty because I didn't understand the question either. I'm not sure the

8.

g

7

any textbooks,

6.

10

12

13

14

15

16

17

18

19.

20

21

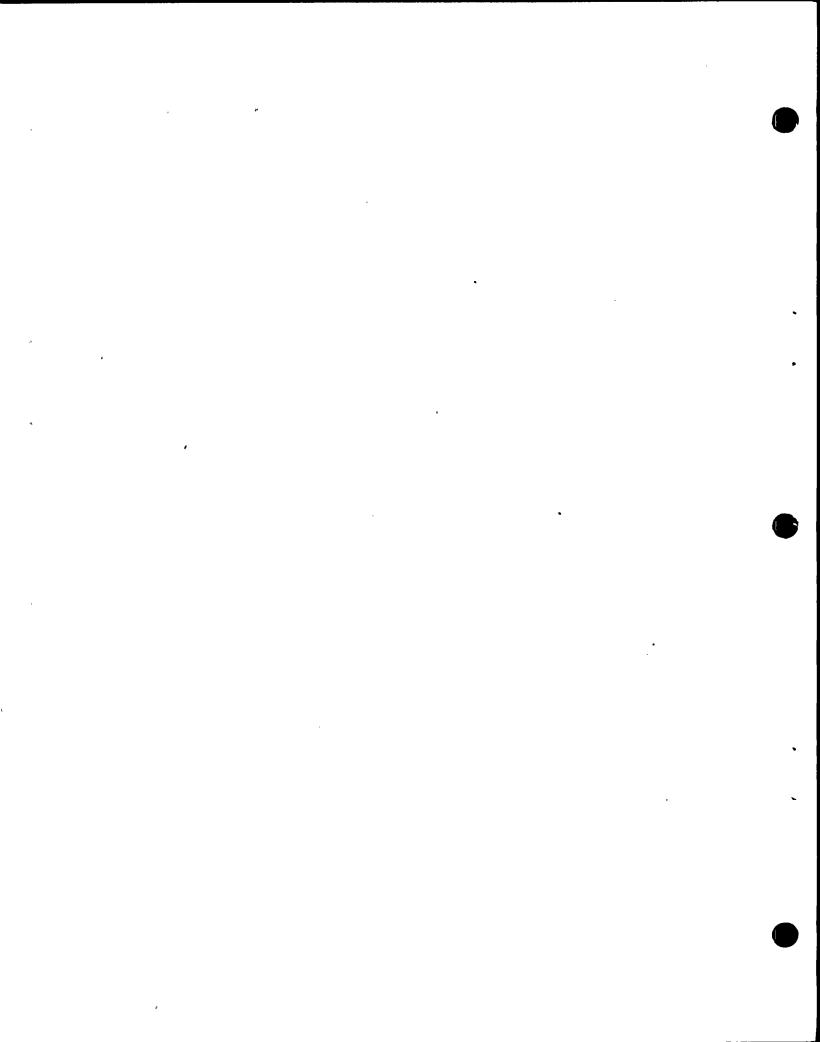
\_\_

22

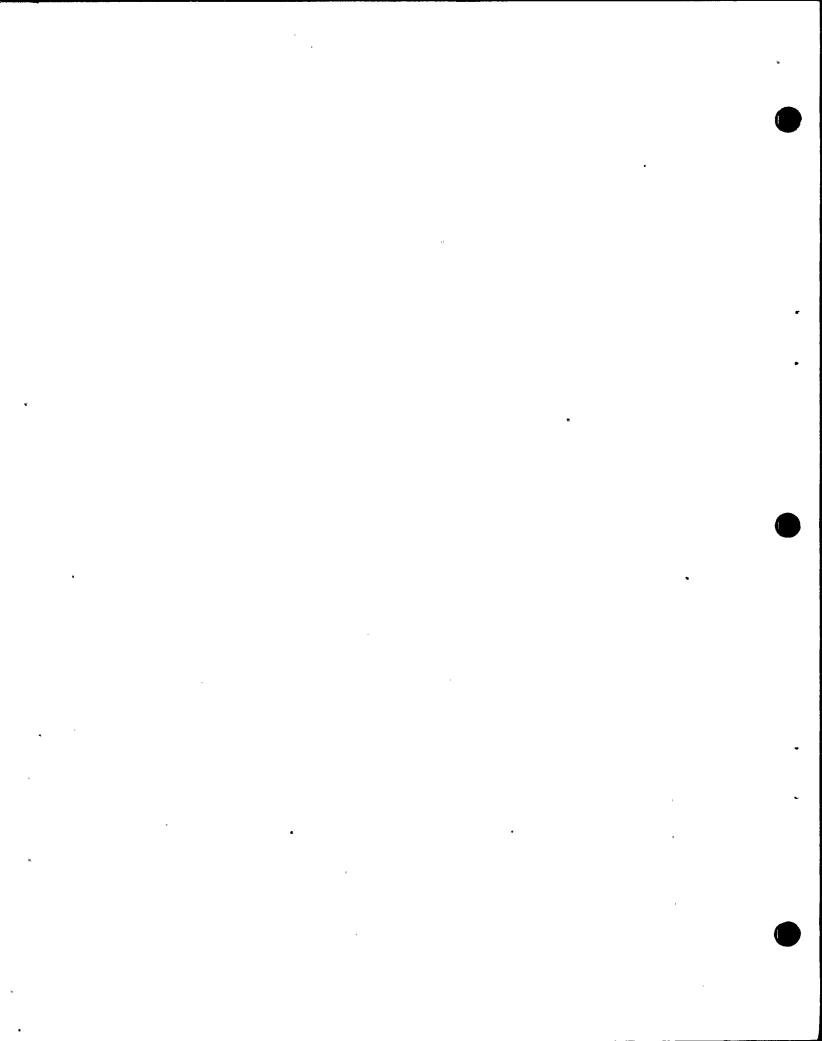
23

24

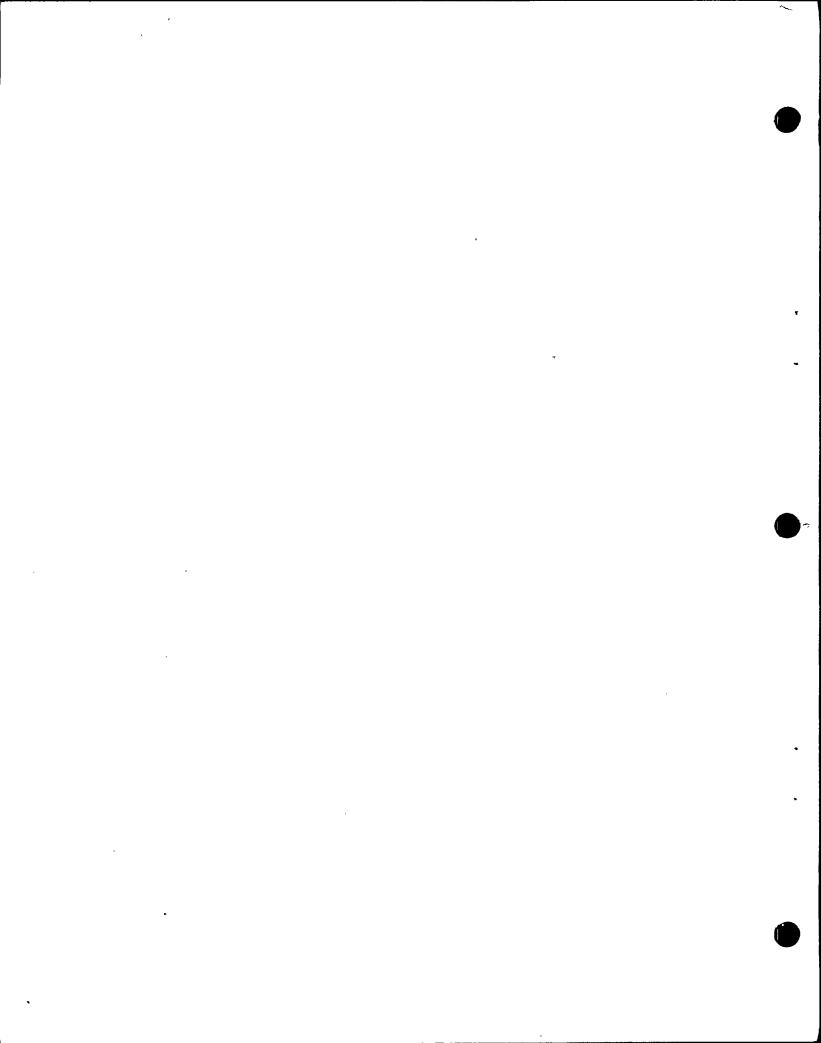
25



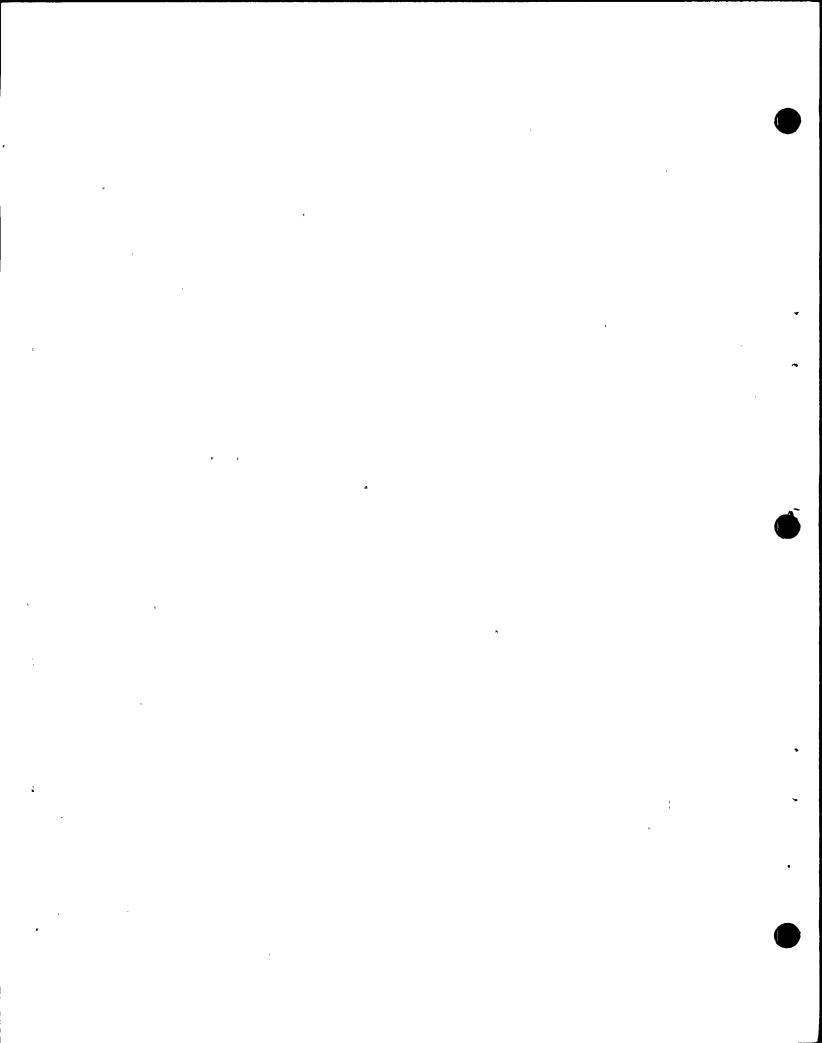
| 1 8Ldam statement you're talking about is the equation. MR. TOURTELLOTTE: It's the equation. 2 The question is whether that equation includes 3. in it stress. Whether stress is mentioned in the equation. 4 Ansequation stands for something, and different parts of an 5 equation stand for something. And if you understand what the 6 equatica is, you know what each part of it is. And so it's very simple to simply say whether 8 stress is there or stress is not there. 9 DR. MARTIN: I've road it and I can't tell because 10 I don't know the definition for 1.4, 1.7, or 1.9. 11 MR. TOURTELLOTTE: That's true; and you're not a 12 structural or mechanical engineer, and that proves the point. 13 DR. MARTIN: Well, you can't tell from this 14 article whether it does or not, just on the face of it. 15 MR. TOURTELLOTTE: You don't have to tell from the 16 article. 17 If you're a structural or mechanical engineer 18 you know whether stress is included in that formula by reason 19 of your background and experience and education. 20 MRS. BOWERS: Well, we'd like the witness to answer 21 the question. 22. Does this formula or equation or statement include 23 Stress? 24 THE WITNESS: I thought the 1.4D was stress. 25



mpb19 1 I thought that, you know, we're talking about force through 2 an area, and, you know, that that's what we would end up with. 3 4 But, again, I have not reviewed this, you know, in some time. So that would be my recollection. 5 MR. NORTON: Excuse ma, Mrs. Bowers. 6 I don't think that was an answer to the question 7 8 at all. MRS. BOWERS: Well, I thought the witness answered 9 that he thought 1.4D included stress. 10. Is that correct? 11. MR. NORTON: The question was: 12. Do you know whether the formula includes stress 13 or; not. Mr. Hubbard's answer to that question I believe is. 14. -- he just shook his head when I repeated the question -- is 15. no, he does not know. And I'd like to have the question asked again 17 and answered. 18 MR. TOURTELLOTTE: Do you want me to ask, it again? . 19 MRS. BOWERS: I guess so. 20 MR. TOURTELLOTTE: Okay. 21 BY MR. TOURTELLOTTE: 22, Do you know whether stress is mentioned in the 23: statement 1.4D + 1.7L + 1.9E? 24. . I do not know . I thought that was stress because 25



mpb20 1 we talk about stress later on for all the piping equipment. 2 So I thought that's what we were talking about. But I do not 3 know. Can you describe how a structural engineer would use the information derived from this statement: · 5 + 1.9E in calculating the stress in a structural element? 6  $\mathcal{I}_{\mathcal{L}}$ 7. No. 8. end. -MADEZON-WRBI-COM 9 flws (1C) 10 11 12 13 14 15 16 17 18 .193 20 21 22 23 24 25



) flv	lC /sMi		1C	§ 2
			•	N . N .
	•	*		5
i				7
:			•	9,
		,	,	1,0 1 <sup>1</sup> 1
<b>○</b> `				12
				14 <sub>.</sub>
				15 16
•				17 18
"ř.·.	<b>.</b> . ~	٠,٠	\ \*•••	19
,				20 21
n f				22

24

25

Q I invite your attention to Page 331. Down below, the table, the third line in the left column starts: "OBE (upset condition of design) from equation nine NB-3652, that it has  $S_{\rm all}$  equals: 1.5%  $S_{\rm mov}$ .

Is that Sall equals 1.5 Sm equation mine?

A I thought equation nine referred to section MB of the boiler code, that that's what it said from equation nine of Section NB-3652 of the boiler code but I did not go back to the boiler code to verify that that is indeed what's there.

Q Wall I guess the question I'm asking you is that equation nine that is stated right there, Sall equals 1.5 Sm?

A Well that, I believe, is for the upset condition of design. It says that that is -- equation nine from Section NB-3652 of the boiler code applying to upset condition of design.

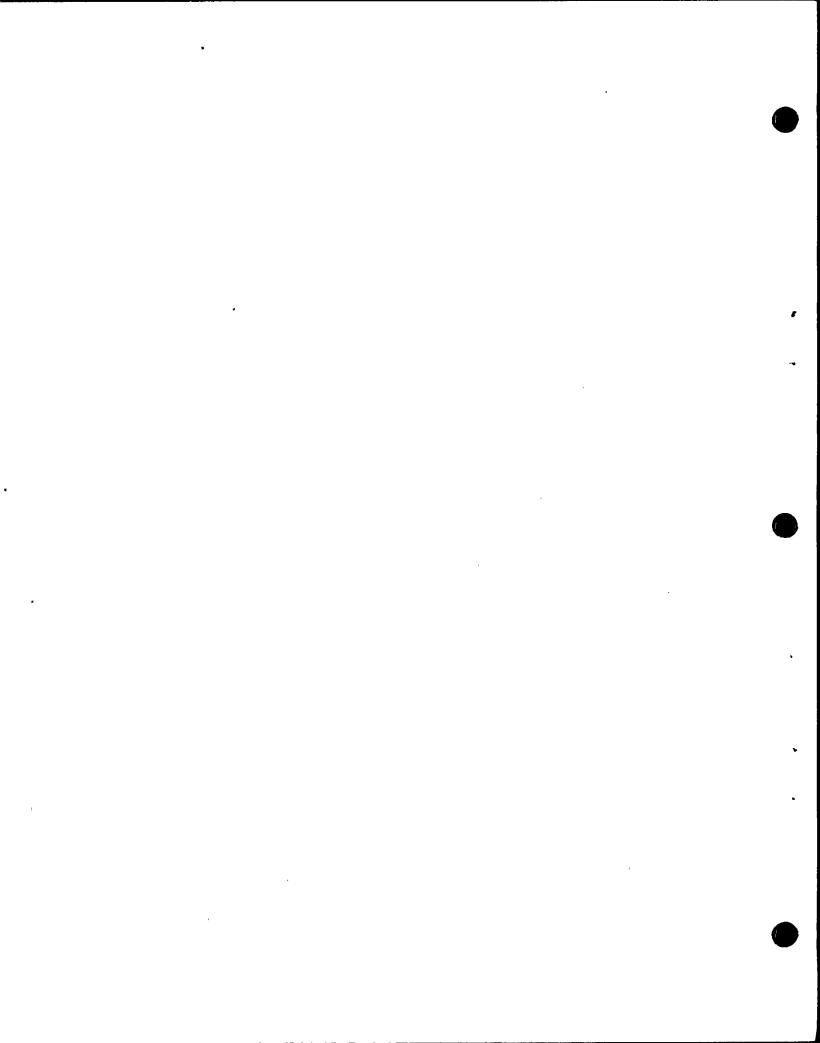
Well equation nine for the faulted condition of design also from that NB-3652 of the boiler code says that:

Sail equals 2.0 Sm, but I have not gone back to the boiler code to verify that this is indeed an accurate representation of what's there.

Q ... Well is that your opinion, then?

You're of the opinion that these are various statements of equation nine, is that what you're telling me?

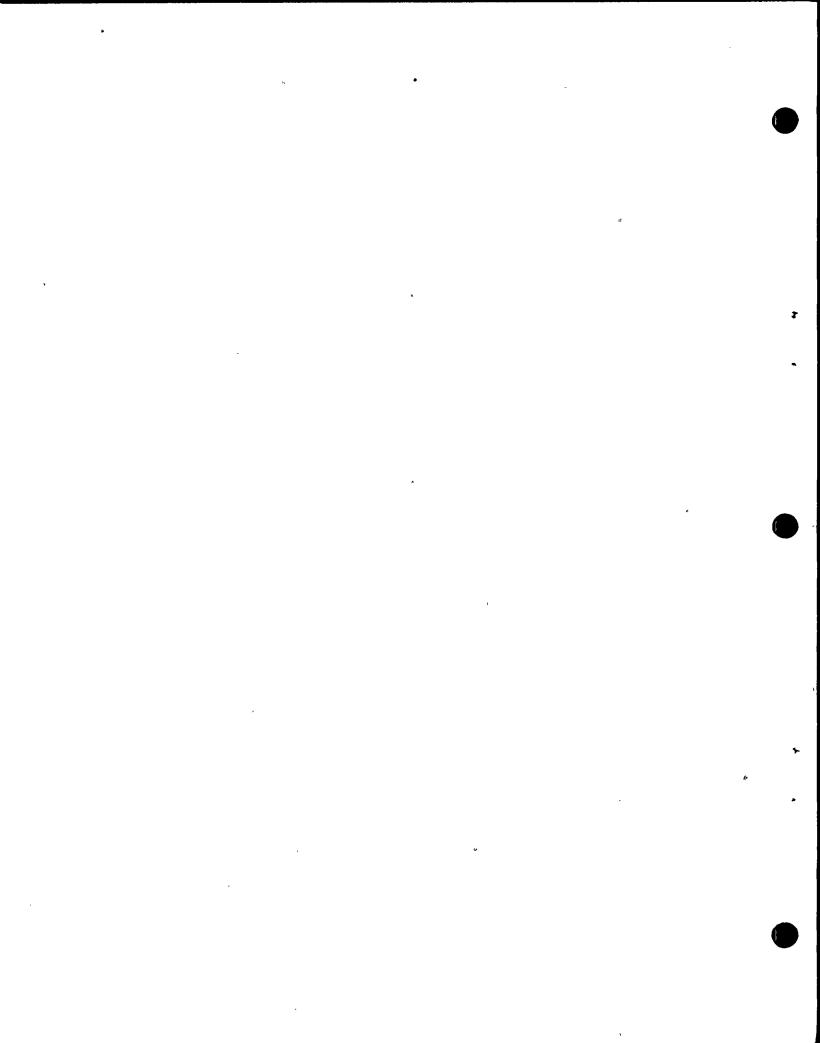
A When I reed that, that's what I thought, that this



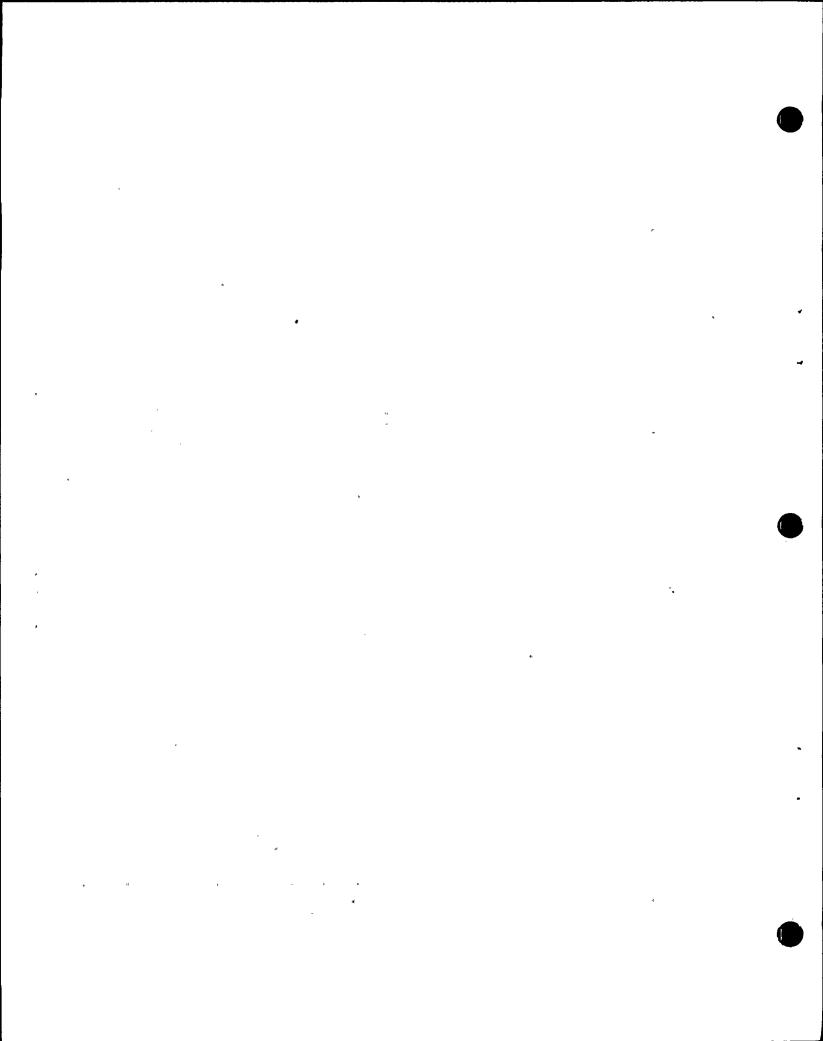
WRB/agb2 equation hims referred to equation nine on Park 3652 of the boiler code. 3 Q Okay. 4 You indicated that you did not, go back to check 5 that equation nine, so I take it that you can't, with any G. degree of certainty, state what equation mine is right now? **.7**. A That's correct. 8 Q Hava you ever used equation aims before for 9. anything? 10. A No. fif. MRS. BOWERS: Mr. Tourtellotte, are you looking 12. . for a standard white piece of paper? 13 MR. TOURTELLOTTE: Yes, Ma'am. Thank you. 14 It's not quite like a Big Chief tablet, but it'll 15 do, I guess. 16 MRS. BOWERS: Perhaps we should recess for 10 17 minutes. 18 MR. TOURTELLOTTE: I'd rather not do that, if that's all right. This won't take but a second. 20. (Pause.) 21 I apologize to the Board, because I didn't really **22**. . anticipate that this question and answering would go exactly · -:/23 this way, which I probably should have doze. 24 What I'll do is, I'm having this formula copied

and I'll present everybody with copies, but I'll have this

25



WRB/agb3 Naroxed later on for the record, if it's all right with the Board, and I'll ask that this be -- this piece of paper be 3 marked as. Staff Exhibit Number 10. (Whereupon, the document .5 previously referred to 6 as Staff Exhibit 10 7 was marked for identi-8 fication.) 9 It is entitled, "Equation Nine, MR. TOURTELLOTTE: 10 NB-3652," 11 BY MR. TOURTELLOTTE: 12. Mr. Hubbard, I'm handing you Staff Exhibit 10, 1.3 equation nine. I'd like to ask you if you can tell 14 me what types of stress were considered in equation nine? 15 A No. 16 Q Can you define primary stress? 1.7. A No. 18 Ω can you define secondary stress? 19 All has Not personally ... That was defined last week and --20 well, it's in the Hosgri amendment, the combination of primary 21 and --22 · Q · · · Do you know how to find it? 23 All I would do is just look it up and read it, 24 that would be my level of understanding. 25 In piping, are primary or secondary stresses



	1	•
	WRB/agb4	produced by earthquakes?
	2	A I do not know. I would assume it is secondary.
$\overline{}$	. 3	Q. Where in equation nine does it consider carthquak
(ن)	. 4	loads?
	5.	A I do not know.
	6	Q In invite your attention to the right-hand column
	7	at the bottom of Page 331 of the article where it says:
	8	"OBE condition: Sg equals 1.5 Sm minus 0.1 Sm minus 0.5 Sm
	9	equals 0.9 Sm." And then it has a couple of arrows directed
	10;	from 0.1 Sm to dead load strasses. Do you see that figure?
	าล่	A Yas.
	12:	Q Okay.
	13	
	14.	Do you know where the figures 0.1 $S_{m}$ and 0.5 $S_{m}$
	1.5	come from?
		A No.
	16	Q Do you know whather they are applicable to Diablo
	, 1.7	Canyon?
	18.	A No. I do not know.
•		Q: Can you describe shakedown as it applies to
	20,	piping?
	21	A No.
( .	22.	Q Can you define banding stress?
<b>\</b> \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	.23	A I would define stress as force through an area,
<b>~</b>	24	and bending stress would be that having to do with the bending
	25	: O Can you define membrane strass?

\* , • 4 • и 

0	wrb/agb5	1 2
	•	3;
		4.
<b>∵</b>	, ,	5
		6
•		7
		8
•		9
	. 1	Ö
		1.1
		2.
		3
Ų,		ت ا4
	1	
		5
	.1	6
	' 1	7.
		8
		9
		20
•	2	1
(*;		9
•	2	3
À	. 2	4
	2	25

A No.

Q If bending stress is considered across the cross section of a structural element, how does it vary?

A. I. do not know.

Q Do you know how to compute banding stress?

A No.

Q Lat me ask you this one: Is yield aquivalent to failure in structures?

A. In general, no. It might be true for something that was very brittle, but it would have to be very brittle.

Q How do you express stiffness of structures?

A I don't know.

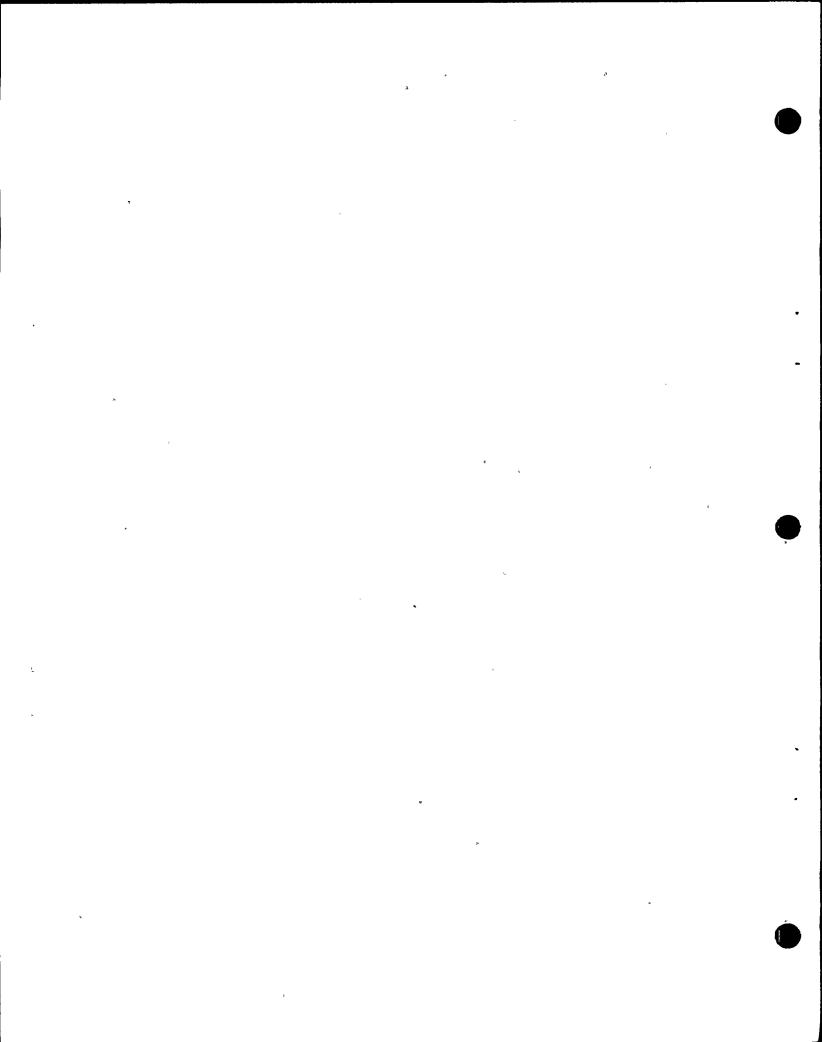
Q Do you know how to draw a typical floor response spectra curve? Could you draw one right now if I gave you a piece of paper and asked you to draw one?

A No.

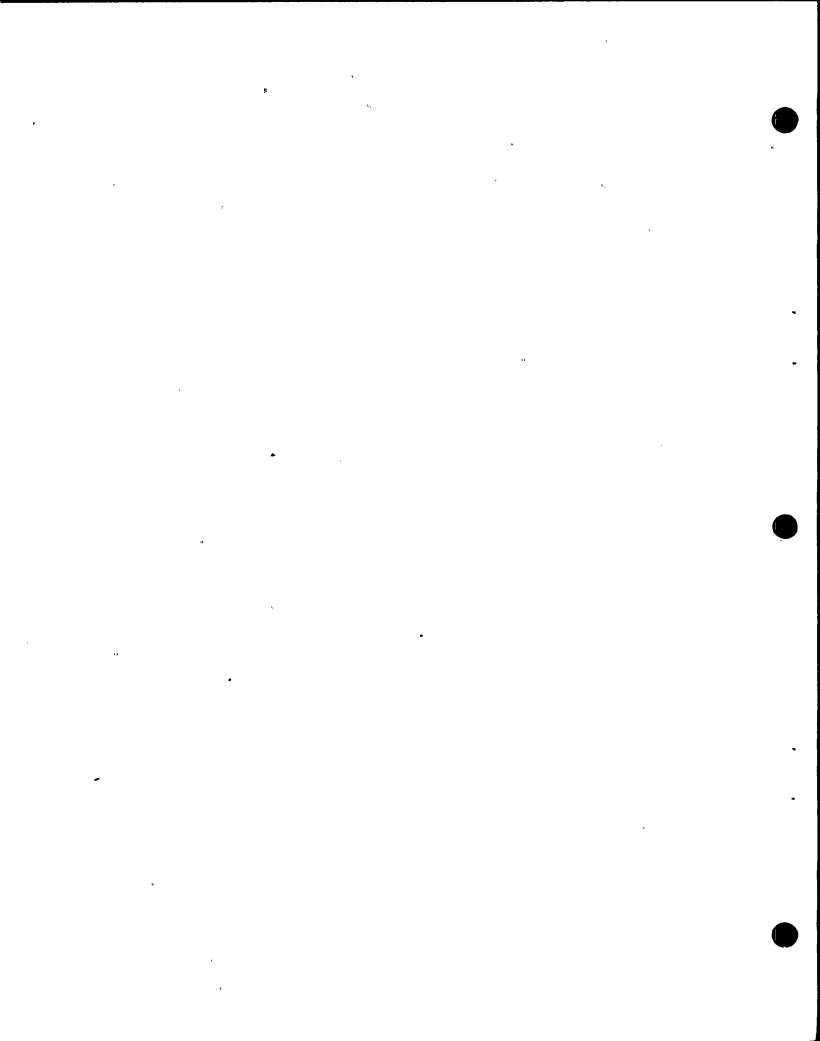
Q I take it, then, you also do not know at what point on the curve the maximum floor acceleration would be indicated in such a curve?

A Well, as I recall it would be like, you know, on one axis you would have g and on the other axis you would have period; and period, you know, one over that would be frequency, and I look at that and that would stell me the frequency at which the peak occurred.

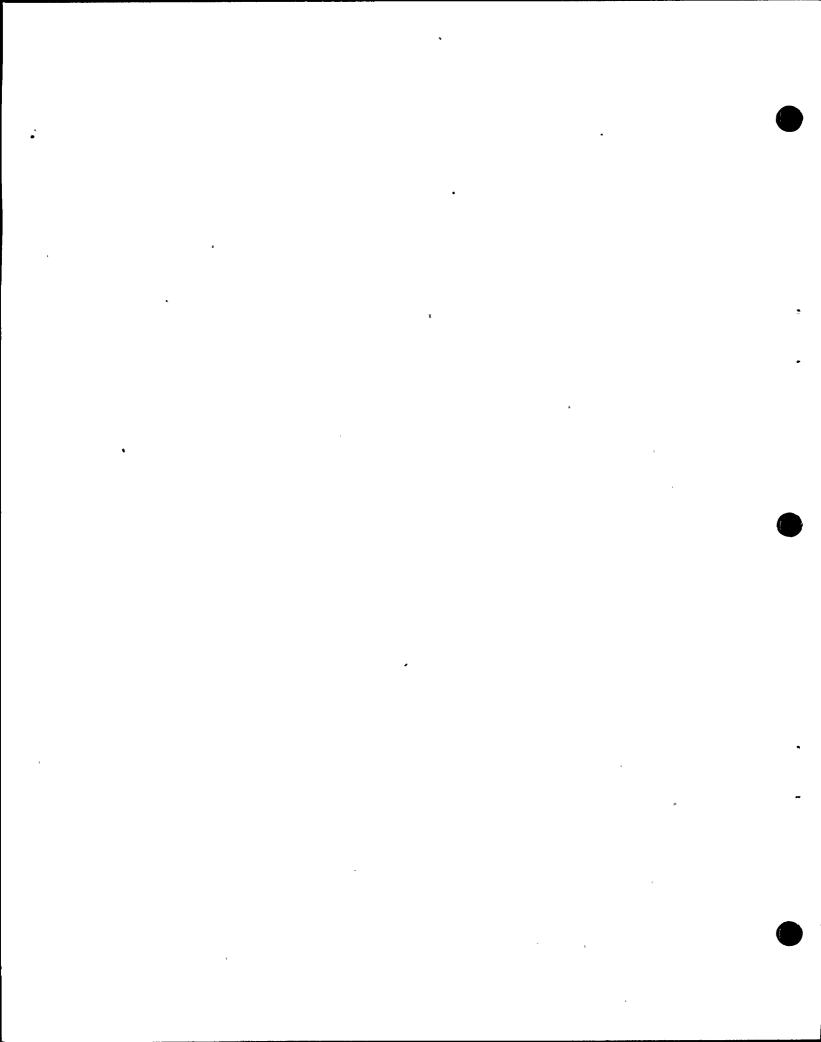
Q. And the maximum floor acceleration would occur



WRB/agb6	at the top of the curve, then, is that what you're saying?
2.	You said at the peak.
3	A Well, that would be the maximum acceleration, yes
	Q: The maximum floor acceleration?
<b>.</b> 5	A Right.
,	Q Do you know how the maximum floor acceleration is
7	used to analyze the design of normal piping systems?
8	
9	Q Do you know how to define maximum floor accelera-
10	tion?
1.1	
12	H.
1.3	
14.	Q Mr. Hubbard, you are familiar with IEEE Standard
÷	344, 1975, aren't you?
. 15	A I have a copy of it, yes.
16	Q I invite your attention to Page Seven, the zight-
17	hand column, the second line. Can you read what it says
;8;	there?
	The maximum floor acceleration can be a second of the seco
.20	obtained from the floor response spectrum as
2.1	acceleration at high frequency in excess of
22,	33 Hz. and is sometimes referred to as the
23.	
24.	11
25.	



		•
	WRB/agb7 <sup>1</sup> 2	anchor point of Dr. Newmark or Dr. Blume's floor response
	3	spectra.
لين	•	Q Mr. Hubbard
(ك	4	A And that's also assumingWelle go ahead.
	.51	Q I'm sorry, I don't want to cut you off. Do you
	6.	have something else to say about that?
	7	A Well, that's going in excess of 33 which assumes
,	.8	it's a rigid structure, and when you asked the question before
	.9	I was thinking about saying it might be a floor, you know,
æ <sup>a</sup>	.10	of less than 33 Hz.
	Įį,	Q The QA program that you conducted at GE was
	12	primarily designed Isn't it true that the NA paople are
	13	the ones there to make sure that the job gets doze, isn't
	14	that right?
	15	A That it gets done in accordance with what the
	16.	engineer has required in the way of codes and standards.
	17	Q Somebody alse designs now to get the job done,
	18 -	don't they?
	19	A hyper of somebody else's, yes.
	20:	Q Okay.
•	21:	MR. TOURTELLOTTE: We're ready to move on with
7	. 22	the motion to strike.
·. •	23.	Before I do, let me
	2 <b>2</b> ;	MR. NORTON: Excuse me, before the motion to strik
	25	is made, we would like to ask a couple of voir dire questions.
	1	



WRB/agb8 I think it might make it go a little quicker, because we'll be moving to strike some things that Mr. Tourtellotte is not 3 moving to strike. MR. KRISTOVICH: Before we do that or are we going .5 to have a mid-morning break? 6 MRS. BOWERS: Yas, let's take 10 minutes. (Recess.) 8 endlC î0 ĩ,ĩ. 12 13 14 15 16 17 18 .19 20 21 22 23 24 25

-. • ) a. •• • • •

	1D
N	WRB/wb1

MRS. BOWERS: Are we ready to proceed? BY'MR. NORTON:

Q Mr. Hubbard, as an attachment to the first section of testimony you have a memorandum, it's Attachment C, it says "Meeting with NRC Staff on Diablo Canyon, November 25, 1975," and consists of apparently four pages and has the signature, apparently, of R. B. Bettinger. Although this document has no numbers on it I assume you procured it through the discovery of documents; is that correct?

A To the best of my knowledge that's where it was obtained, during discovery of PG&E.

. Q . . All right.

As far as you know, were any interrogatories ever sent to the author of the memo regarding its contents or anything about it whatsoever?

A No, I'm not aware of any.

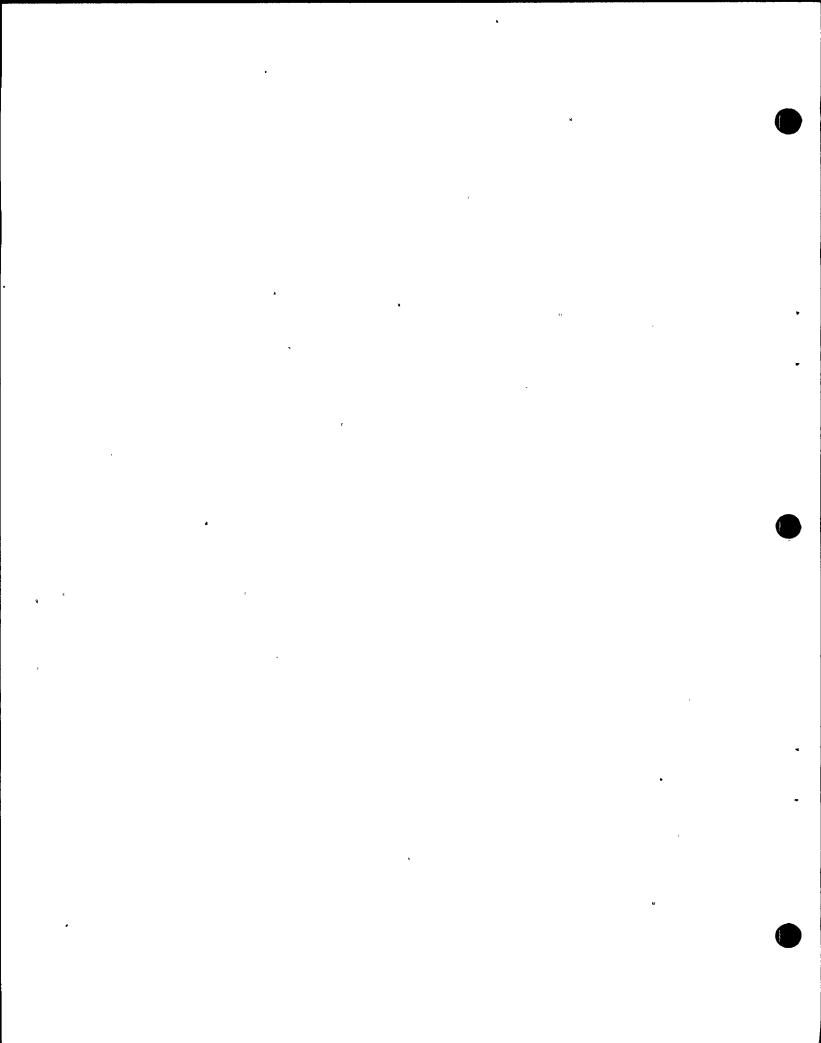
Q Are you aware of any questions that were ever asked of the author of the memo in this proceeding or in any other proceeding where under oath he was asked about it?

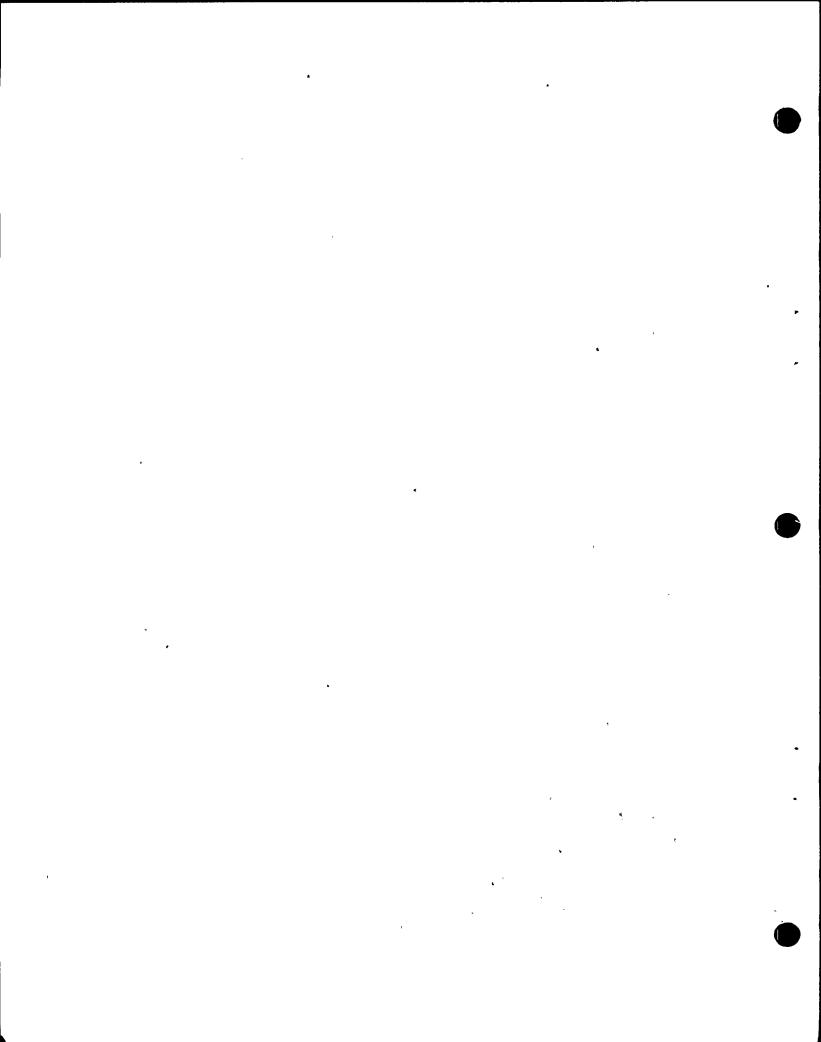
A I'm unaware of any.

Q Are you aware of any questions of the author by anybody, formally or informally, under oath or not under oath, of the author about this memo?

A No. I'm not aware of any.

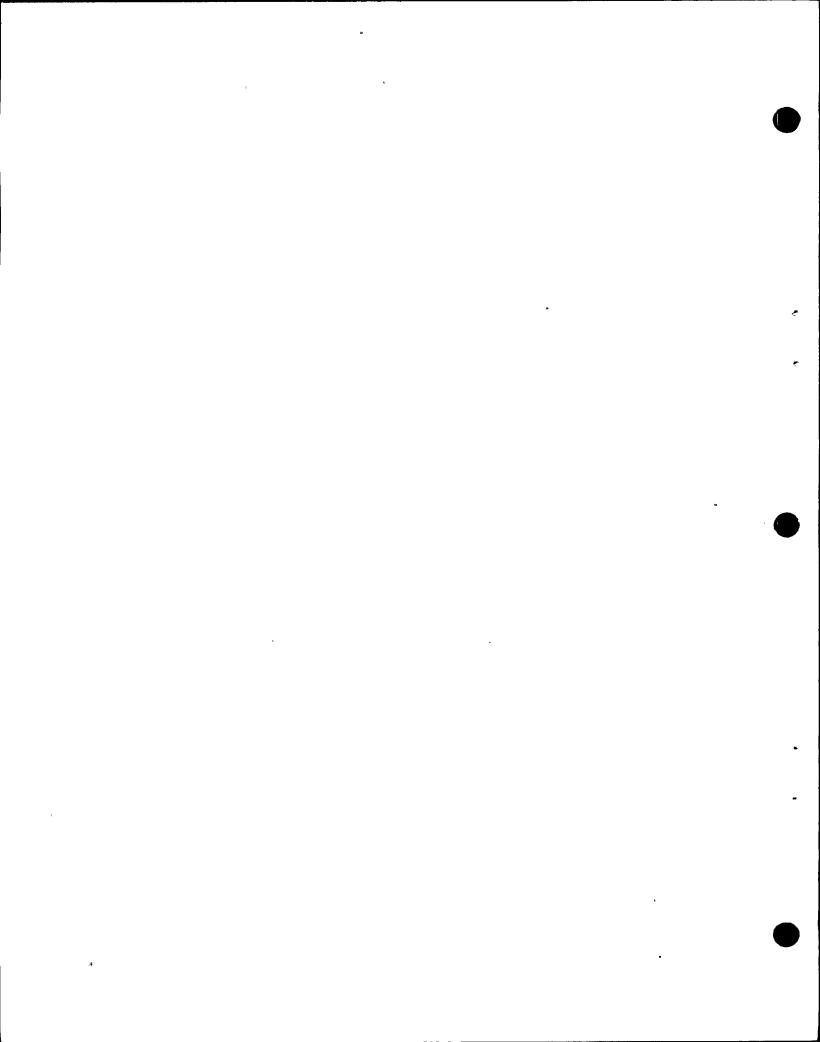
Q Have you ever discussed this memo with the author,





25

Now the next one is Attachment C. It's a



14

15

16

17

18

21

22

23

24

25

memorandum for E.G. Case from Dr. Hanaver, August 18, 1977.

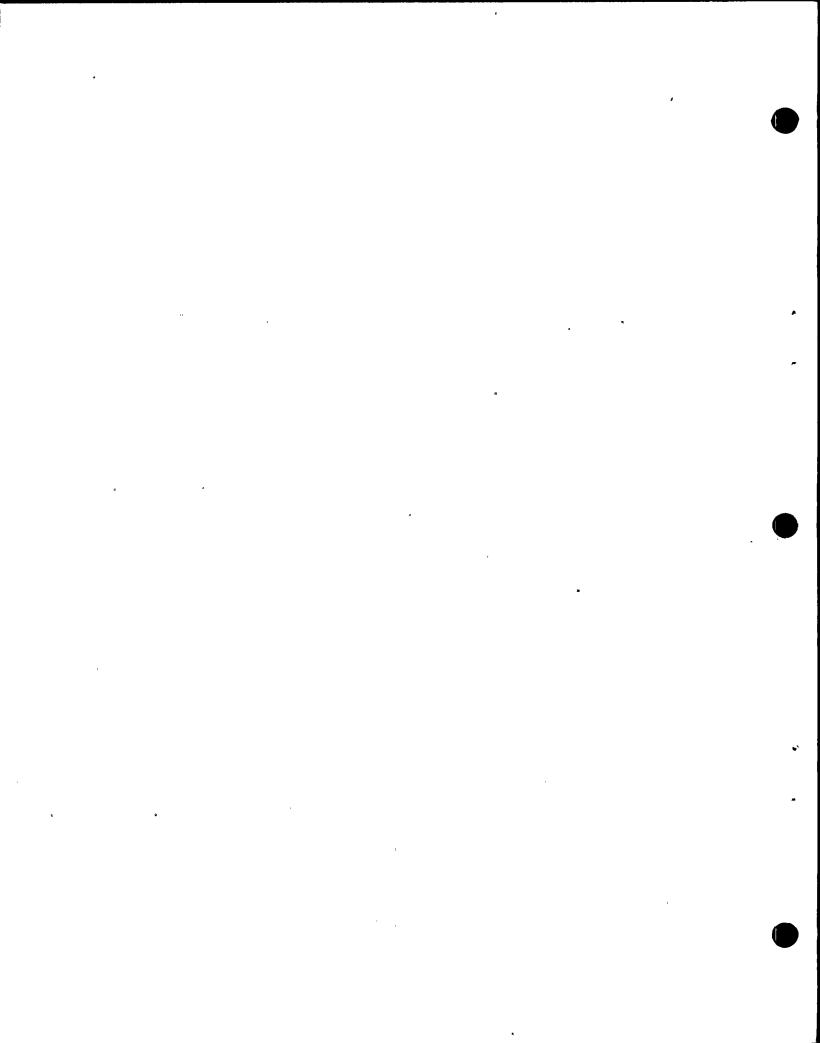
Did you have an opportunity to discuss that with Dr. Hanaver?

- A No, I did not.
- Q. Does this relate to Dieblo Canyon, do you know?
- A Only in a peripheral same that, in the FSAR, when Diablo is compared to other PWRs that, as I recall. Zion is one of the plants that Diablo is compared to. And also that Zion and Diablo are both designed by Westinghouse Electric, so there is that similarity.
  - Q How about Attachment D, who's the author of that?
- A Again, that is from a report by Drs. Okreat and I don't know how to prenounce the man's name.
  - Q Tsai?
- A Tsai, yes, on saismic risk analysis. I have that here. It's from the report on Some Probabilistic Aspects of the Seismic Risk of Nuclear Reactors.

التيكاملاه والأنياء ويعامله بالمؤاج والمراد كالمطابس التوميزي بالمراز والأحاط ويدني واليمام ميل والرواء المرج والمرور

- Q Oh, this is not about Diablo Canyon, this Attachment D?
  - A That is correct.
  - Q It has nothing to do with Diable Canyon?
- A Yes, it does have to do with Diablo Canyon in the sense that it has to do with --
- Q Excuse me, will you tell us where it has to do with Diablo Canyon, where it quotes regarding Diablo Canyon?

  MRS. BOWERS: Well I think the witness intended



Δ',

6

7

8

9

10

12.

13.

14

15-

16

17

18

---

21

22

23

.24, 25 to do that, so the question stands.

THE WITHESS: The report is about -- is entitled,
"Some Probabilistic Aspects of the Seismic Risk of Nuclear"
Reactors."

BY MR. NORTON:

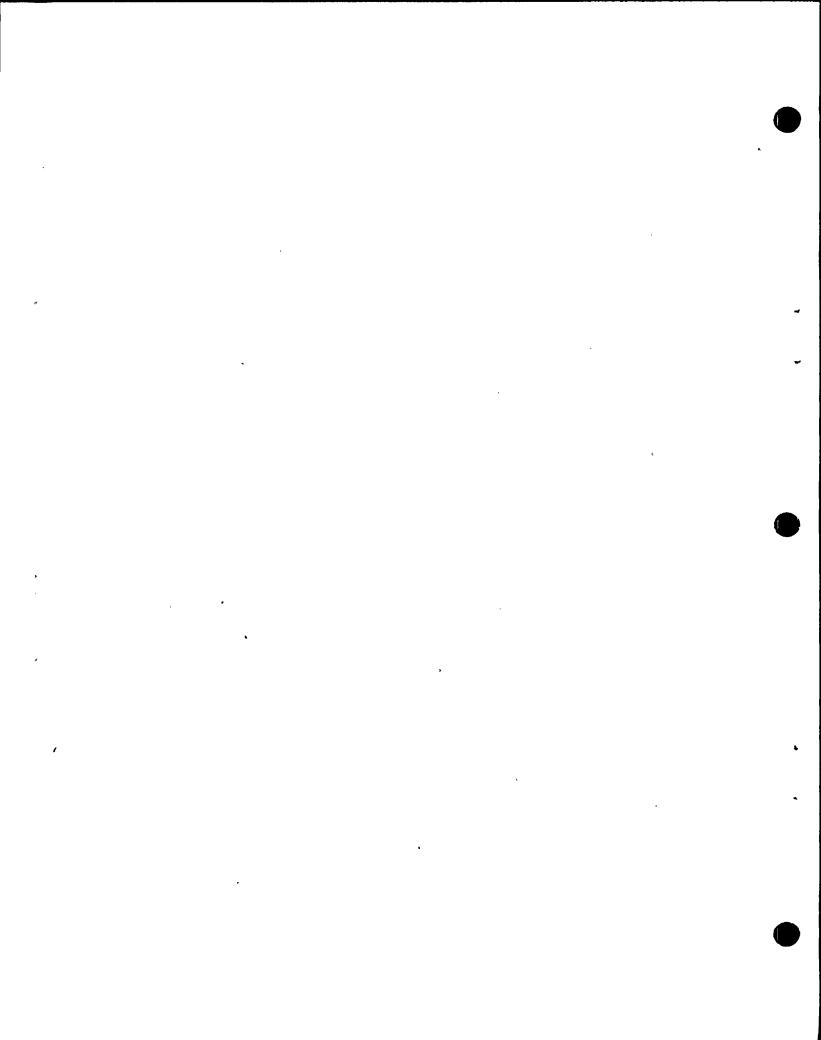
Q And could you show in there where Attachment D is about Diablo Canyon, Attachment D to your testimony, where that is about Diablo Canyon?

table refers to the fact that the authors of the report say that there have been many — there have been discussions — of what safety factors are available in a seismic risk analysis, and they said that there are other factors that may reduce the safety margin. I could read the paragraph if you're interested.

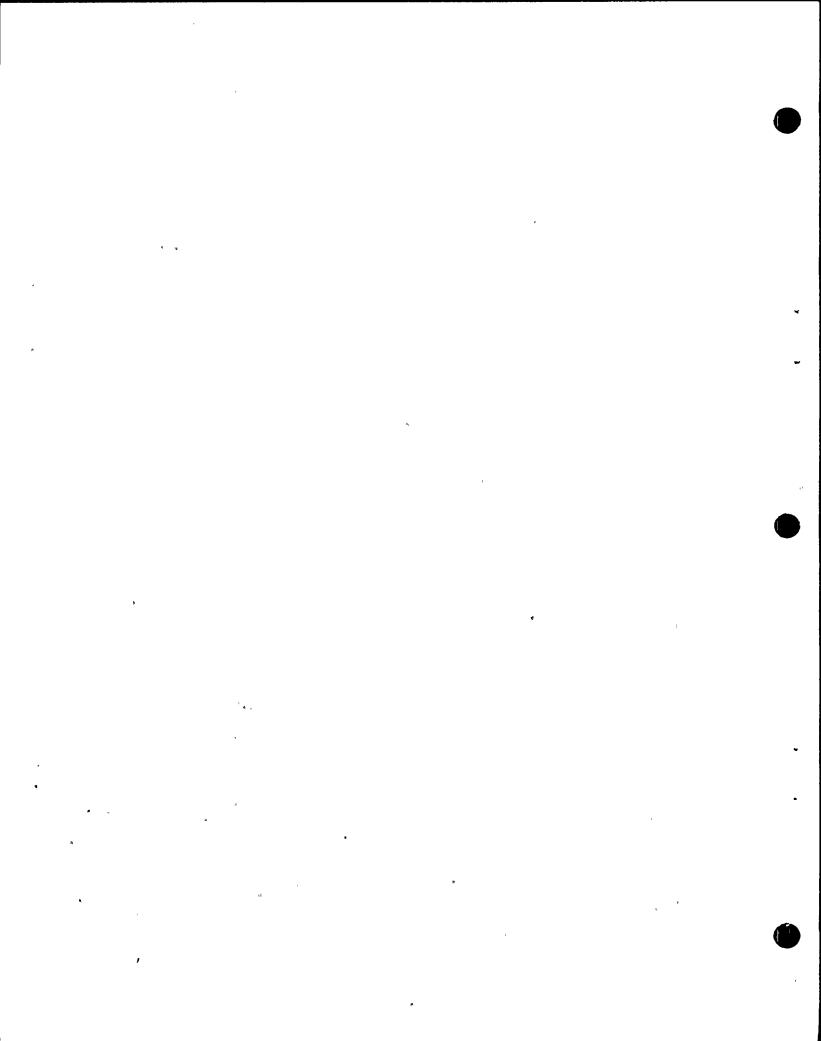
Q Excuse me. I'm not interested in your interpretation, I'm interested in where in the report it says that
Attachment D -- this Table V.1, Examples of Deficiencies
of Component Quality Assurance, is in reference to Diable
Canyon.

A You are correct, Mr. Norton, it is not in reference to Diablo Canyon. It's in reference to nuclear power plants in general.

Q And as a matter of fact, if I went over each and every item in here, you could not cite enything at Diablo



	,	
WRB/agb3	2	Canyon that comes under that category, could you?
90		A I believe I could.
	3	Q Each and every item?
	4	A Well, we'd have to go through it.
	5	Q All right. Will you tell me where, at Diablo
•	S <sub>i</sub>	' Canyon, there is improper specification of fluid? Just one
*	7.	example, please.
•	š	A I was thinking later on down, where we talk about
<b>a</b>	Ó	material or component selection.
	10	Q Where do you see that material or component
	1,1	selection? Uncertainties in material properties?
	12	Can you tell me where there is uncertainty in
	1,3	material properties in your testimony?
	14	A Well not in my testimony, but I'm familiar that,
,	15	you know, approximately, oh, back in December there was a
* *	16.	50.55E violation turned in because steel had been received but
• .	1.7	the certifications that went with it were improper.
	18	Q But that was caught, was it not?
والمناسبة والمناشات والمواد والمادية	19	A That!s right.
•	20	Q All right.
•	21	How about uncertainties or use of non-standard
	22	materials or components without adequate qualification test
· •	23.	program, can you give specific examples of that that are in
	24.	your testimony regarding Diablo Canyon? Or the next one,
	25	incompatible materials, either one?



3

4

ט

6

Ţ

8

9

10

1.1

12

13

1,4

15

16

1.7

18

19.

20

21

**22**:

23

24

25

quality deficiencies found at the site. In other words, oh, approximately 20 percent of the pipe supports were initially either the wrong size or not put in properly or one thing or another. We could go back through the ISE reports and the various 50.55-E violations, and if you then believe that this might be the tip of an iceberg, which I do — I mean, the fact that you catch some of them later on doesn't mean that you've caught all of them, in my opinion, that that might be indicative of a more general problem.

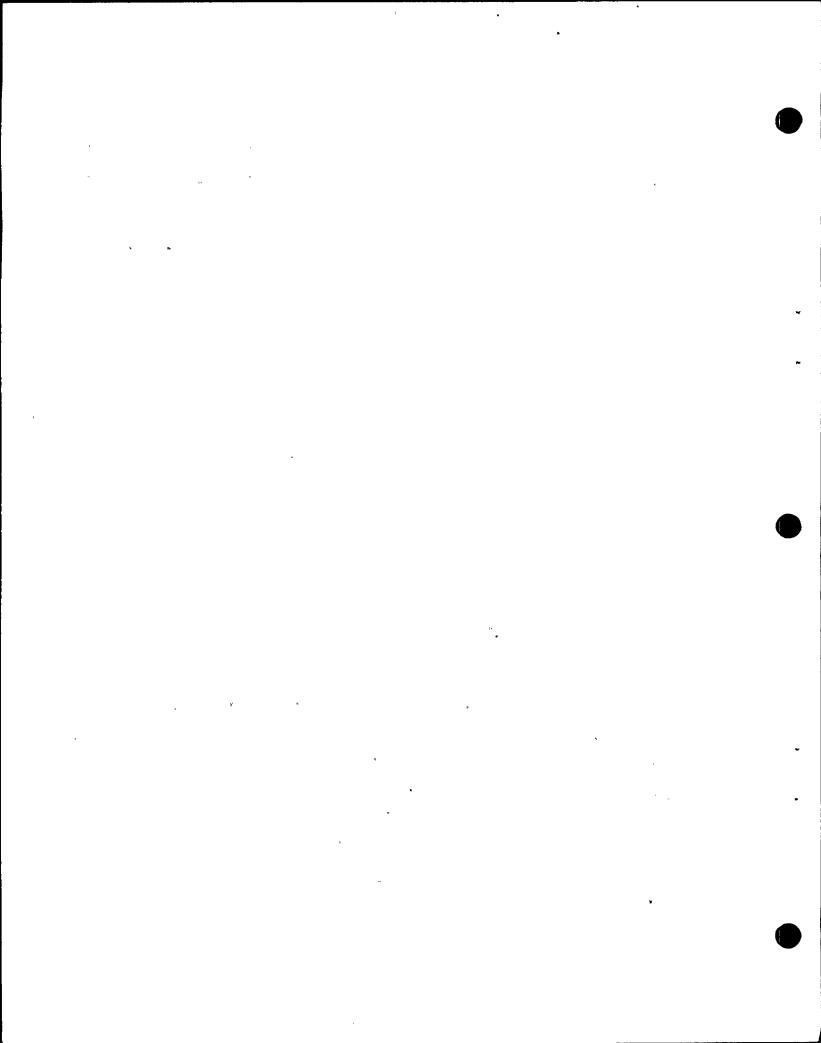
Q Well oxcuse me, Mr. Hubbard, that was a contention, however, that was ruled not in these proceedings, isn't that correct, in Los Angeles at a prehearing conference?

A I believe that's true.

Q All right. And you're not offering this for a contention that is not in question, are you?

A No. But I'm really responding to your question when you say do I have an opinion that some of these might be applicable, and my opinion is some of them might be applicable.

No, no, not might be applicable, Mr. Hubbard, I think you misunderstood my question, are applicable. This is an operating license proceeding, and we're interested in what is applicable not what might be. My question to you was what is.



24

25

Now it's a fact, is it not, that this Attachment D is just taken out of an article by someone and has acthing to do with Diablo Canyon specifically, wasn't intended to relate to Diablo Canyon, isn't that correct, Mr. Hubbard?

A It applies to nuclear power plants in general and to seismic risk, yes.

Q All right.

MR. NORTON: I think that's all the voir dire.

I have. I wanted to go over the attachments.

MRS. BOWERS: We don't yet have the motion.

MR. TOURTELLOTTE: I'm randy to make a motion
to strike.

MRS. BOWERS: Before you start that, Mr.

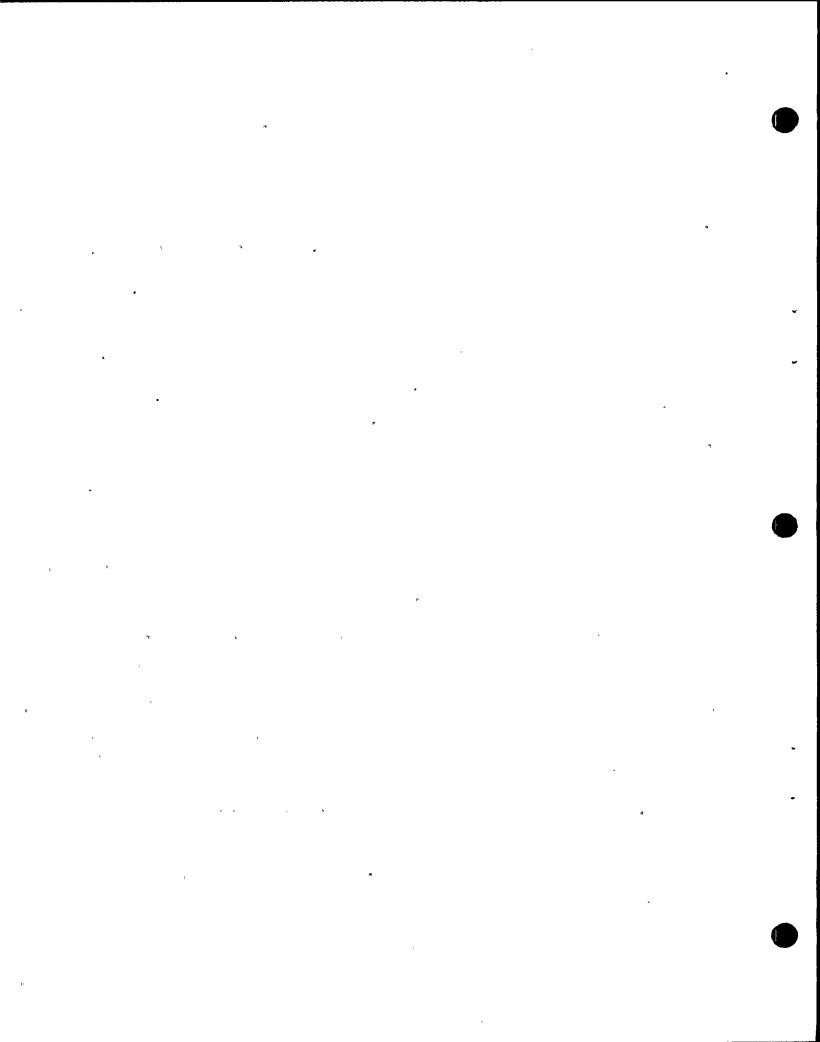
Tourtellotte, we would ask you to consider the testimony very carefully and to be as limited as possible in your motion to strike, recognizing the difficulty that Intervenors have in obtaining witnesses.

And if any part of this can be separated out so that you re not going in a broad stroke, we would appre-

MR. NORTON: Mrs. Bowers, before the motion is made, I have a problem with the last statement of the Board.

MRS. BOWERS: Well let me try to restate it.

We recognize that the testimony which has been marked Joint Intervenors' Number 65 deals with various matters.



3

4

5.

6

7.8

.9

10

1.1

12

1,3

14

15

16

1.7

18

19

20

21

22

23.

24

25

And our question is, if within these various matters there can be a distinguishing between what the witness has specific knowledge of and what he doesn't, we would like for that identification to be made, rather than just a — if that exists, rather than just a broad sweep of the whole thing, except the original qualification statement.

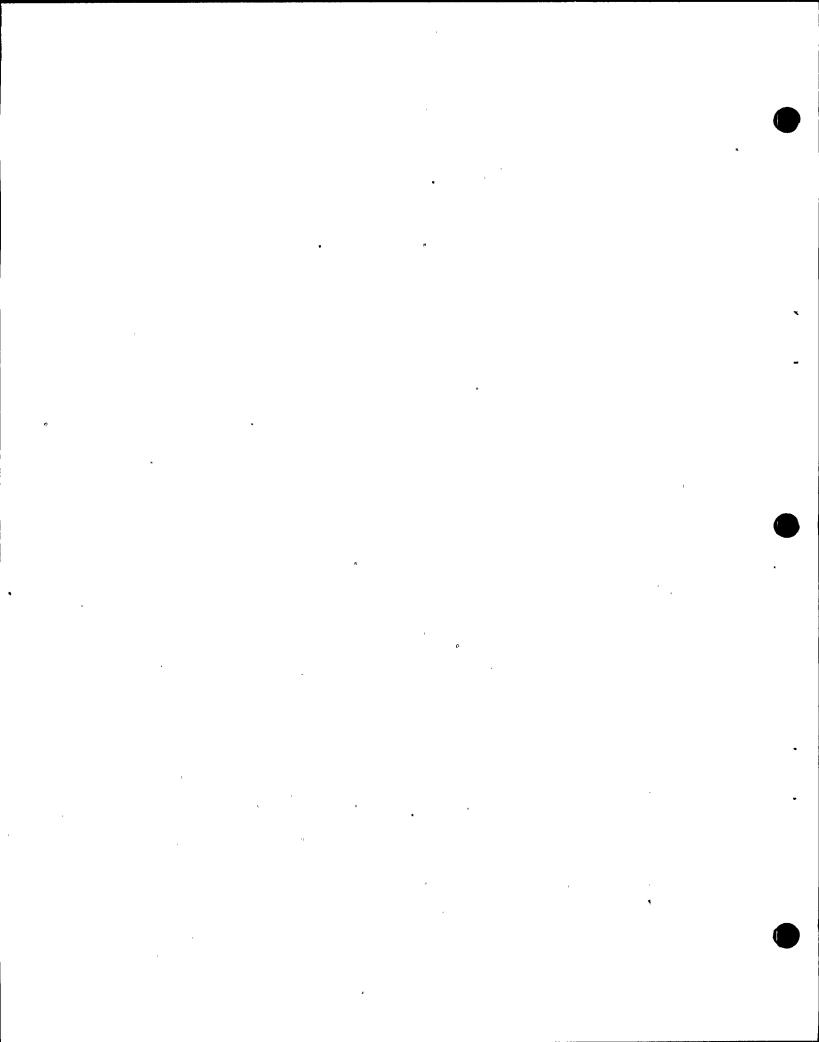
We're not saying that's true, we're just saying if that is correct, that some of the testimony is distinguishable from other testimony as far as this witness' expertise, we would like that identification.

Does that help?

the point.

MR. TOURTELLOTTE: Well, what I would first move to strike — I don't know if you want it on as broad terms or not, in light of what you just stated, but I would move to strike everything under 3.1 in Contention 4, from the first paragraph that starts: "General Design Criterion 2...," on Page 4-3, down through the last complete paragraph on Page 4-4, because it's all legal argument and that type of argument is better made by counsel in the findings, a statement of background.

And this witness is not a lawyer, he's talking about a general design criterion and quoting part of it --General Design Criterion 2 and quoting part of it, and also



representing what General Design Criterica 2 requires.

3 4

And he talks about Appendix A and cites that, and cites various parts of that, and then makes the statement, toward the bottom of 4-4 that:

"In addition to horizontal and vertical

5 õ

ground acceleration, the other factors which are

required to define the OBE include the corres-

8

ponding values of valocity, displacement and

.9

duration."

10

And that is a legal conclusion which would be

1.1

drawn from the regulations, whether it's required or not

12

required, and this witness is not in a position to make that

13

kind of a statement in the first place.

14

In the second place, the values of velocity,

. 1,5

displacement and duration may or may not be required, and

16

that sort of information is within the expertise of someone

1.7.

who is a mechanical or structural angineer. And I think it

18

has been clearly demonstrated this morning that this witness

proceeding, after you have identified the particular part of

the testimony within your motion to strike, to hear from the

.. 19:

possesses neither expertise.

other parties.

20,

21

22

23

Mr. Kristovich?

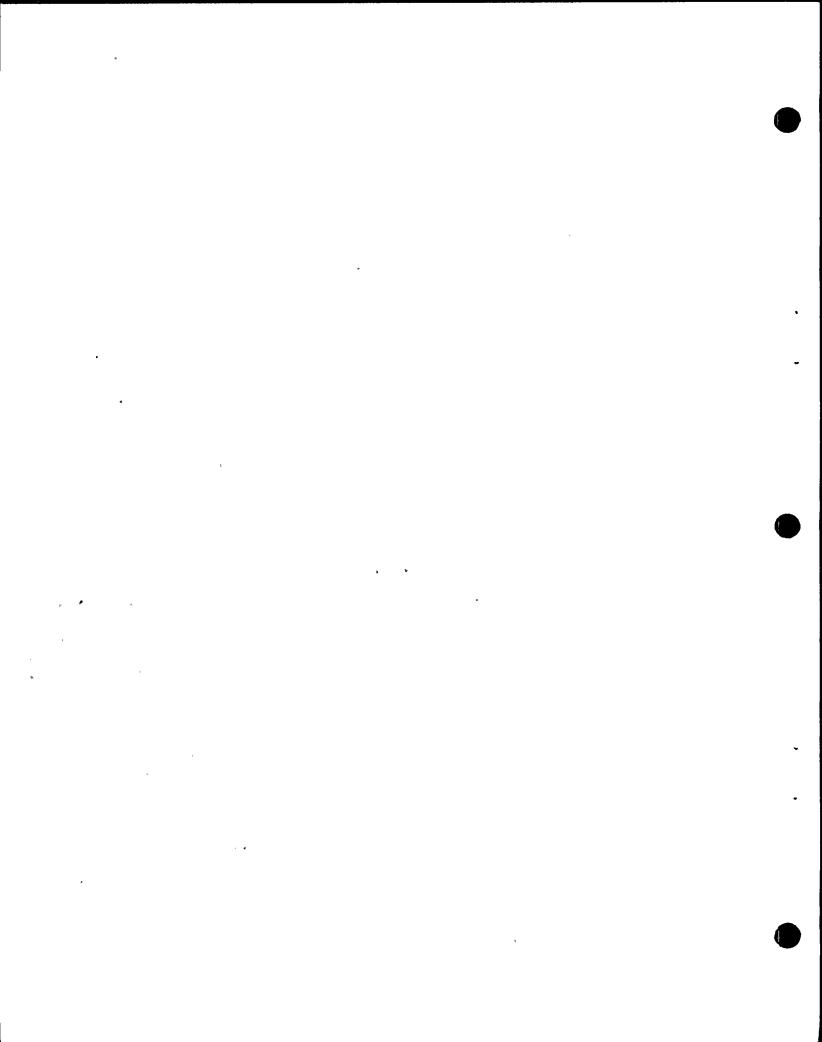
24.

MR. MORTON: Excuse me, Mrs. Bowars, I would like

MRS. BOWERS: It appears it might be a mora orderly

nite in Morn and application in the first first and parameter of a state of the fifty

25



WRB/agb9

2

3

4

5

ŝ

4

્8.

è

10

1.1.

12.

13,

14

15.

16

17.

18:

\*\*

20.

21,

22

.23%

24.

25

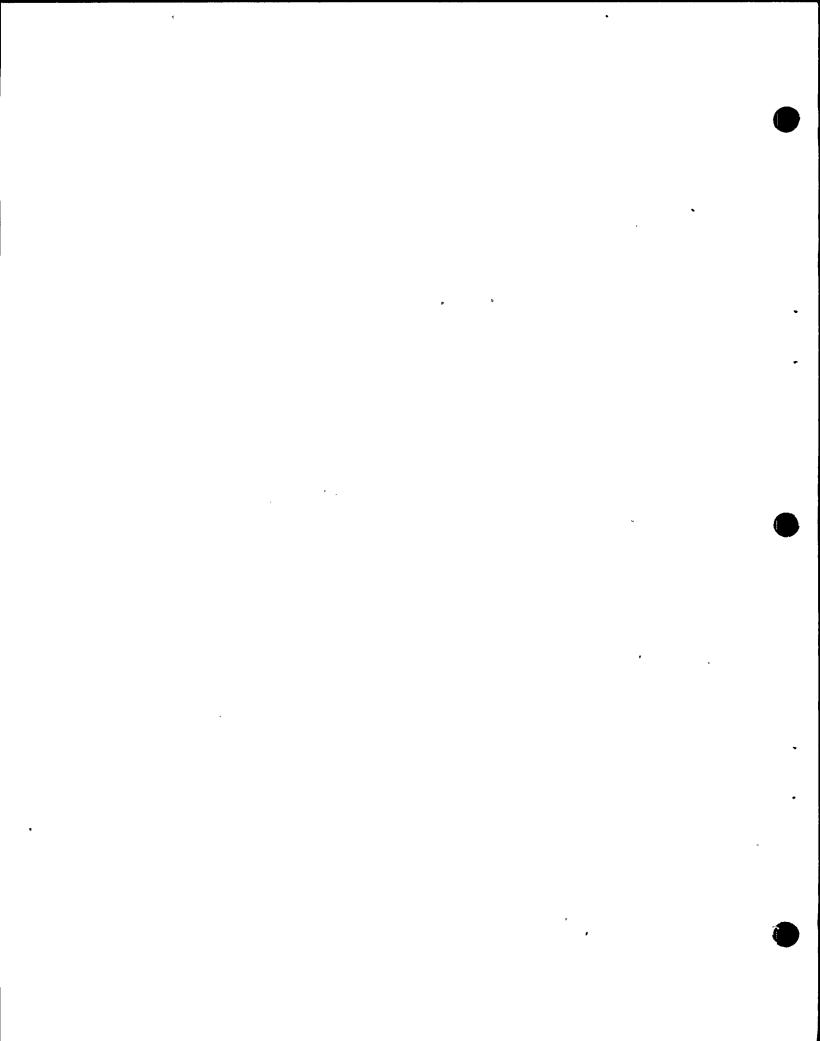
to add one other thing as to a way to proceed, or suggest, and that is that we have a basic argument or a basic basis for the motion to strike, and that is that it amounts to legal argument.

And I think that we shouldn't have to argue that legal argument each and every time we come to a piece of testimony that we say falls in that category, and perhaps we could best proceed — because, for example, if it is the Board's ruling that legal argument by an expert witness is okay, then there's no sense of us arguing it each time for each piece of testimony, if you see what I mean.

Perhaps we could proceed to argue that aspect now also, and get a ruling from the Board, and that may save some time. Then later on in the testimony, the only argument would be whether or not it is a legal argument but we wouldn't have to go through the three of us talking two or three times apiece arguing the matter as to whether or not that's a basis for striking it.

DR. MARTIN: Could you identify for me, again, which part is a legal argument?

MR. TOURTELLOTTE: It starts with the statement about General Design Criterion 2, and a recitation of a part of that and then citation of Appendix A and recitations of various parts of that, and winds up with the conclusion based upon, solely upon lagal information, that is, information which



WRB/agb10

2

3

6

**,7** 

٠ä.

.**9**,

۲̈O,..

147

12.

13:

14

15

16

is in the regulations, and comes up with the conclusion that's stated at the bottom of 4-4.

Consequently, all of that is part of a legal argument which he makes at the bottom of 4-4, which is that these regulations require something — that these criterion require something and it requires it legally, it's not that it requires it technically. In the first place, it is that it requires it legally.

I also made the comment, however, that even if you were to consider that it may be a quasi-technical argument in that he's saying that the OBE should include the values of velocity, displacement and duration, that is a kind of a judgment that is made by a structural or mechanical engineer, and which I believe I've clearly demonstrated that is not within the expertise of this witness.

Now if you would like to hear, as a preliminary matter, what I feel demonstrated that he is not an expert in these fields, I'd be happy to go through my examination, what would help lay some foundation too.

C5

19

18

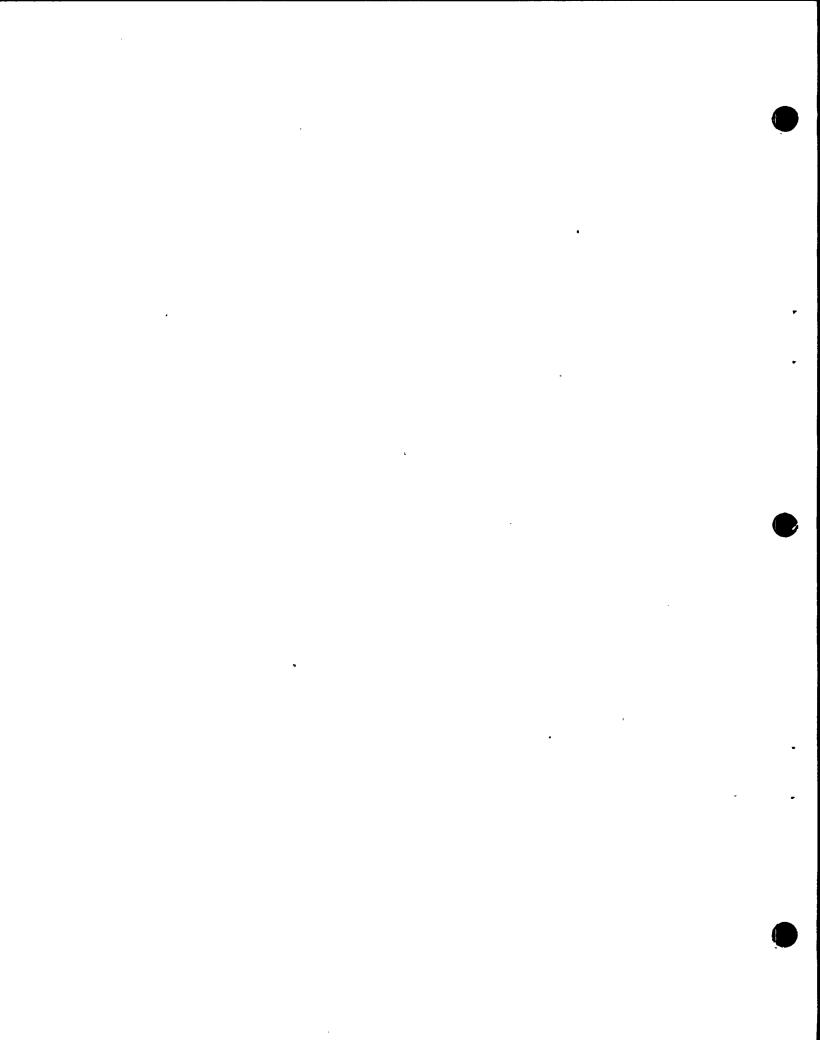
20

**7**44

つつ

23

24



•

MRS. RCWERS: Well, I think you should, because we don't have the full argument in front of us.

I just want to raise a point here. I was in another proceeding a year or so ago, and a technical witness representing the Applicant in that proceeding was asked questions about the requirements of the Water Act, and every question he was asked, he responded, "That's a legal question," I can't enswer that," even though he was asked about the technical requirements of the Water Act.

So it's a fine line.

DR. MARTIN: You're not arguing that Appendix A to 10 CFR Part 50 doesn't require something?

MR. TOURTELLOTTE: No, but understand that
Appendix A says whatever it says, and that sort of information
does not need to be introduced into the record by a witness.

That sort of information can easily be cited by the attorney
himself in making his proposed findings, or making whatever
kind of motion that he would ordinarily make.

regulations require? Do they have a lawyer advising them as to what the regulations mean?

MR: TOURTELLOTTE: Well, frequently they do, yes.

DR. MARTIN: So they can't start doing their engineering until some lawyer tells them what they have to do?

MR. TOURTELLOTTE: Well, basically it's a

,

**D**,

6 7

8

9

10

11

1,2 1,3

14

15

16

17

18

,19

20

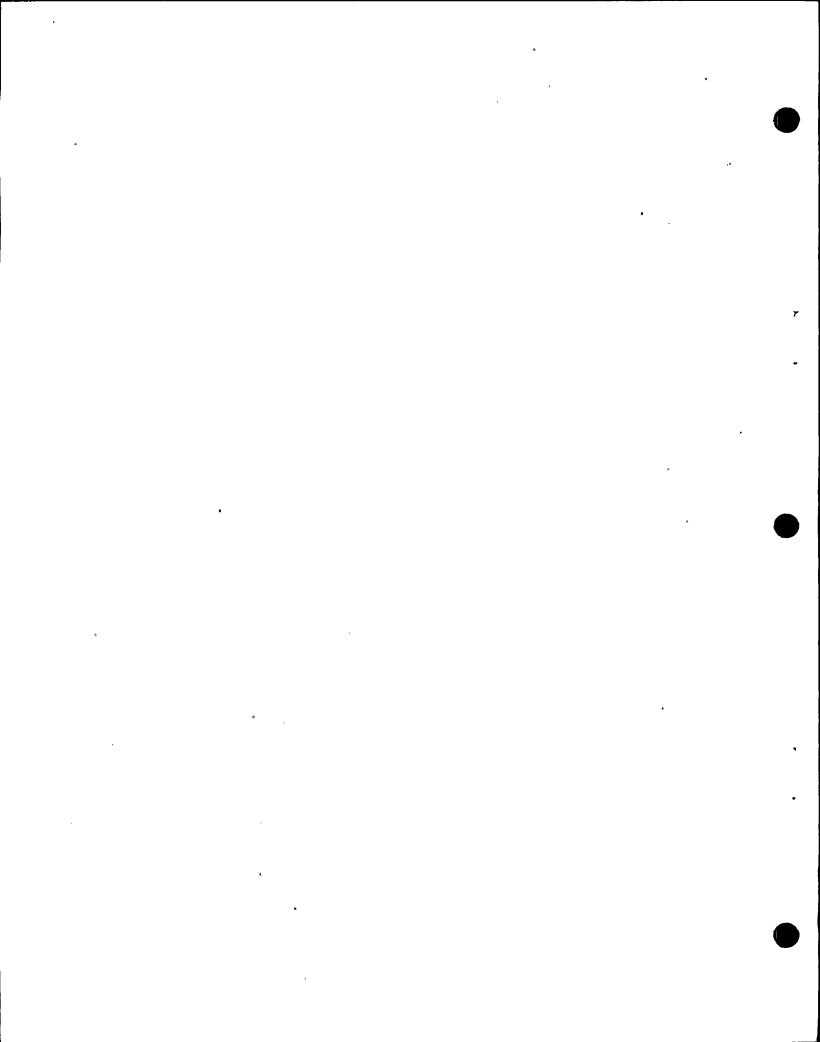
21

22

\_\_

23

24



-7

5: 

ខ

12.

, 4

regulatory process, or even in an industrial process, I guess, process in the industry, is that a company or the government figures out exactly how they want to proceed with problems, and that is usually agreed upon by technical people, and is put into words with the assistance of attorneys.

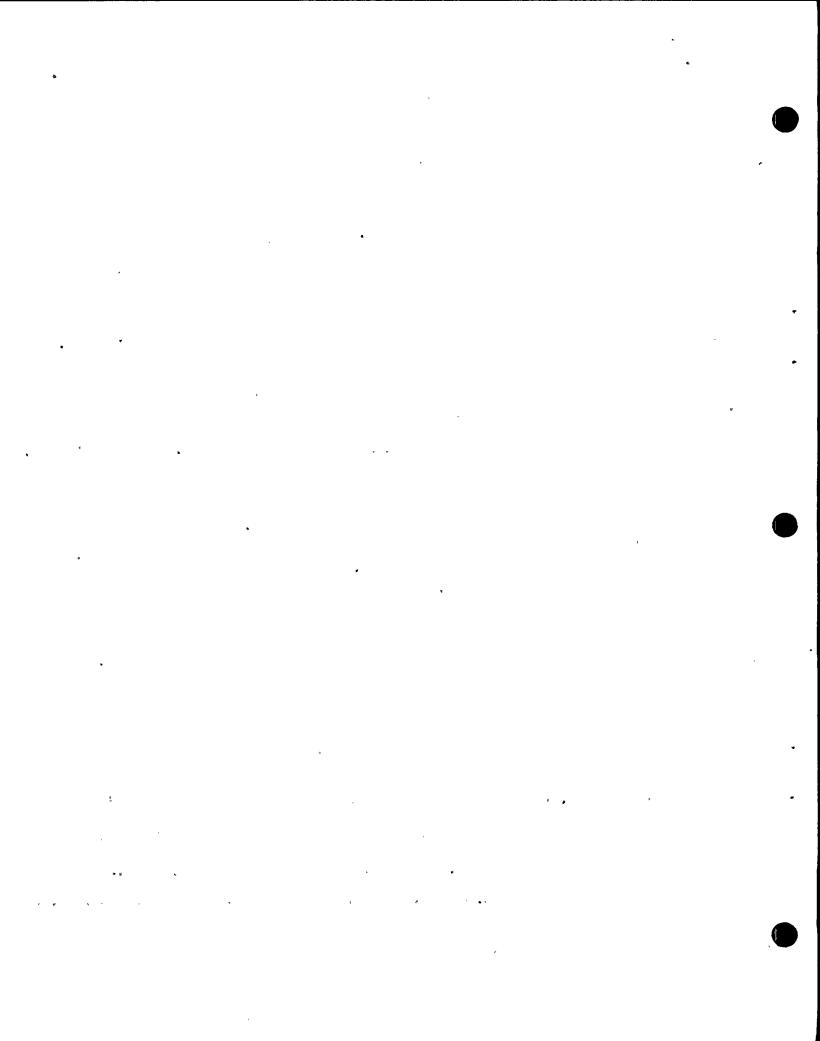
And in the case of the government, those words find their way into the regulations which are drafted by attorneys, and they also find their way into things like various design criteria which are drafted by attorneys with technical assistance.

And then presumably as the technical people put these various tools to work, they make reference to those matters and they do some interpretation. Sometimes they need the help of attorneys to interpret, and sometimes they don't.

But that is not really what is at issue here.

What is at issue here is that the only thing that is being presented here is a sort of list of citations which are legal citations, and a conclusion is being drawn on that the chasis.

This witness is not offering up a series of regulations and saying that he did some kind of a study, or that he read some kind of a paper, or that he has some kind of an opinion based upon some individual analysis. He is telling the Board that this is what the law is, and you'd better follow the law. And that isn't within his expertise,



and even if it were in his expertise he should be writing that in a final brief, and not as a part of testimony.

MR. KRISTOVICH: Mrs. Bowers --

DR. MARTIN: You're arguing that only the Staff and Applicant can go through this process of studying the regulations and deciding what's required, and that nobody else can form opinions?

MR. TOURTELLOTTE: Not at all, no. Not at all.

What I am saying is that if there is to be a

presentation by a witness, it doesn't make any difference

whether it's a Staff witness, the Applicant's witness, or

the Intervenors' witness, if it's a technical witness it has

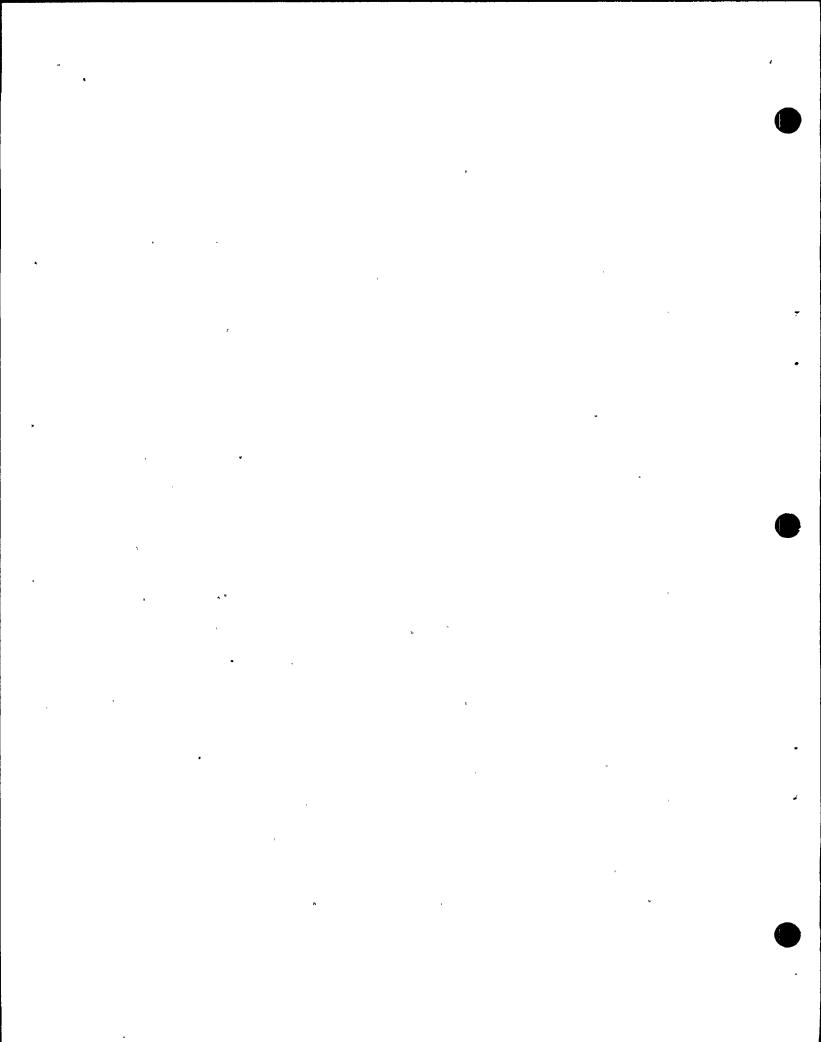
to be technical information that he's providing. He doesn't

provide legal input into the process, he provides technical
input into the process.

And while it's satisfactory to make some reference to a regulation for the purpose of demonstrating how he went about his own analysis from a technical stand-point, and what he did technically, what tests he performed, or were not performed, or what analysis he made of tests that were performed or not performed, and why that analysis is inconsistent with the requirements or standards that are set out in the rules and regulations, that's quite all right.

But that isn't what happened here. What happened here is that he citas a series of what might be considered

11.



•

<u> 32</u>

..19

legal or quasi-legal requirements, and they may or may not be legal requirements, and then he makes a conclusion about what those things say. He's not making a conclusion about any tests that were run. He's not making conclusions about anything that he did or any empirical study that he made. He's making a conclusion about what the law is. And he can't do that.

It takes something more than what he has done so far. I'm not saying that in all cases he could not make reference to the regulations. He can make reference to the regulations. But he has to make reference to the regulations to give a framework for his own technical analysis. And that isn't what he did here.

MR. KRISTOVICH: Mrs. Bowers, may I say something?

I think that's exactly what Mr. Hubbard is doing

nere. I think you're wrong, Mr. Tourtellotte.

I'd like to refer you to the Indian Point Units

2 and 3 case, where the Appeals Board was sitting as a finder

of fact in the seismic show-cause hearing, and at that time.

the Appeals Board recognized that these types of hearings

are highly technical, and they involve mixed questions of

law and fact, and that witnesses can give opinions whether

certain regulations were met.

Secondly, this section is entitled, "Background."

Mr. Hubbard is merely quoting from the regulations and

• -4 .

paraphrasing them. He is entitled to do that.

3

4

8

9

10

ដ

12

13

14

15

16

17

18

20

21

22

23

24

25

Applicant, when it put on its witnesses, had statements in their testimony -- such as in Mr. Esselman's and Young's testimony regarding electrical aguipment and instrumentation, on the first page of their written testimony lines 14 and 15, state:

> "This seismic qualification program and associated activities meet the applicable requirements of 10 CFR 50 and 10 CFR 100."

Based on what the Appeals Board said in Indian Point Units 2 and 3 that's appropriate. Witnesses can give an opinion as to whether certain regulations are met. Fir. . . Hubbard is merely reciting the regulations, quoting them directly and paraphrasing them.

With regard to this conclusion you say he reaches at the bottom of page 4-4, I believe that comes directly from the regulations, and that's what Mr. Hubbard is saying. I can ask him that if I'm entitled to do my direct examinaion now, and ask him what the basis of that statement is.

But basically what I'm saying is that this is entirely appropriate. The Appeals Board has said so. just don't understand what the problem is.

> MR. NORTON: Mrs. Bowers, may I respond? MRS. BOWERS: Yes.

MR. NORTON: The problem, as I see it, is that

	1			
		·		
				ß
			Ų	
	•			
		•		
•				
		•		
, ,				
				_
		•		_
-				
*				
	1			
-				
	la pa			
•				
			1	
	4			
4				
	•			
	•			
μ				
*		• •		
			4	ø
			<b>U</b>	
			%	

4 5

13·

22.

25.

a technical or an expert witness is supposed to assist the Board in understanding matters that are generally outside the Board's area of expertise, although the Boards in the Nuclear Regulatory Commission cases usually have a great deal more expertise than a lot of boards or judges, for example.

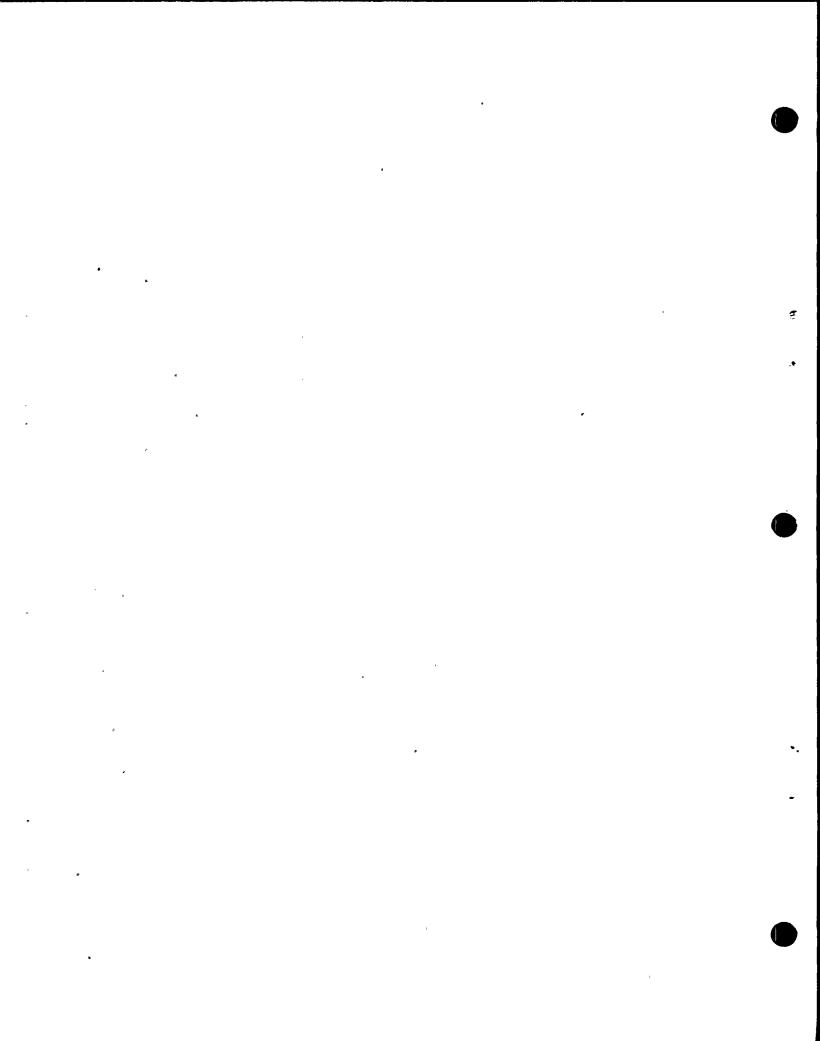
Judges very rarely have expertise in complicated areas they hear, and they also are to assist juries.

Well, in this case the finder of fact, the ultimate finder of fact, is this Board, and it's both a judge and a jury, and it must determine, based on the evidence presented, whether or not to grant an operating license.

I think Mr. Kristovich is partially right. I think it certainly is within the province of an expert witness to say that a regulation requires scmething. For example, if you have a structural engineer and have a regulation or a code dealing with structural engineering, it's certainly within the province of that witness to say that the code or the regulation requires something from an engineering standpoint.

However, the problem we have here is that Mr.
Hubbard I think has very amply demonstrated that he is not.
a qualified expert witness in the area of structural and
mechanical engineering, which is what OBE deals with.

What he has done is he has made an argument as



a matter of fact that if I were Mr. Fleischaker or Mr. Kristovich I suspect that my proposed findings of fact would include much of this background testimony that's listed here as a basis for proposed findings.

The problem is that it becomes very circular.

What we have is a witness who really isn't qualified -- he's not a structural or mechanical engineer -- taking regulations which supposedly structural and mechanical engineers understand and supposedly lawyers can argue about, and he's neither a lawyer nor a structural or mechanical engineer, and he gives the Board his interpretation of what he says they mean.

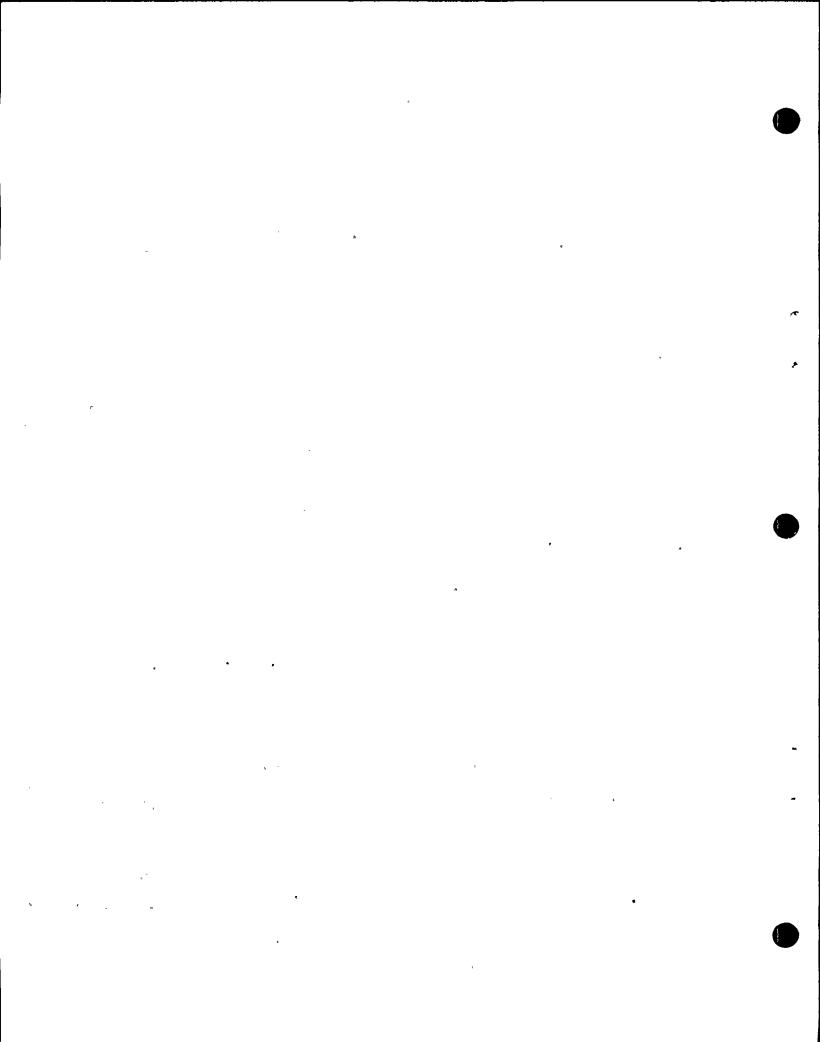
Then, along comes the attorney for Intervenors in his proposed findings of fact, and says, "See, this is what they mean. It's in evidence. It's in the record. It's evidence that this is what these statutes mean. So therefore you must find X, Y or Z."

And that's the problem.

regulation "X" required "Y."" But he's not qualified as an expert to make that judgment, nor does he have the license of a lawyer to make that judgment.

We're not qualified either, but we have a license to make the argument.

(Laughter.)



There's been a lot of kidding going on back and forth about, "Well, that's testimony. The lawyer is making testimony." Well, the lawyer is not making testimony.

Lawyers don't testify. They sound like they do, they think they do, but they don't. They're arguing. They're not testifying. What a lawyer says is not in evidence. It's not a fact that this Board can rely on in findings.

Mr. Hubbard shouldn't be allowed to make an argument, though, where he's not qualified to make that argument, in that legal argument.

I would agree with Mr. Kristovich that it is a mixed question of fact and law that is stated in here.

The problem is he's not qualified to do that.

MR. KRISTOVICH: May I respond to that?
MRS. BOWERS: Yes.

MR. KRESTOVICH: First of all, I don't think you have to be a structural engineer to make the statements Mr. Hubbard makes on pages 4-3 and 4-4.

He has been under contract to the Swedish Government, the German Government, regarding risk assessment of nuclear power plants.

He has testified before Senate committees.

He was aquality assurance engineer for General
Electric.

· h • • • • • • . . , . 

2

He was a manager of application engineering for General Electric.

J

He has dealt with regulations and codes.

4

He has experience with them.

6

Think he's perfectly well qualified to go through these regulations which he refers to on pages 4-3 and 4-4 and make the statements he makes. He is merely quoting

7 .

from and paraphrasing the codes.

Э

MR. NORTON: Mrs. Bowers, I didn't realize Mr.

10

Kristovich was going to argue about the qualifications, but

11

I think the example of the Stevenson paper shows very, very

12

clearly that Mr. Hubbard doesn't understand the basis for

13

these decisions that are made and the workings of the code,

14

and OBE -- doesn't understand it at all, doesn't even under-

15

stand the definition of the basic terms involved, the basic.

16

formulas involved.

expertise.

17

Sure, he can read. I can read. Anybody can

18

read, and argue about what they think these regulations mean.

. . 20 But you have to have the background to have that thought

warrant this Board's consideration. You've got to have the

21

22

MR. KRISTCVICH: Mrs. Bowers, I believe Mr.

23

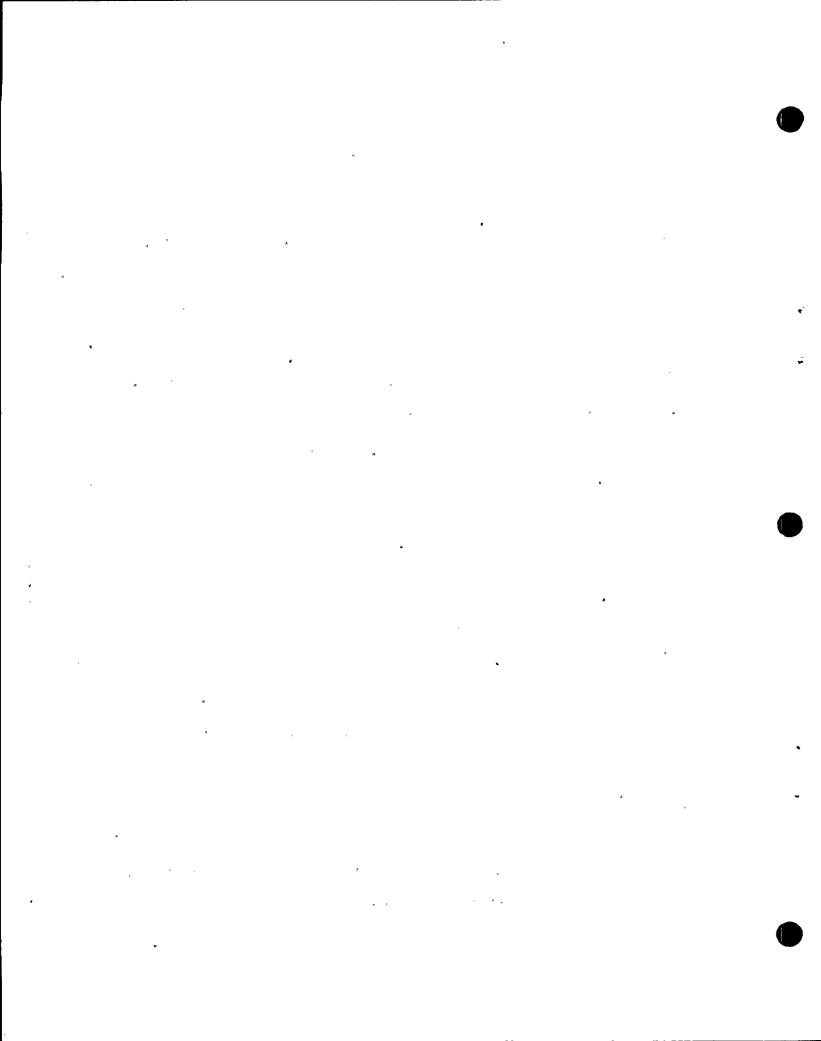
Hubbard does have the expertise. He does have professional

24

experience as a systems analysis. He has done work on risk

25

assessment of nuclear power plants. He has worked with



regulations and codes.

2

MR. TOURTELLOTTE: As the proponent of the motion, I suppose I get to speak last.

3 4

MRS. BOWERS: Go ahead.

6

7

8

MR. TOURTELLOTTE: Well, I believe in one respect that we're not in disagreement, because what Mr. Kristovich did was to cite an example where semeone who was a technical person referred to a requirement, or some requirements, of the regulations as the kind of standard that they used to

9 10

measure what they did technically.

11

The problem that we have here is Mr. Rubbard has not demonstrated, either by his resume, and certainly not by

12 13

the voir dire, that he has any expertise in the areas of

14

mechanical or structural engineering in order to make any

15

kind of assessment at all, in the first place.

16

you don't have to be a structural or mechanical engineer to

17 18

make the kind of observations that are made on these pages

that we're talking about. - And I agree with that; too:

20

You can be a lawyer and make that kind of a

In the second place, Mr. Kristovich has said that

21

representation. As a matter of fact, I think Mr. Norton was

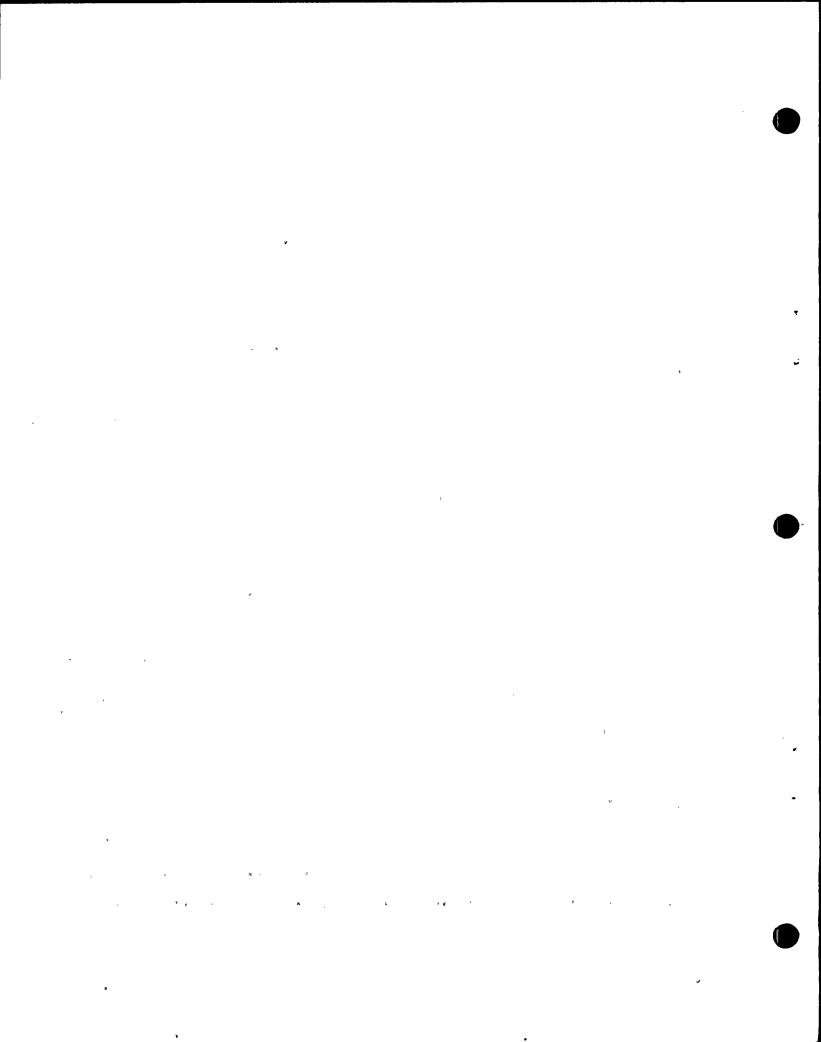
absolutely correct in saying that if they want to include this

23

in their legal argument to the Board, they may do so.

24

But the problem that we have is that -- also as Mr. Norton pointed out -- is that if this is allowed in



IJ

evidence, then we're put in the position that we have to figure out some way to come up with some kind of rebuttal testimony for a legal argument. And it really puts us in an absurd position.

We should not have to do that. I have no problem with the use of regulations to demonstrate what a standard is for making some sort of empirical analysis or some scientific analysis, but I do have difficulty in presenting legal materials solely for the purpose of drawing legal conclusions. And it appears to me that's what has been done here.

Perhaps before we go any further I should make some indication on the record of what I think my voir dize showed this morning.

I inquired as to whother Mr. Hubbard was an expert in the areas of geology, seismology, structural engineering and mechanical engineering. The general answer that he gave me was that, no, he's not an expert. He has some understanding of what goes on in those things, and he's read some things, but he's not really an expert in any of those areas.

In delving into exactly what degree of expertise he did have, we found that he didn't know the basic meaning of fundamental formulas that are used in mechanical and structural engineering. He didn't know what the load

. . • .  ĩ

combination formula meant.

2

3

5

5

Ee did not know what the basis for the numbers WAB'.

Δ

He said that he thought stress was mentioned in the statement, and that it was 1.4 D, although he wasn't suro, when, in fact, strees is not meaticaed in that statement.

7

8

I can only say that I can make an offer of proof to demonstrate that it is not in that statement.

9 10

He could not describe how a structural engineer would use the information derived in that statement,

12

11

1.4 D + 1.7 L + 1.9 E.

13

He could not describe how a structural engineer would use that information in calculating the stress in a structural element.

15

14

And yet, again, I can offer -- make an offer of proof that anyone who is in the structural engineering business can tell you that right off the top of their head. they, don't have to licok at a books a may make he was post

16 17

·19:

18

20

21

22

23

24

25

us that he thought that one part of the article S sub ALL equals 1.55 sub M, was equation 9, or maybe part of equation 9. In fact, it was not equation 9. And any machanical engineer can tell you that it isn't equation 9.

When I gave him equation 9, he didn't really know

In examining Mr. Stevenson's article, he told

21.

what types of stress were considered in it. And yet a machanical engineer can tell you those sorts of things.

He couldn't define primary stress. He couldn't define secondary stress. And yet a mechanical engineer can tell you what those things are.

He couldn't give examples of load conditions that:

produced primary or secondary stress, but mechanical

engineers can tell you that.

In piping, he said that he wasn't really sure whether primary or secondary stresses were produced by earthquakes, but he thought maybe it was secondary -- when in fact it's both. And a mechanical engineer can tell you that.

As a matter of fact, some seismologists and geologists can tell you that.

He's never used equation 9 in performing any kind of an analysis, and yet he's talking about the CEE and the significance of the OBE.

equation has been given to him, he doesn't know where in equation 9 it considers earthquakes loads.

about S sub S equals 1.5 S sub M minus 0.1 S minus 0.5 S sub M equals 0.9 S sub M. He didn't really understand that.

And he didn't understand that those figures were assumed by

• • N. 

Stevenson. He didn't know.

\_

how it varies.

19.

He couldn't define bending stress.

He couldn't define membrane stress.

And yet there are formulas for both of those that

He couldn't describe what shakedown means as

applied to piping. Any mechanical engineer can tell you that.

mechanical engineers know.

He couldn't say whether bending stress is considered across the cross-section of a structural element.

He didn't know how to compute bonding stress.

And he didn't know what the assumptions were in

I asked a quastion which seemed like a fairly desy question, whether yield is equivalent to failure. He said that he didn't know, but he thought maybe in certain cases where a structure was very brittle that it might. He's wrong about that.

structures, and that is a fundamental matter of knowledge to structural and mechanical engineers.

He did not know how to draw a typical floor recoponse spactrum curve, although he said that generally he thought that the maximum floor accoleration would be at the peak of that curve, when in fact it is at the foot of the

curve.

2

3,

6

7

And he didn't know how to use maximum floor acceleration to analyze the design of a normal piping system. And yet we've got this entire amount of testimony that's telling us about OBEs and about the significance of what: action has been taken by people who are qualified and who do know all of these things.

Re's making some critical analysis of what actions And it is just simply absurd for the Board thoy have taken. or anyone also to take what he says as having any validity at, a11.

..... I think Mr. Norton cortainly hit the nail on the head when he said that the purpose of an expert in appearing in this proceeding, or any other proceeding, whether it's an administrative proceeding or in a court, the purpose of a expert witness is to aid the court in understanding difficult technical facts.

And Mr. Hubbard, in the first instance, has not really done any kind of an analysis or presented any kind of an analysis of technical facts that would give the Board any kind of an understanding that it couldn't get by reading the same, regulations and putting the same regulations together,

Consequently, his purpose for being here is not really serving the interests of the Foord or serving the interests of the administrative process.

10

9

11

13

14 15.

16

17

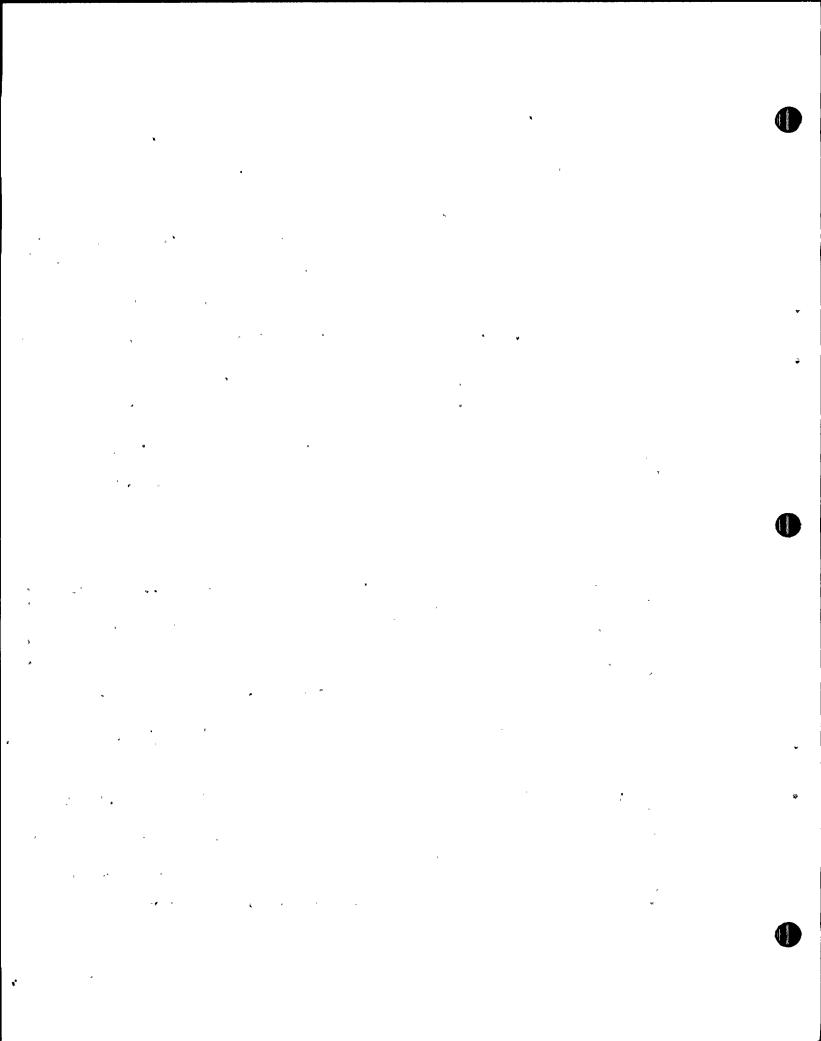
18

20

21

23

24



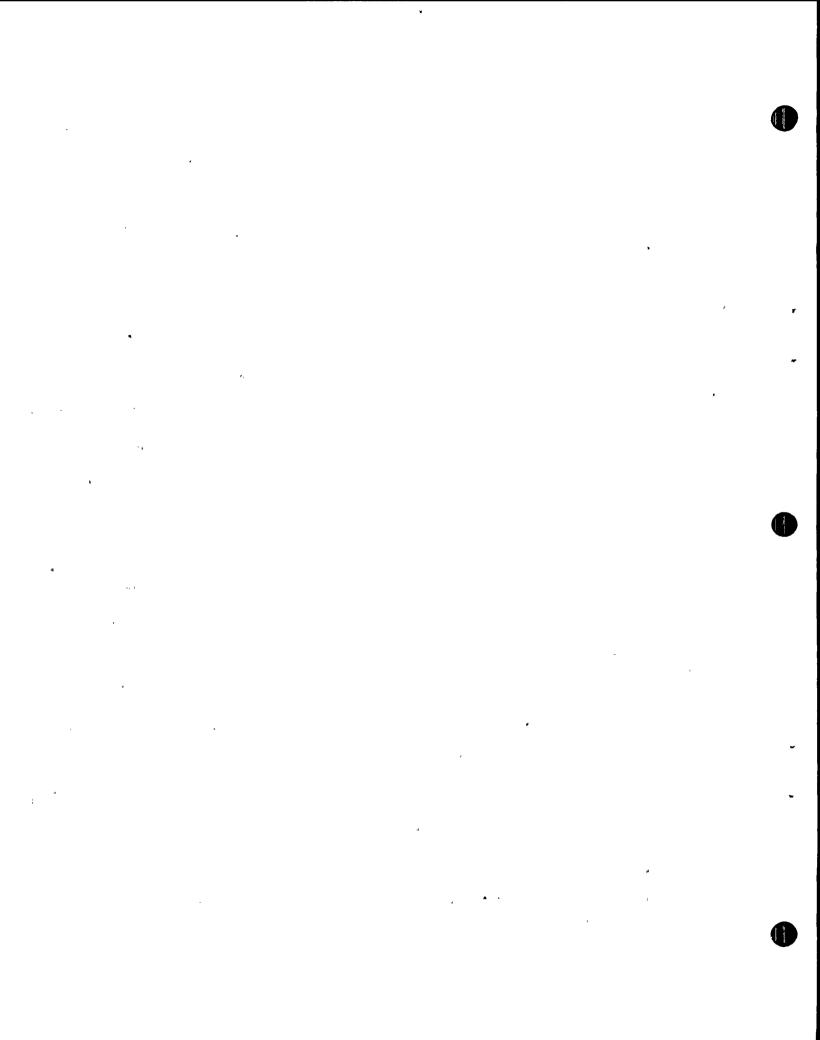
. 22:

The matter of requirements for an empert witness, and the value of expert witnesses, was decided by this Board in a collateral matter concerning security. But the basic principles of law involved are the same here as they were there. That is that the empert is not here just for adversary proceedings, or to represent same different point of view. The purpose is to represent whatever point of view that empert has in such a manner as to shed light upon the technical facts that are before the Board.

That has not bean done.

I would also like to say that while the Staff understands the difficulty of Intervenors in obtaining witnesses, that really doesn't excuse the Intervenors, or anyone else, from presenting witnesses that are qualified to testify about the matters which they are offered up for. In this case, Mr. Bubbard simply doesn't have the expertise has ease, Mr. Bubbard simply doesn't have the expertise

allow witnesses to come in and sort of summarily wave our hands and say we're going to allow the testimony in for whatever weight it has, if it has no weight why in the first place can't the Board just make that decision upon a review of the testimony and discard it in the beginning, because if it is not discarded in the beginning when it requires the other parties to face the issue of whether they must get



2

3

4

5.

6

7

8

9

10

13

12 13

14

15

16

17

18

19.

20

21

22

23

24

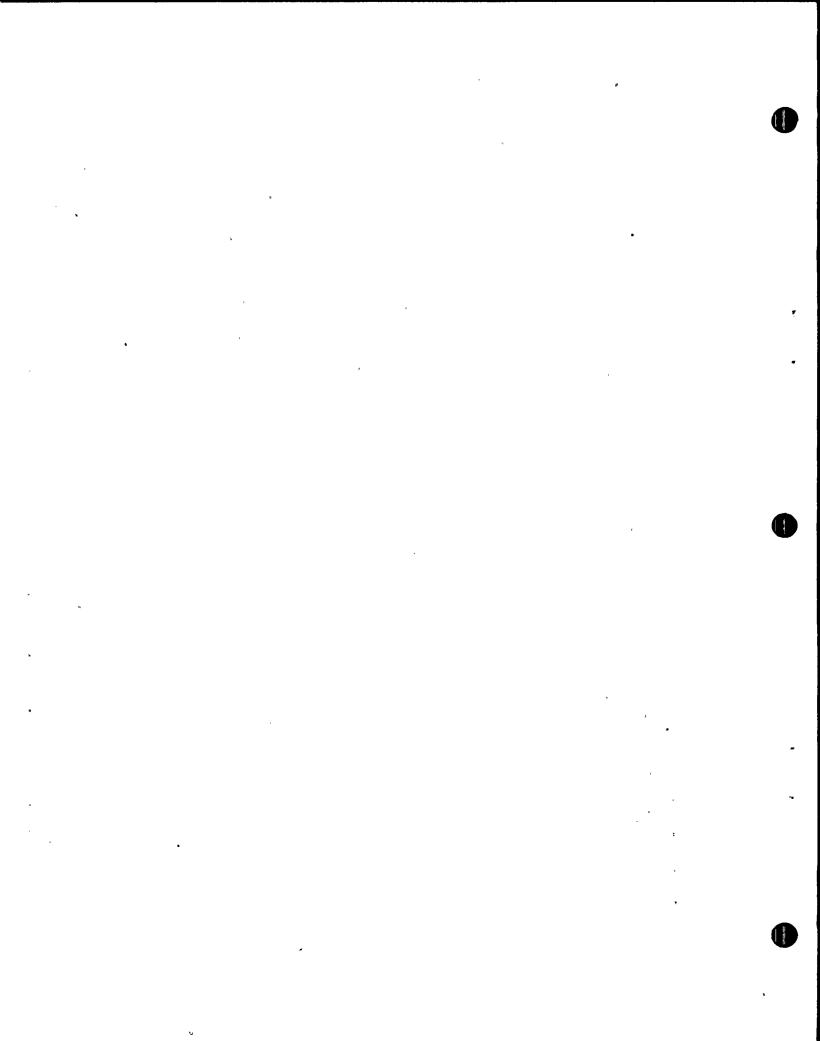
25

together rebuttel testimeny. And it seems a little bit unfair to require other parties to rebut testimony which has no weight in the first place, but which has to be rebutted bacause it puts the other parties in a position of not knowing . how much weight the Board is going to give that testimony.

Another thing I think that's an important policy consideration is that if an individual is allowed to testify as an expect in a proveeding of this sort, it puts that individual -- even though very little weight is given to the testimony -- it gives that person, who does not possess the necessary qualifications of an expert, the opportunity to bootstrap themselves up, or hoist themselves by their own; petard, in regard to gaining expertise. possible that if we continue to allow Mr. Hubbard to testif or to offer up testimony on structural engineering and mechanical engineering, even though he's no expert, and even though the Board discards it as being relatively weig tacss. after he's done this 10 or 12 times then he will use that he can use that as an argument that he has gained expertise because he's testified 10 or 11 times.

If that argument sounds a little bit unreasonable, you only need to consider what happened in the security case where pracisely the same factor was used.

So that I guess in the final analysis what I'm saying is that there has not been an adequate statement of



4701 18

f

. .

ઈ

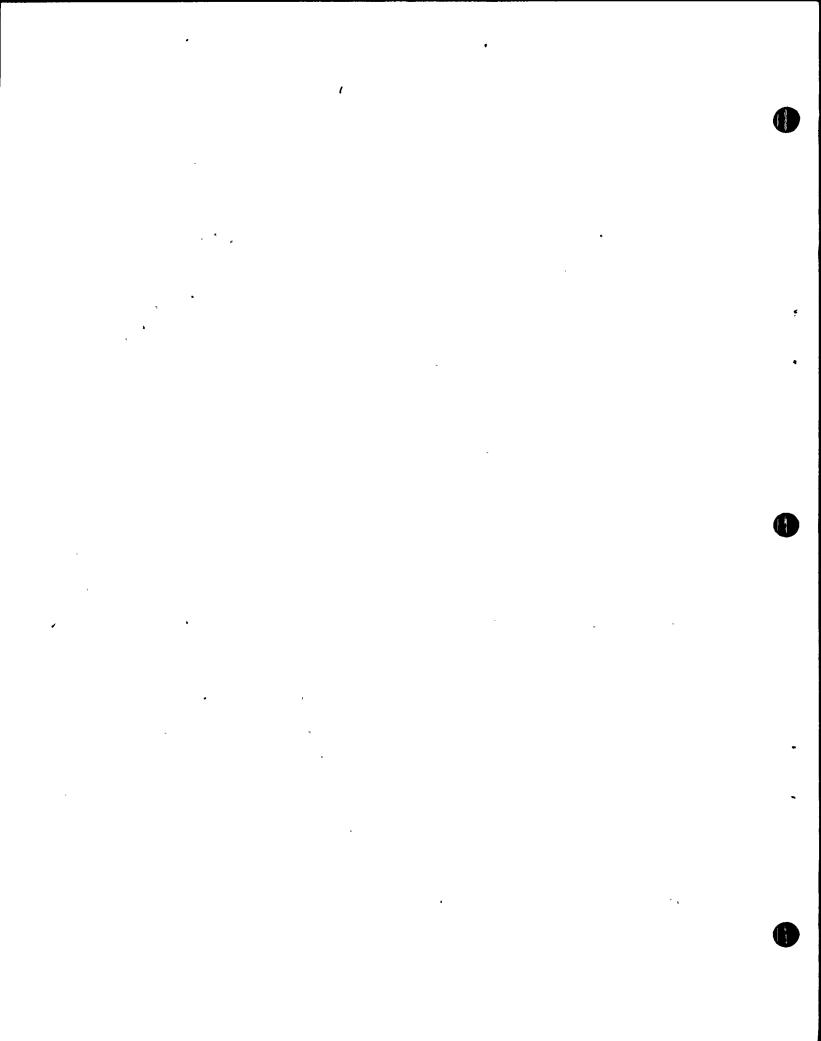
B fls 9

. 15

24.

expertise in this instance which would allow this witness to make the kind of observations that he's making in his testimony, and that the Board should take immediate action to discard as much of the testimony as is necessary to make sure that the record is not overburdened with weightless material.

MRS. BOWERS: Well, very briefly, because the movant has a right to be heard --



MADELON 1 c6 mpbl 2 flws WEL2

3

4

· 5: 5

7

8

9

10.

11

13

14

15

16

17

18

19:

20

21

23

24

25

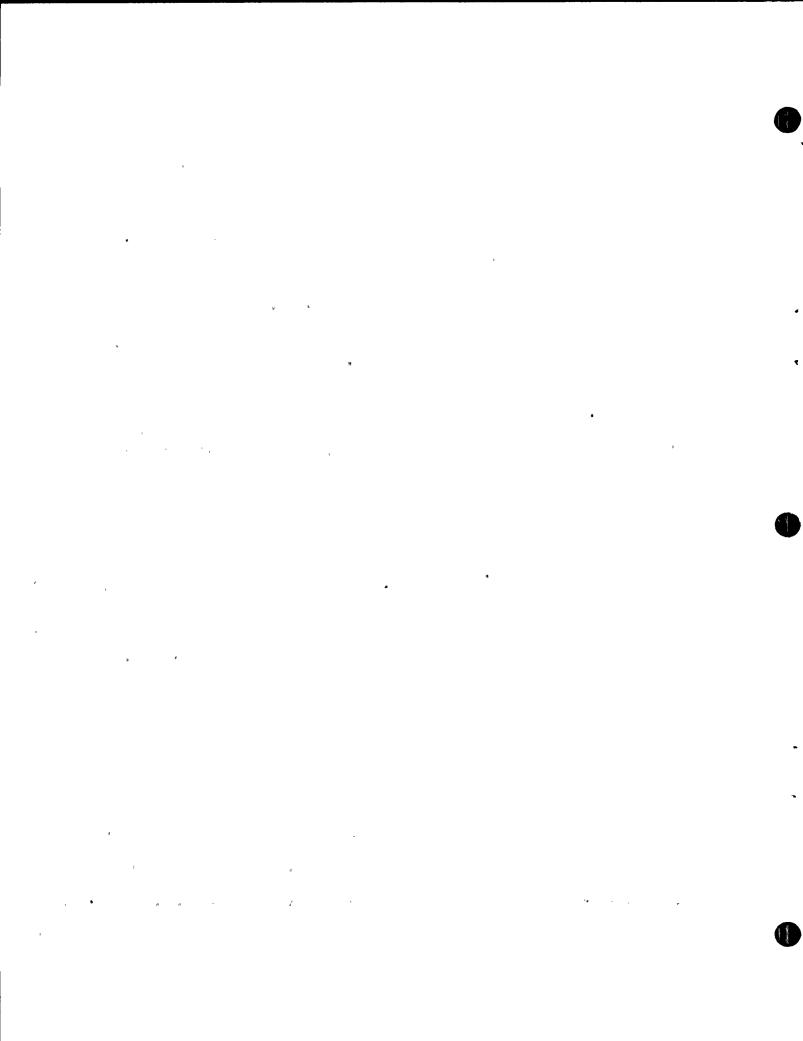
But there's a motion pending now, and the proper

MR. KRISTOVICH: I would like to respond to Mr. Tourtellotte's testimony on what is fundamental for structural. and mechanical engineers to know. And I would like to say that Mr. Hubbard is qualified to make the statements he has made here based on his background as a Quality Assurance engineer, manager of application engineering, his professional experience doing risk assessments at nuclear plants for the Swedish and German governments, and his testimony before various U.S. government bodies.

If anything, the statement should be admitted; maybe Mr. Tourtellotte is right, it goes to the weight of the evidence. But I believe Mr. Rubbard has the professional experience and training to make the statements he does. I would like to ask him some questions about the basis for making these statements, what his professional experience and training - how they give him a basis for making these statements.

MR. NORTON: Excuse me. Mrs. Bowers.

I don't believe that's proper. There's a motion to strike pending, and that should be ruled on. ruled against - I hate to tell Mr. Kristovich how to do his job, but if the ruling goes against him, then he's free to do anything he can to try to get testimony in one way or another; and to lay a foundation.



mpb2 <sup>1</sup>

2

3

4.

5.

time for him to do his direct testimony is after that motion is ruled on. For one thing, it may be unnecessary. Mr. Tourtellotte's motion may be denied.

MR. KRISTOVICH: Okay.

I guess I was unaware of the proper procedural steps to follow.

But then I merely would like to conclude that all of these statements come straight from the regs. What Mr. Tourtellotte labeled a conclusion comes straight from the regulations.

MR. NORTON: Mrs. Bowers, I would like to say one thing, and I appreciate Mrs. Tourtellotte has last bite on this because it's his motion, and Mr. Kristovich can certainly respond too.

But the comment the Board made at the beginning still bothers me, and I would like to address that. And that is the statement realizing the difficulty Intervenors have with witnesses. I don't understand whether that's a generic statement or a specific statement. But in this particular case, if it is a generic statement, I'm not going to address it.

particular case Intervenors have hired a Washington lawyer who I've heard repeatedly state that he's had much experience in these proceedings. He's tried many of these cases. Boy,

7.

б

8

10

11

14.

15

16

17

18

19

20

21<sup>:</sup>

22:

23

24.

• w . . 4 • to the second se . 1 • and the second of the second o mpb3 1

that's far more than I have. This is only my second one; and the first one only lasted a week.

So, you know, they have the funds to hire a very,

I don't think this is a case where there is any

And I don't know whether that was a generic --

MRS. BOWERS: Well, the point I was trying to make

4

2

3

very, very -- according to his own argument -- experienced

5<sup>1.</sup>

Washington lawyer to run these proceedings for them. They

6 7 have the ability to hire, to bring in as expert witnesses, a consulting firm, NHB. They have the ability to get Dr. Srune

8

and Dr. Silver to work for them.

9

basis in the record -- they even have the ability to hire a

30'

public relations person the first week of these hearings.

11

don't think there's any basis in the record for this Board to

12

somehow make an exception to Rules of Evidence under the aura

14

of "Intervenors have such a hard time getting witnesses". I

15

don't think there's any basis in this zecord for that.

16

and I'm not really asking the Board a question about it. I

17

just don't feel that that has really been shown to be the

18

case in this case. ......

20

we all are aware of the fact that Mr. Hubbard has had a back-

21

ground in nuclear engineering.

." 23

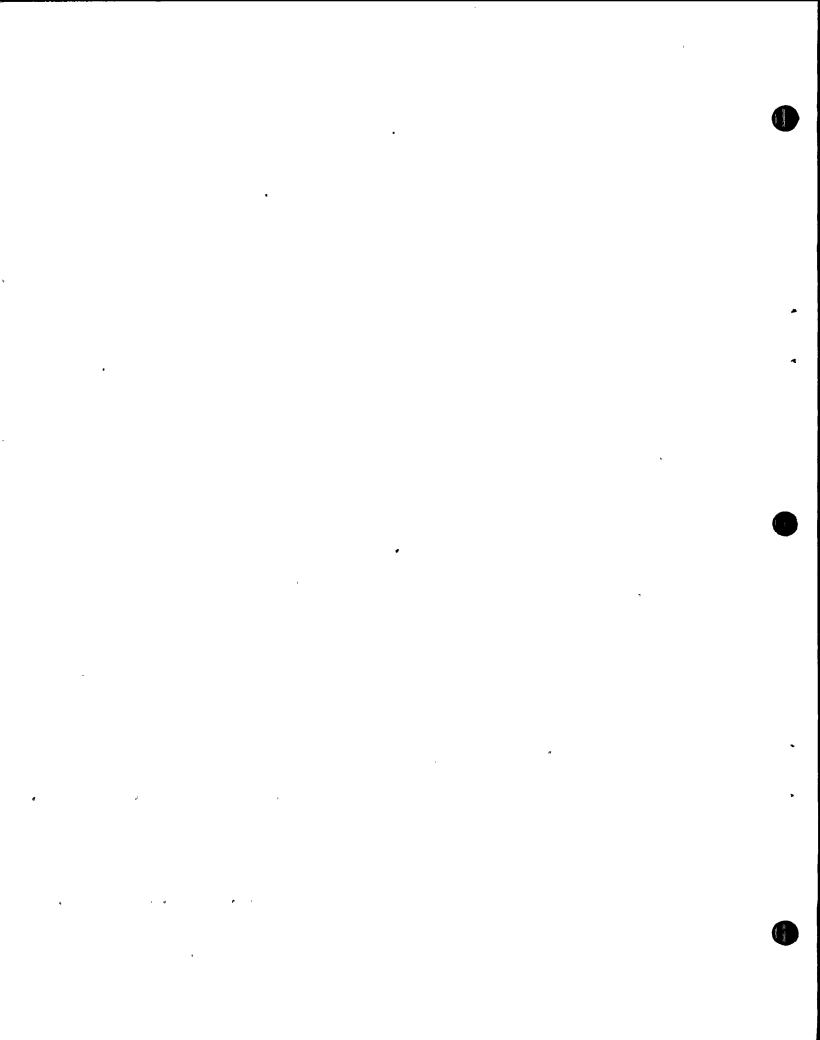
Now, I've had witnesses proposed in other cases,

24

one a Ph.D. in chemistry who spent his life teaching at Yale

25

and then retired to that community, and he has done some.



mpb4 1

8,

9.

And my only point was to have the parties state on the record the position, whether all of the testimony dealing with Joint Intervenors 65 is buttressed on seismology and the OBE and that sort of thing, or is any part of it separated

out from that, so that his background in quality assumance

literature reading, but it was other than his discipline.

MR. NORTON: Of course -- and of course, at this time we're only talking about the CBE testimony; we're not talking about anything beyond that.

MRS. BOWERS: That's right.

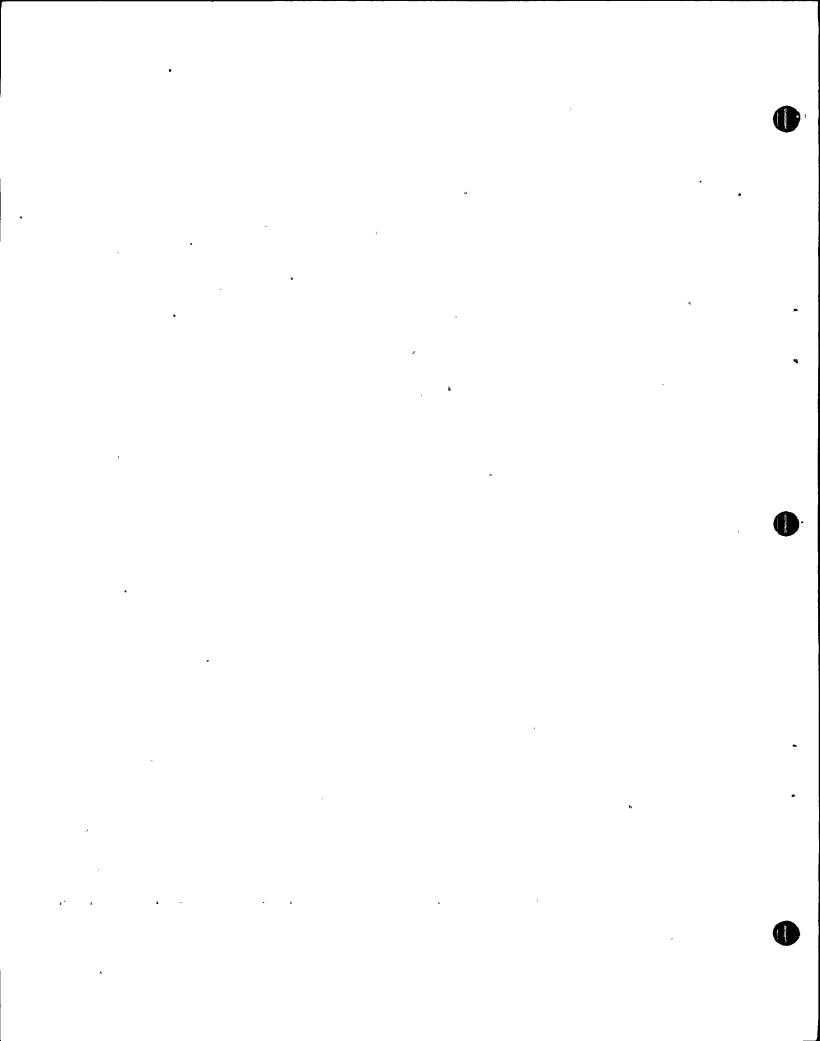
and other matters of GE would be appropriate, and --

IM. KRISTOVICH: Mrs. Bewere, do you want -- mny
I respond to Mr. Norton's financial comments?

I think Mr. Norton repeatedly in the last week has referred to Intervenors and the financial resources the Intervenors have and how it isn't that difficult for them. I can speak with complete reassurance that Applicant undoubtedly spends more in one day than Intervenors have spent in the past three years and will spend in the next year on this case.

MRS. BOWERS: It was the Board that brought this matter into the record. We said considering limited resources

MR. NORTON: Mrs. Bowers, we would stipulate that it's costing the Applicant for in excess each day waiting for the plant to be licensed than it has cost intervenors in the last three years.



mpb5

8.

• •

MRS. BOWERS. Let's go on to other matters.

Now we have before at a motion to strike on really two grounds of 3.1, Background, down to the beginning of the last paragraph on 4-4.

We're soon going to be breaking for the luncheon break, and that would, of course, give the Board a gard opportunity for thorough consideration.

Our original thought was to take each piece as:

a time. But, Mr. Tourtellotte, we will defer our ruling on
this first part, and then can you go through the rest of it
and identify other areas and the basis?

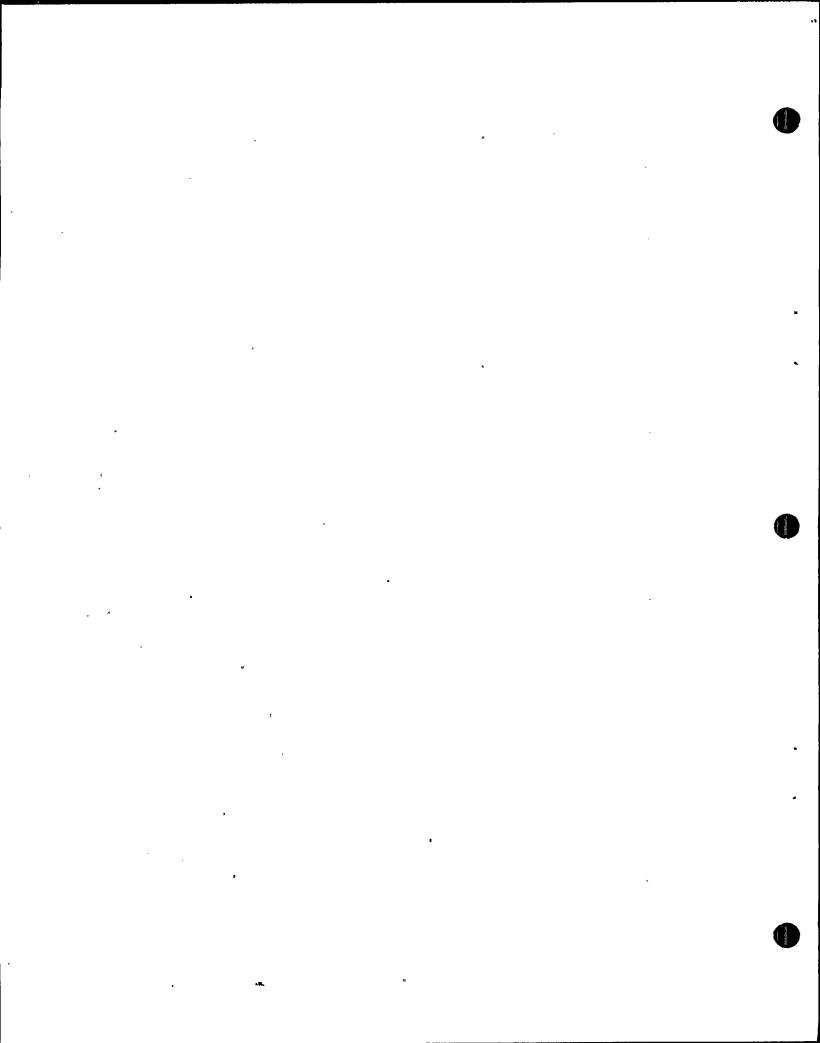
MR. TOURTELLOTTE: Sure.

motion. I'd like to make one more quick response to Mr.

Kristovich, because he responded to my remarks in that he felt like the resume of Mr. Hebbard indicated clearly that he had the kind of experience necessary to make testimony in this case. And he pointed specifically to his experience in quality assurance.

And this reminds me of a story that Mark Twain told about experience and the importance of experience.

ance of experience, and he said, Well, he said, if you take a man and you give him a cat at eight o'clock in the morning, you have him pick that cat up by the tail and hold it until



mpb6

2

3

4

5

6

7

8

14

15

16

17

18

19

20'

21<sup>i</sup>

2Ž:

23

24:

five o'clock, at five o'clock he will have more experience than anybody else in the world at holding a cat by the tail.

But what good is it?

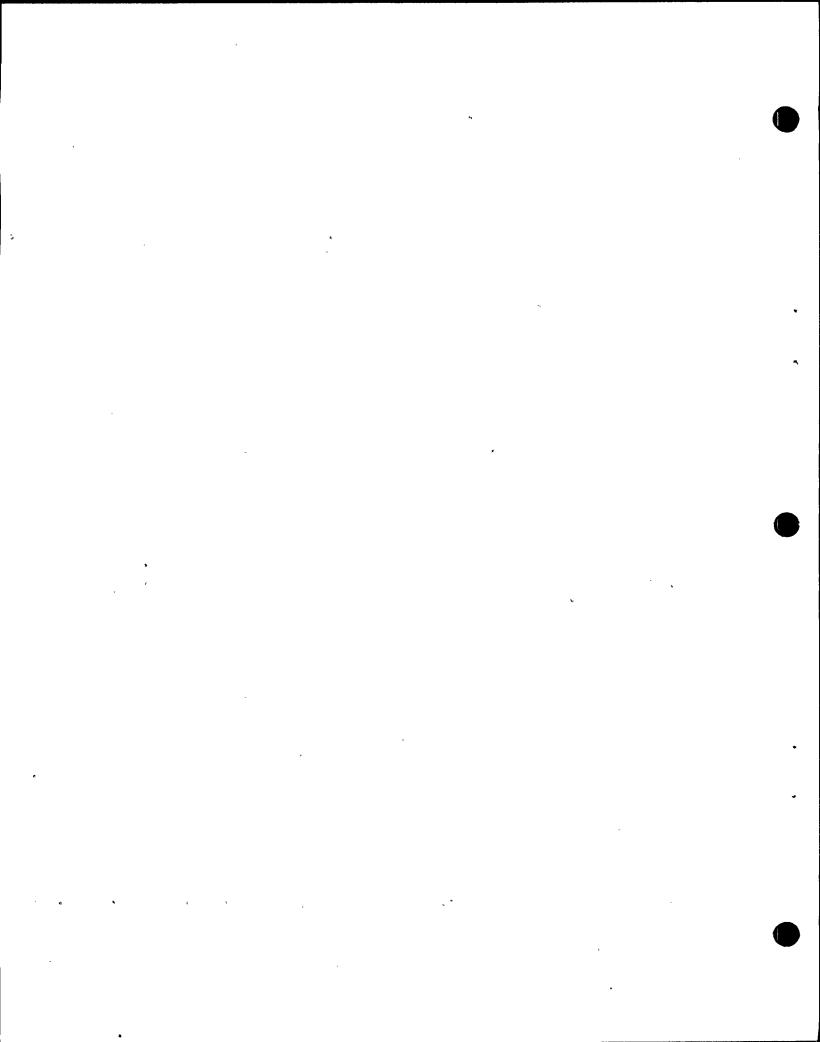
(Laughter.)

Now the application of that particular story in this case is Mr. Hubbard has stated that he has some experience, but the question is what good is that experience insofar as presentation of testimony in this case is concerned? I point out to the Board that it is the responsibility of the individual who offers up an expert to demonstrate that that expert is qualified. It isn't my responsibility; it isn't the responsibility of the Applicant in this case. It isn't the responsibility of the Poard in this case. It is the responsibility of the person who is offering him up, who happens to be the Intervenor in this case.

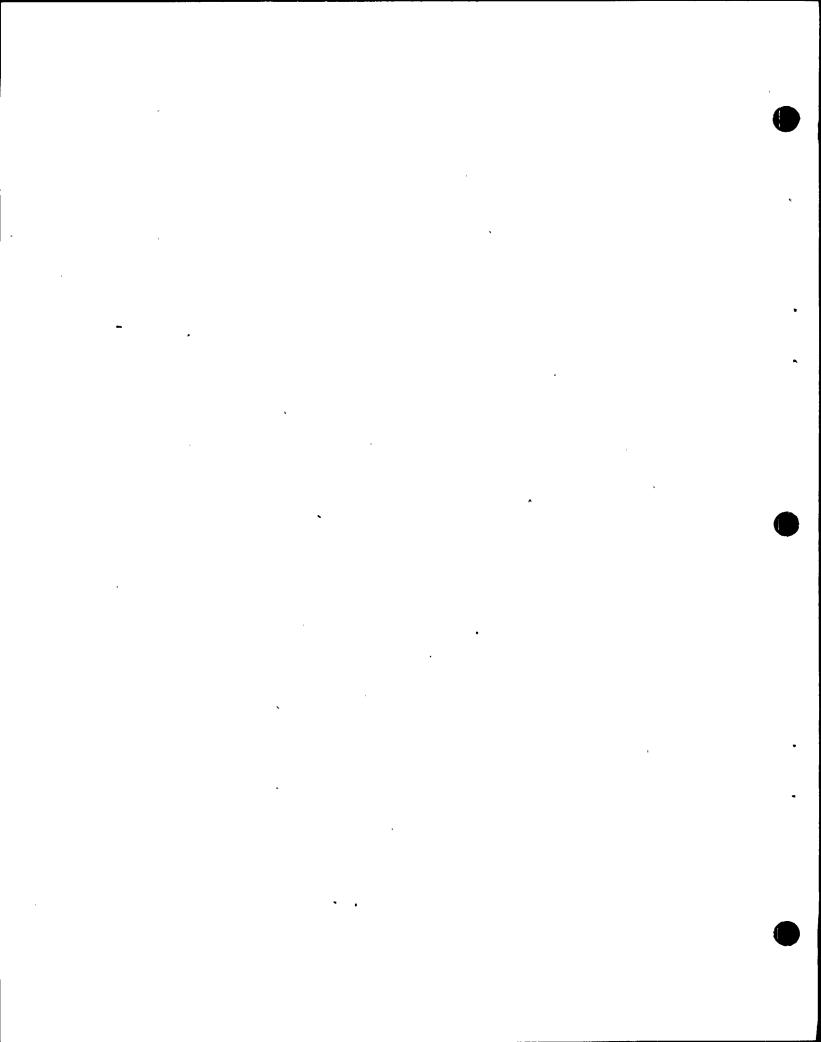
manner, like, well, he was involved in QA at GE, or he gave testimony before this committee or that committee, or he flew to Germany and testified before this committee or that committee, I don't know who the committees were, I don't know what his testimony was. I don't know whether the people there really considered him as an expert, or whether they just wanted to see somebody who came from the United States.

I frankly don't know why he was there, and I don't know what that has to do with his level of expercise. The

· •



mpb7 simple fact that he has gone through the motions of doing í 2 something doesn't mean that he's an expert. And what we found this morning by examining in more particular detail 3 4 what he knows about the fundamentals of the disciplines of 5. structural and mechanical engineering, what we found out is 6 that he doesn't know. And he can testify all he wants, and he can spend 7 the rest of his life reading, and he can go wherever he wants 8 to go; but in the final analysis the question is: what does 9 he know about technical analysis for this structure or any 10 other structure. And he has demonstrated that he doesn't know even the most fundamental type of formulas. Now I'll go on. 13 DR. MARTIN: Excuse me, something's bothering me. 14 15 You say the statement of the contention is corract. 16 MR. TOURTELLCTTE: 17 MR. NORTON: Excuse me, Dr. Martin. 18 guestion of you. 19 What do you mean by "is correct"? 20 DR. MARTIN: Is it correct. Is that what you all 21 understand to be the contention? MR. NORTON: Okay. 23 We wouldn't agree that the contention is correct. 24 We would agree that this is a correct recitation of the 25



25

contention, however.

DR. MARTIN: Well made point.

It is stated correctly, so that you all agree that that is the contention.

Well, my reading of the introductory statement to number four seems to imply a legal argument that here are 10 CFR Part 50, 10 CFR Part 100, and the contention is that the seismic design fails to provide the margin of safety required by those.

Was it Staff or Applicant's anticipation that evidence on this subject would be provided by a lawyer? In other words, that you'd have semeone trained in the law sitting here as a witness?

MR. NORTON: Well, Dr. Martin -

DR. MARTIN: I get the implication that --MR. NORTON: That's not my Zeeling at all.

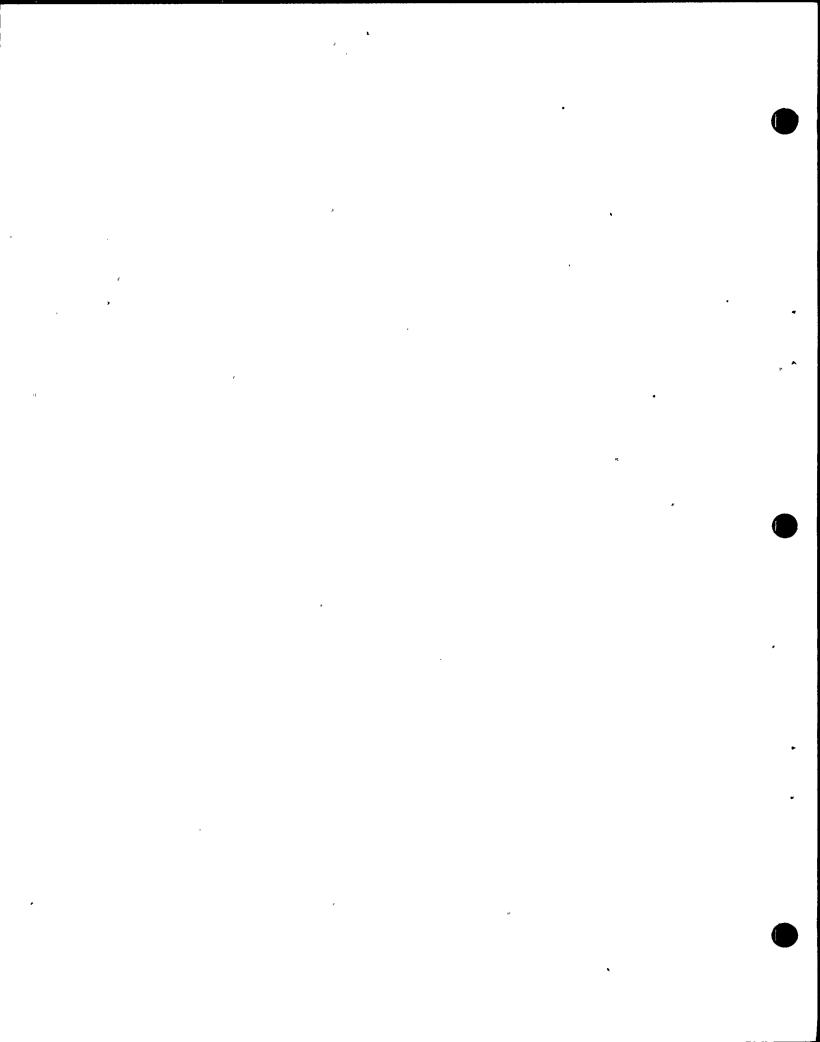
What I would have expected is that they would have provided an expert who would tell how the analysis failed to provide the margin of safety required by 10 CFR Part 50 and 10 CFR Part 100. In what way was the analysis deficient.

DR. MARTIN: Before you do that, den't you have to know what those requirements are?

MR. NORTON: Sure.

But it takes an expert witness --

DR. MARTIN: How much empertise does it take to



mpb9 1

read and interpret regulations? I mean, can I do it? Is it all right for me to do it?

MR. NORTON: It depends.

1.1

21.

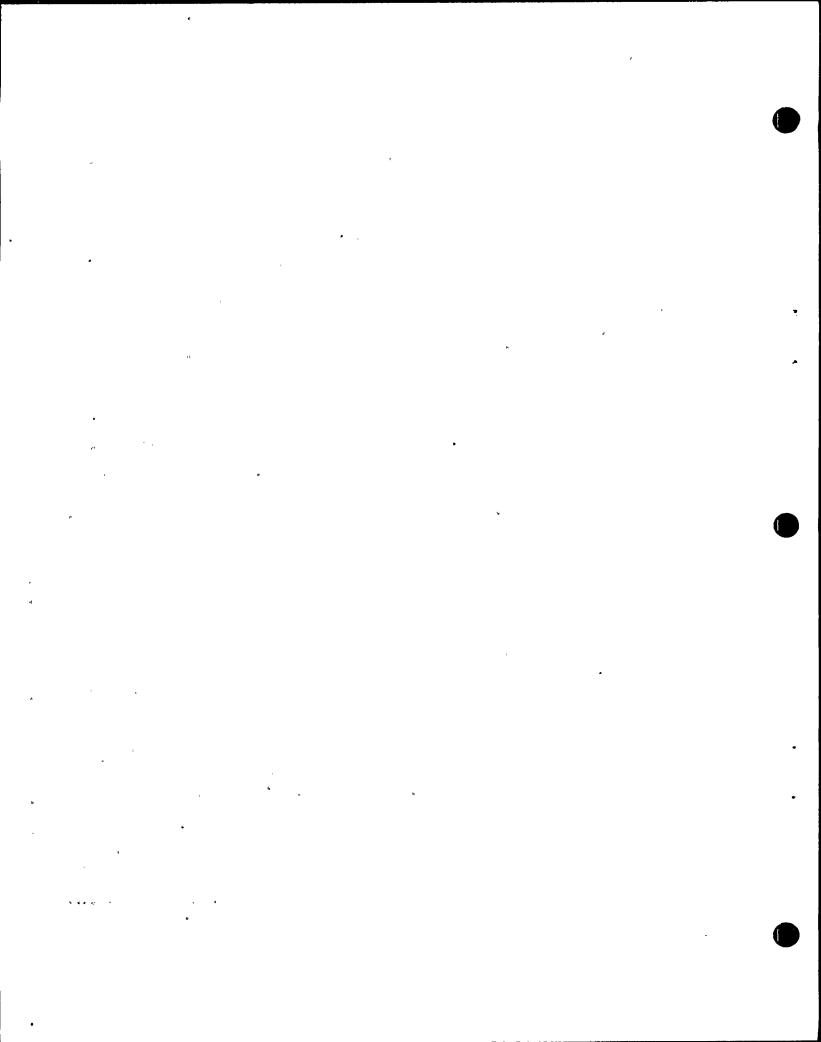
on the regulation in question.

I would think in some areas -- for example, if it was a regulation -- I'm not familiar with your expert background -- but if it were an area of -- let's assume that you know a little about some specific area, and if it's a technical area, you may or may not be able to read and understand it.

And if it's a complexly worded regulation, even if you had the expertise or the technical background you may or may not be able to understand it based on what the legal significance of a term or two might be.

In other words, oftentimes with the regulations it takes both the technical and legal person to figure out exactly what it requires, particularly government regulations. Most large utilities and companies in this country now have individuals who do nothing but review proposed regulations that come out in the <u>Federal Register</u>, and it's their job to try and figure out what those regulations mean. And they have to consult their technical people and their legal department to get opinions as to what those proposed regulations mean and what impact they will have on that particular industry or company.

So it's not -- when you say "could I", it



1 Oldem

DR. MARTIN: Well, it seems somehow when I got this job, I had the feeling that the hearing process had something to do with determining the meaning and application of regulations and that somehow I had some qualification for them when the Commission appointed me.

But now my confidence is shaken because I hear that only lawyers and experts are capable of doing these things.

MR. NORTON: No.

Only emparts are capable of offering evidence as to whether or not the regulation has been complied with.

You, as the finder of fact, have to listen to that evidence and decide whether or not it's correct. And that's a tough job.

DR. MARTIN: Yes, you said it. (Laughter.)

MR. TOURTELLOTTE: Excuse me.

Let me try and enswer that question another way.

I see the two parts of it:

One, what is it that this contention would require a potential expert witness to do; and I see the other part of it is some feeling of drawing some analogy between yourself, as a trier of fact, and an expert witness on the stand. And I would address those in reverse order because as the trier of fact, you don't have to be an expert. But you do have to

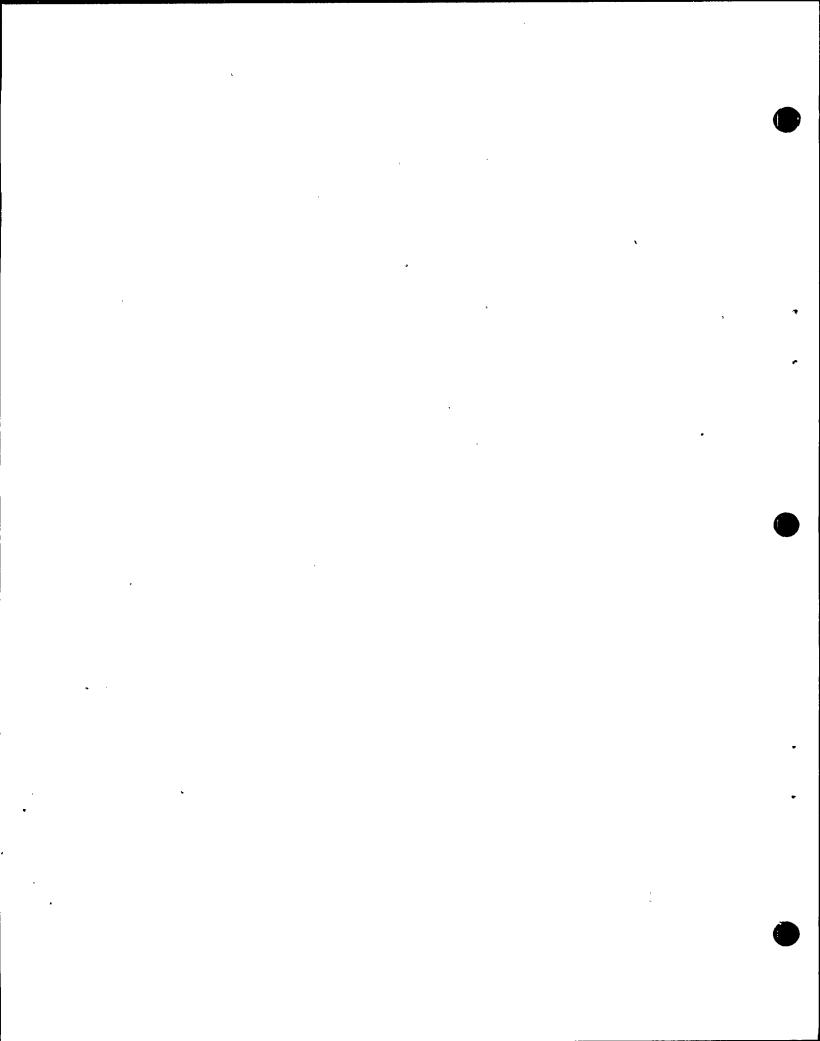
\_

ß

< 4

. .

.



mpbll 1

3

4

5

6,

2 a re

rely upon the expert witness and what is in the record as a result of an expert opinion as a sole basis for whatever conclusion you reach.

You can't reach a conclusion based upon your own understanding, which is not in the record. If you have an understanding that is not in the record, and there's some expert on the stand, what you have to do is either establish that through your own line of questioning as a trier of fact, or you can't rely on that.

so that you don't have to be an expert. And what is presumed in your case as a trier of fact is that you will be able to take in all of the information and to sift out that which you feel is important and that which you feel is not important.

And you may agree with an expert, and you may not agree. Certainly as a trier of fact you're going to have differing expert opinions in some instances, and you don't have to agree with all of them, or it would be impossible to accomplish your final task.

But you can't really equate your own position as -- certainly in your case, you are neither a structural or mechanical engineer, at least that's my understanding of your background. But you don't have to be. The law does not require you to be.

The law does require that if we're going to hear

9.

8

10

11

.12 -:... 13

14:

15

16

l *7.* 

18

19

20

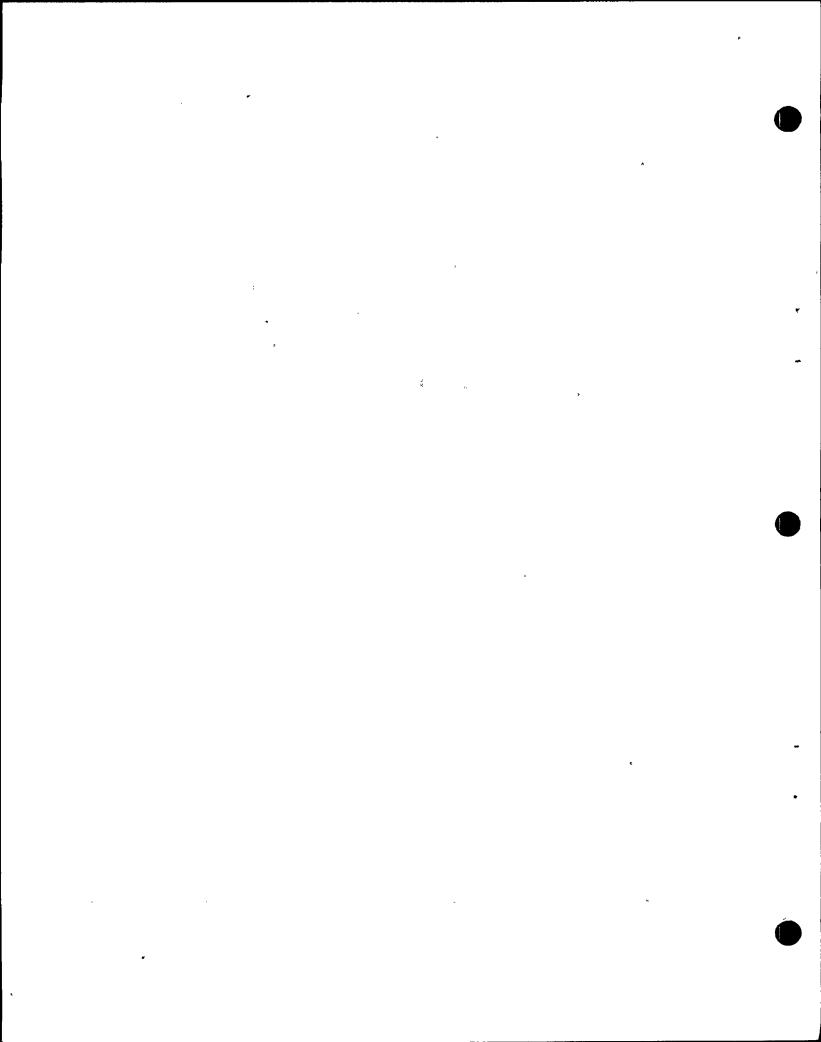
21.

22

23:

.

24.



mpb12 1

2.

3

4

5

6:

7

8<sub>r.</sub>

9

10`

...

13

14.

15

16

17:

18

ià

20

21

22 ..

23

24

25

what is called expert testimony from somebody on a subject matter which deals with mechanical engineering, that they possess the qualifications either by education or by experience which would indicate that they have a knowledge that is sufficient so that whatever they say can be given some degree of credibility or has some probative value.

Very long can pick up the newspaper and read about Diablo

Canyon. But the fellow who is in the insurance business or

the fellow who is a lawyer downtown or scembody who is a

doctor, simply by reading about it cannot offer themselves

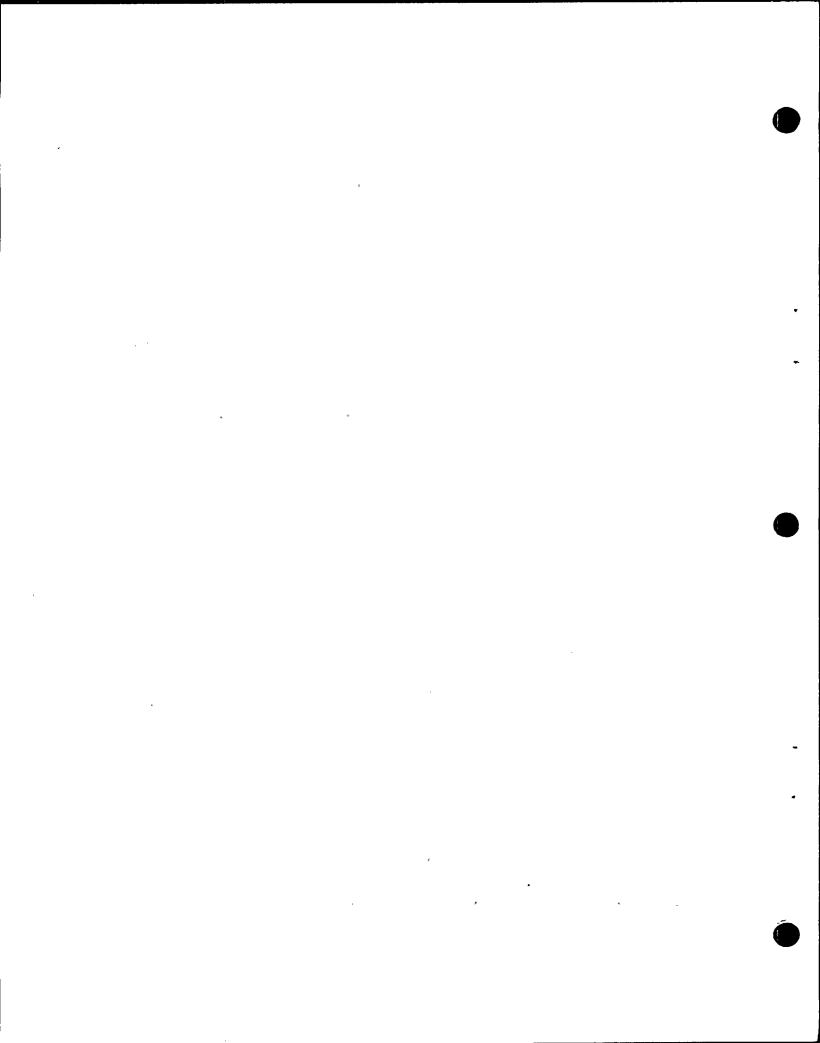
up in this proceeding as an expert in some discipline which
they have no background in, either education or experience on.

That's the first thing.

The second thing is that when we talk about 10 CFR Part 50 and 10 CFR Part 100, again we're talking about a standard against which we measure some analysis.

What that contention says is the seismic design for Category 1 structures, systems, and components, fails to provide the margin of safety required by the regulations. Okay.

What we would expect to see from an expert witness, then, is an analysis of the structure, some information, some analysis that they have based upon available information that the structure in some way is defective, because something less than one-half of the maximum vibratory



1 Eldgm

ブ

acceleration for a safe shutdown earthquake is used.

If they have something to do with systems, then we would expect an analysis from that, or we would expect an analysis of the components of those -- of the Diablo Canyon Nuclear Plant. But we don't -- what we are not looking for is a simple recitation of what the regulations are.

Remember, the purpose for the expert being here is to help the Board. The Board can read the regulations, the Board knows. And in fact, if you strike the legal argument, it's of no projudice to the Intervenor because they can make that in their findings anyway.

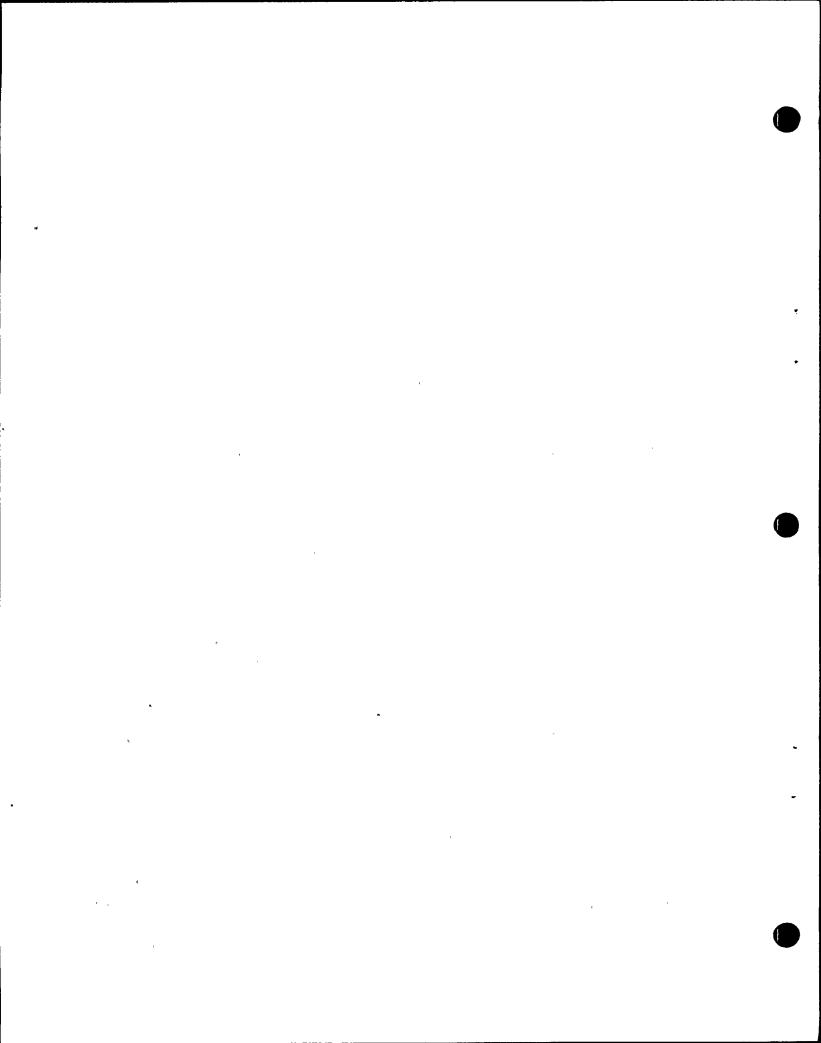
another legal argument. And it really serves no purpose from an evidentiary standpoint.

the point, but the point is I agree that an engineer, a structural engineer or machanical engineer, seismologist, geologist, they're going to have to read the regulations and they're going to have to use the regulations as a standard. But after they've dome so, they have to come up with some kind of an analysis that provides the nexus between the standard and the conclusion that they reach, and not simply recite the law and make a bottomline statement that the regulations have not been met.

MR. KRISTOVICH: Mrs. Bowers - I don't know if

16. 

21.



mpb14 1

Dr. Martin has followup questions or not, but it seems that Mr. Tourtallotte was getting pretty far afield. I thought we were talking about pages 4-3 to 4-4.

4

5

6

7

2

3

DR. MARTIN: No, he was answering my question. MRS. BOWERS: Well, and a little earlier I asked if it would be possible before the luncheon break for you to identify other areas that you will cover with your motion.

8.

9

MR. TOURTELLOTTE: Okay.

10

The paragraph at the bottom of 4-4, starting "The Staff discussed", on over'to the next page, 4-5, down to the point in that paragraph where it says "in past Staff". Those two sentences can be left in.

13

12

The next sentence is "In past Staff practice"-MR. KRISTCVICH: Excusa ma.

15

14

Could you repeat that? I didn't follow that.

17

16

MR. TOURTELLOTTE: Well, starting out with the

18

last paragraph on 4-4, there is one, two, three sentences.

19.

The third sentence ends "B equal to 3,75g." That can be left

20

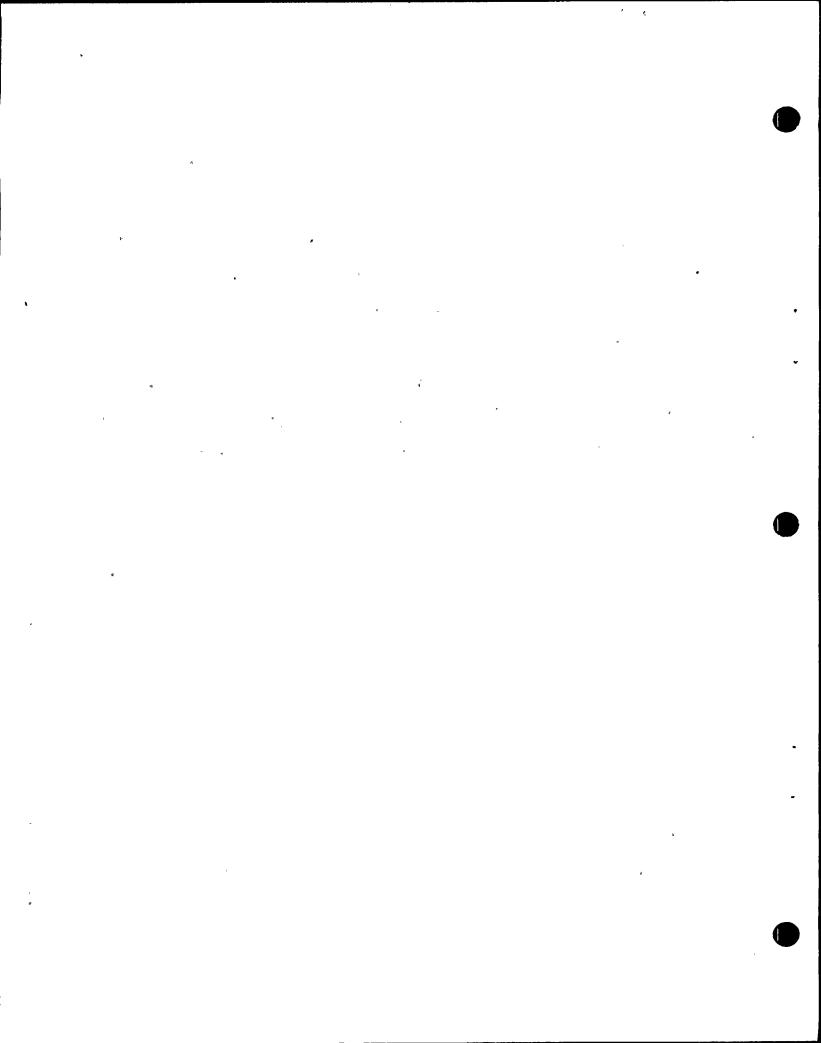
in.

21:

23

25

The next sentence I would ask be stricken, along with the -- I assume that the whole table there is in that sentence. There is no basis given for that statement, no authority is cited for that statement in the first place, and in the second place it isn't relevant. So I ask that it be



mpb15 1

stricken for irrelevancy.

2

4

5

6

7

8

April 11, 1978 letter acknowledges that the original Diablo

Canyon seismic basis was based on a two to one relationship

The next paragraph says "The Applicant in the

between the Double Design Earthquake and the Design Earthquake

I would ask that that be stricken because in the first place it isn't clear what the April 11, 1978 letter is. That hasn't been identified. If it were identified and it represents what they claim, it isn't relevant, nor is it material in this case because they're talking about the original seismic design and we're not talking about the original, seismic design. We're talking about the design and the analysis of the design as it fits the Hosgri event

today, not what it fit some time ago.

9 10 ...

12

13

14

15.

16

nd ADELON 2 ADELON 3

**'Iws** 

18

19

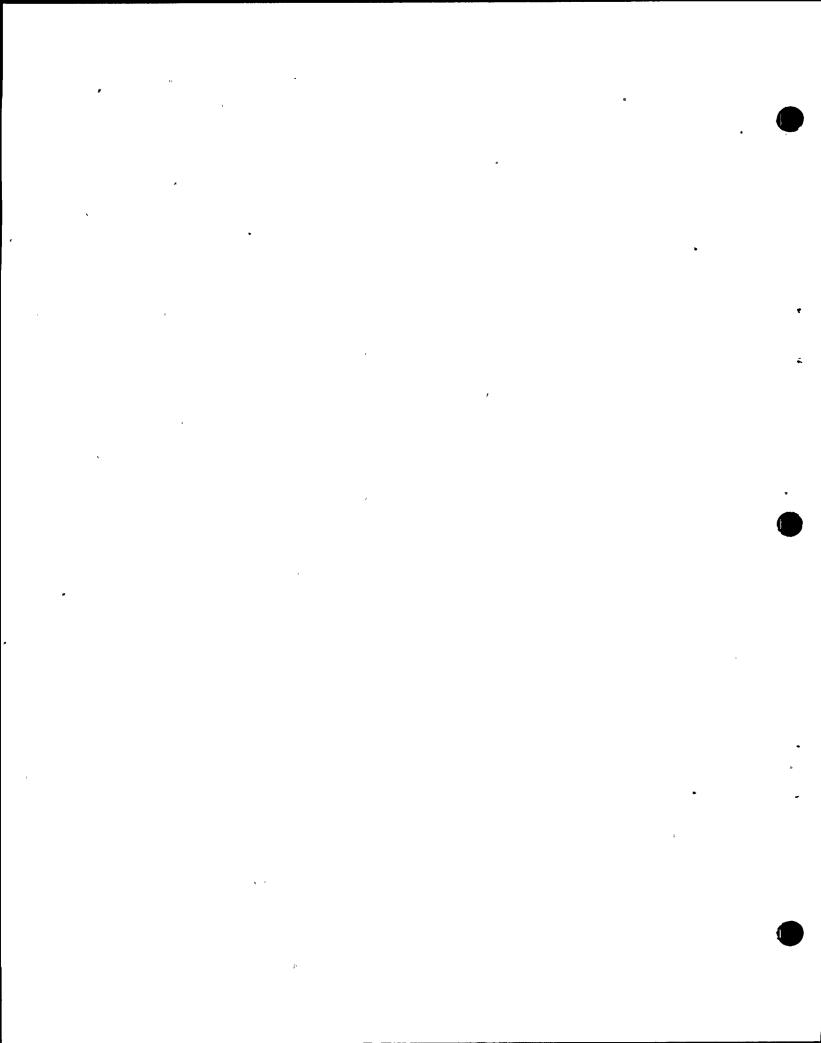
20

21.

22

23

24



mpb3 MPB/agb1

•

3

5

of OBE, I would ask that it be stricken, the first paragraph which is a recitation of Section 622 of Appendix A to Part —

10. CFR Part 100, is basically a legal argument. The conclusion which follows, down to the point which, on 4.6, which the Intervenors struck themselves, is a conclusion, a legal conclusion that is unsupported by the facts and is unsupported by any recitation of facts or analysis in the proceeding and is simply a legal argument.

I would also ask that it be striken — the entire — actually, the rest of the section as well as the first part of the section be striken because it's been clearly demonstrated that this expert does not have the — or this witness does not have the level of expertise accessary to evaluate the design significance of the OBE.

MRS. BOWERS: So you're striking down to where 3.3 begins, is that correct?

MR. TOURTELLOWIE: Yes. For two reasons. One is that basically it's a legal argument and, secondly, even if it were considered to be a technical argument, he does not possess the expertise necessary to make that argument.

Under 3.3, I would ask that all of this section
be striken because, as the questions that were asked on
voir dire indicated, this witness does not know how to calculate

10,

9

12-

13

14

. 15:.

16.

· 1-7;

18

19

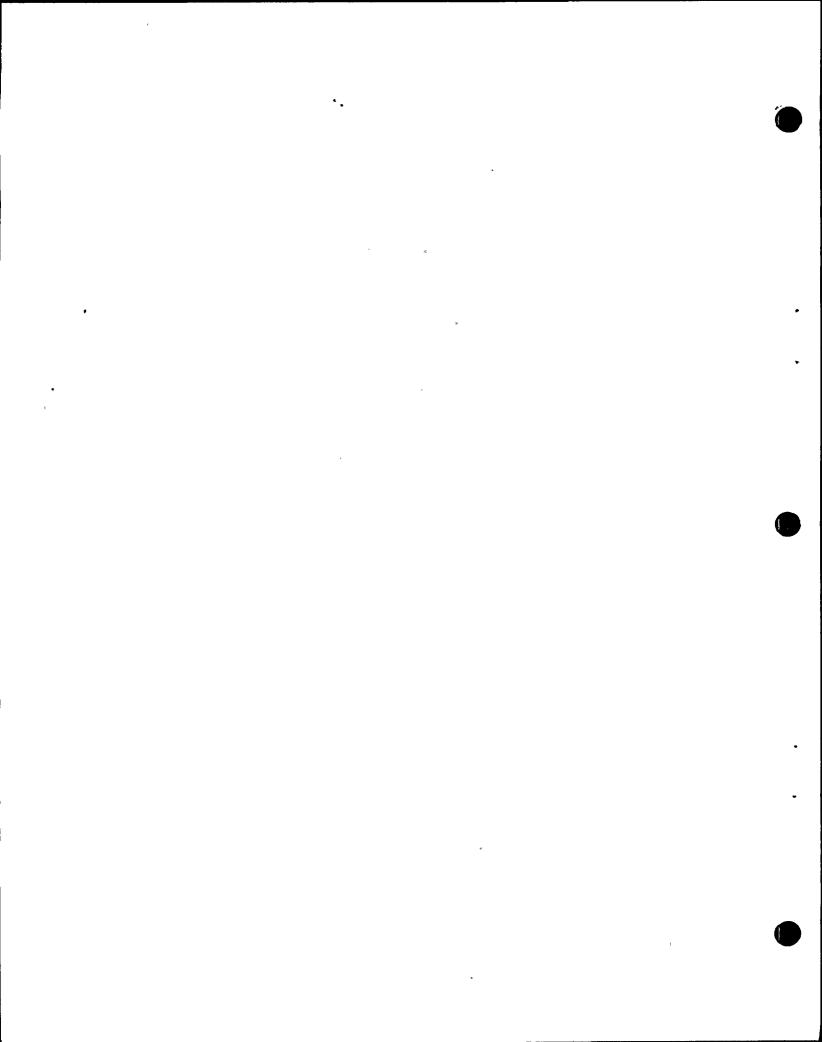
20

21

22

23

24



B/agb2

2

.3

4

.5

<u>(</u>S

ģ

9

10

11

عب

1.3

14 15

.16

17

18

19

20

21

22

23

24

25

loads, he doesn't understand how loads are calculated, therefore, it would be impossible for him to make the argument
that the vertical acceleration values were underestimated.

"Even is a 0.20g were appropriate for the OBE, the Applicant's use of constant acceleration values regardless of elevation underestimates the loads."

Spacifically, the first sentence says that:

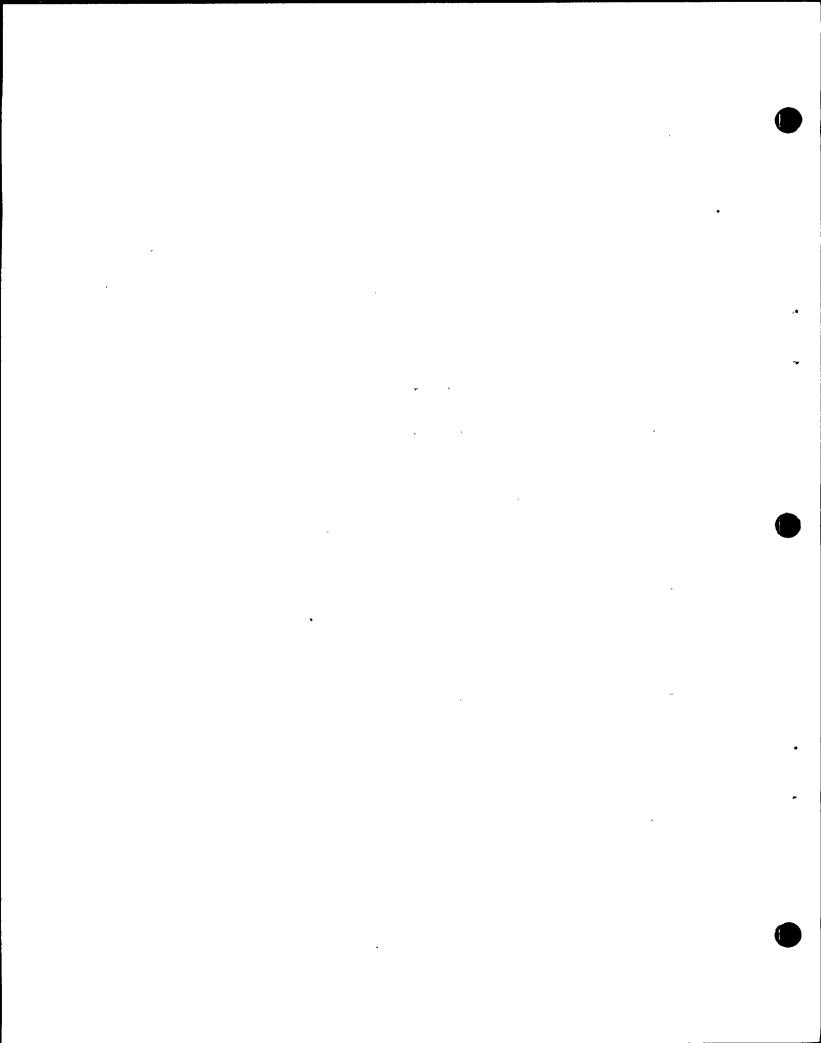
And then he goes on with four examples. Obviously, if he doesn't understand the basic formulas for calculating loads, he can't say whether they're underestimated or not.

Further down under 3.6, the fifth line up from the bottom, the words toward the end of that line: "may not be possible or practical," should be striken, since they are not within — I'm sorry, up one more line:

damage including seismically-induced aging may not be possible or practical to achieve with known inspection techniques.

There is no basis in the record that would indicate that he has the expertise to make that kind of an assessment. We would ask that that be stricker.

We would ask that the rest of it be stricken, because it's basically a legal argument as to what is required by that section of the appendix.



MPB/agb3

MR. NORTON: Mrs. Bowers, is it appropriate for us to jump in and add an added reason of why it should be stricken when we have as added reason, such as here?

It's just a short statement as to why we feel it should be stricken, that particular piece of testimony. It's not argument, we just want to state why we think it should be

MR. KRISTOVICH: I assume we'll have argument after lunch on all of this, piece-by-piece?

MRS. BOWERS: We thought we could consider it at the luncheon break, but obviously we won't be able to.

MR. KRISTOVICH: Mrs. Schere -- Woll, no, I do .
have argument on each individual piece.

MRS. BOWERS: All right.

MR. NORTON: We just thought, for purposesof people's notataking, if we could state our basis for the objection, if it's different from the Staff -- and it hasn't been up to this point -- we have an added reason why we think it should be stricken, this portion of the testimony.

MRS. BOWERS: Well, one thing that was put before us earlier this morning was the general, almost generic question if the matter is legal rather than technical. And, actually, going down through here, probably a better way would have been to have given the other parties an opportunity on each item.

MR. NORTON: Well I had nothing to add as for

2

<u>5</u>

,...,

,8

.9.

ίŎ:

14.

12.

13

14

. 15

16.

17.

íB

19.

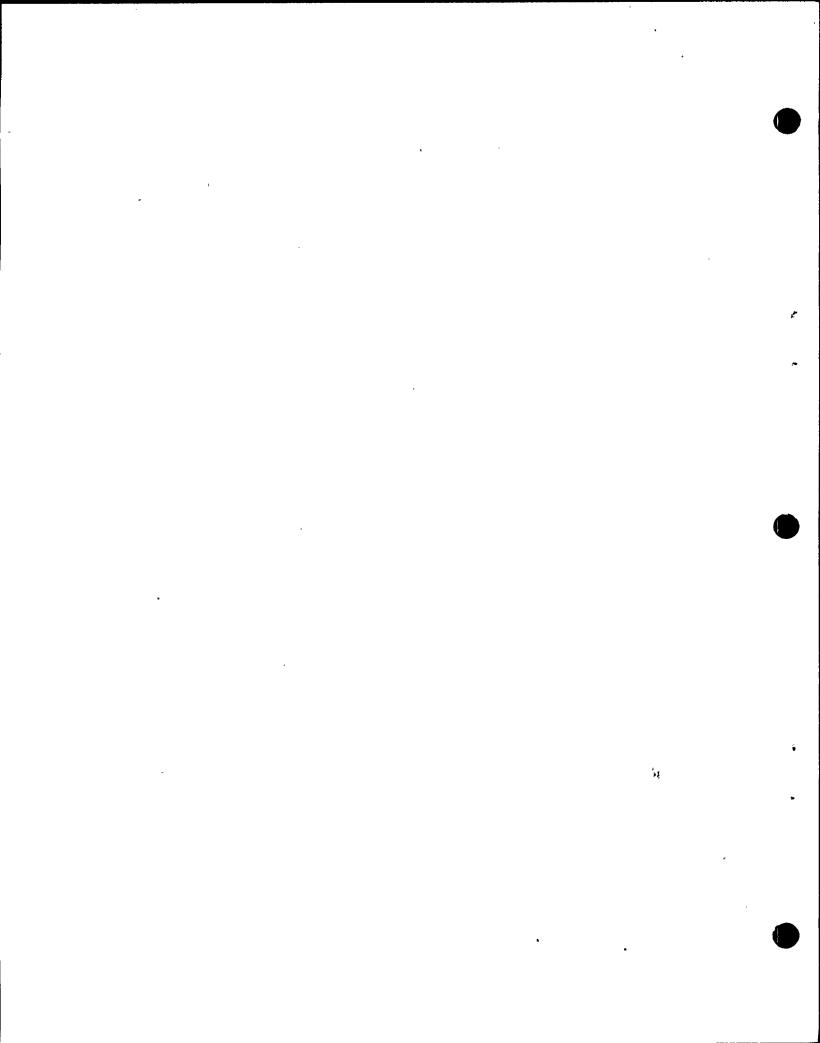
20

, 21<sub>.</sub>

22:

.23

24:



MPB/agbi

2 3,

4

,6

**,**5,

7

8

.9.

10

Ļī.

12.

1,3

14

¥5,

16

1.7.

18

19

. 20 21

\_\_

23

24:

25:

bases for the motion. I think Mr. Kristovich should wait until the bases have all been set forth and we have argument on it. But I have nothing to add to the prior stuff, it's just when they got to here there is, I think, an additional reason to strike some of it, and I would like to just set that forth.

MRS. BOWERS: On 3.4? Is that right?

MR. MORTON: Yes. This part that we're at right now. Actually, it starts with, "However," which is the next to the last line on 4-10, the middle of the line, from there through --

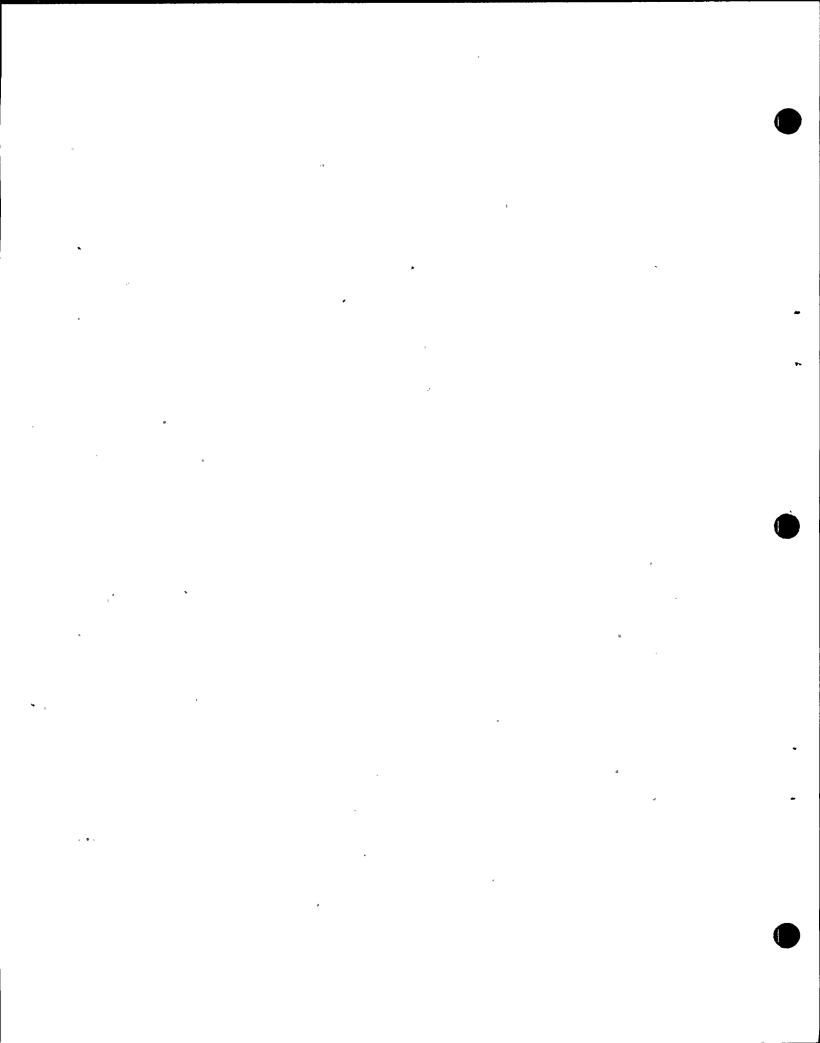
then we'll go back through for Mr. Kristovich on each and every section after lunch.

MR. NORTON: Well, prasumably he isn't going to add enything to the motion to strike.

MRS. BOWERS: No, this will be to give him an opportunity to respond.

MR. NORTON: Okay. Yos.

says: "TAP-B49," the end of that semiconce, we would move to strike that. These documents are not in evidence, they're not attached as exhibits. I don't know what they say, the Board doesn't know what they say, and that's totally improper to discuss articles like that that aren't in any way before



**ಕ್ಟಾ** 

3

.4

.5

.6

7

8

.9

.10

13.

14

.15.

16:

1.7

18

19:

204

..21

.23:

·24

25

MR. KRISTOVICH: What anactly are you referring

MR. NORTON: Well the discussion of TAP-B50 and The only reason I said it is I'm told, for example, that that B49 has absolutely nothing to do with this, but I don't know that's what I'm told. But there's no way for the Board to make such a detarmination or anybody else, they't not attached, they're just conclusions drawn from these documents that aren't in evidence and aran't hara, and I have no basis of whether they've been accepted, what the status of them is, I don't know anything about it.

MR. TOURTELLOTTY: That was going to be one of my points.

My basis for objecting to that section is that it is in the nature of a legal argument (a), and (b), it's not compatent testimony and it's not compatent testimony basically for the reasons stated by Mr. Norton just praviously!

. Clearly, the last sentence which starts: . "Clearly," is a legal conclusion and should be stricken.

3.5, as wa're told by Mr. Hubbard -- is the next section, starts at the bottom of 4-11, "Difficult to Upgrade Design for Increased OBE,"

I object to this entire section because it is immaterial. If you read the substance of what is there, it

ı • \* ¥ -

npbl flws MPB/aqb5

2.

3

4

5

6

7.

8

9

10

. 12

14

15

16

is really immaterial to the case that is going on right now, in the first place.

In the second place, by reason of his adding the title now makes it a little clearer as to why it's there. says "Difficult to upgrade the design for increased OBE". Once again, I would object because he does not possess the necessary expertise to say whether the design is difficult to upgrade or not because he has already clearly stated that he is not a structural or machanical engineer. He doos not know that much about design. And therefore, he is not in a position to say that it is difficult or it is not difficult.

And the title, I think, gives that ever, aside from its being immaterial.

MRS. BOWERS: I think we should interrupt this now, because we've learned from past experience unless we break at twelve o'clock that it's sometimes very difficult to eat within an hour.

MR. NORTON: Excuse me, Mrs. Bowers.

So that we can got off this section, I just have one thing to add to that same section as a reason, and then we're on to the other testimony, I believe. If we can do that?

I would add that again, this is a use of a paper.

It says:

"As stated in Attachment C. the Applicant's Project Manager Lindblad..."

17

18

19

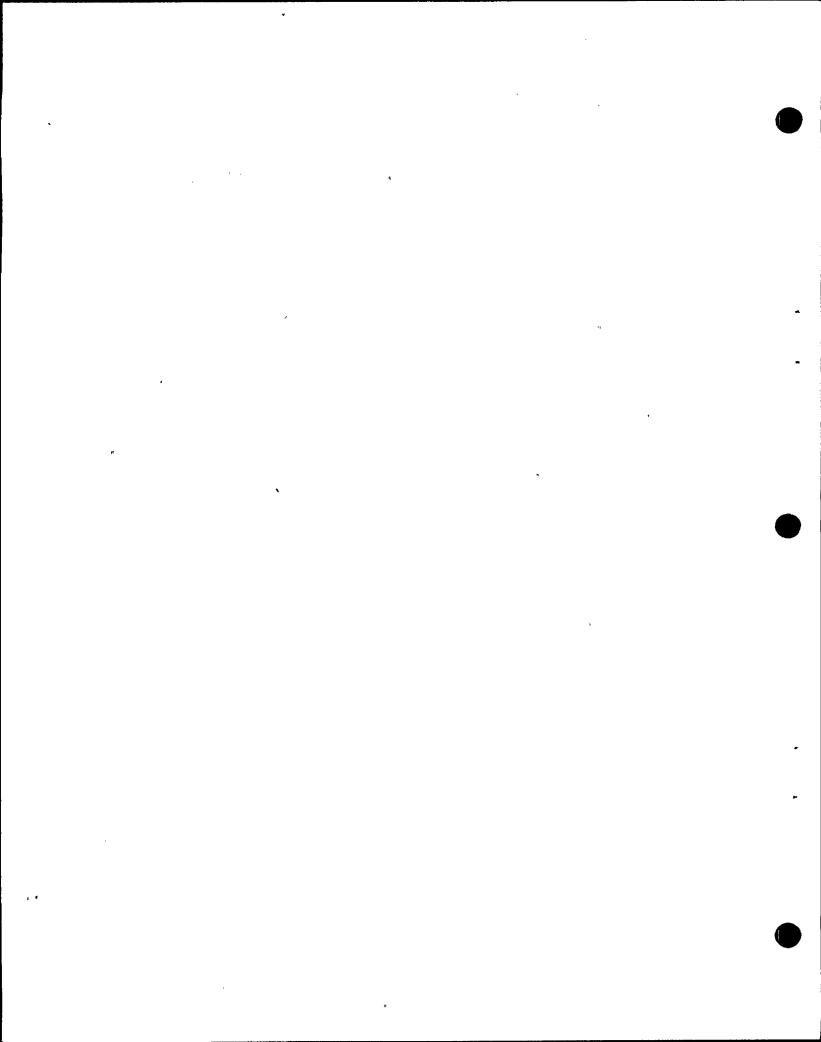
20

21

22

23

24



mpb2

8.

12.

22'

and so on and so forth.

That is -- if I remember Attachment C, that was written by Mr. Bettinger, who was quoting Mr. Lindblad. This evidence is not competent. We don't know that either one of those people were qualified to even make these statements, or if indeed they made those statements in context, or what context those statements were made, or when, or based upon what knowledge or anything else.

It's just basically totally incompetent material, to take a memo that somebody else wrote. And it's just a little teeny outline with little words instead of whether that was a thought or that was a maybe or a definitely ex. what, no one knows. That's why that kind of material should not be admitted in evidence without proper foundation.

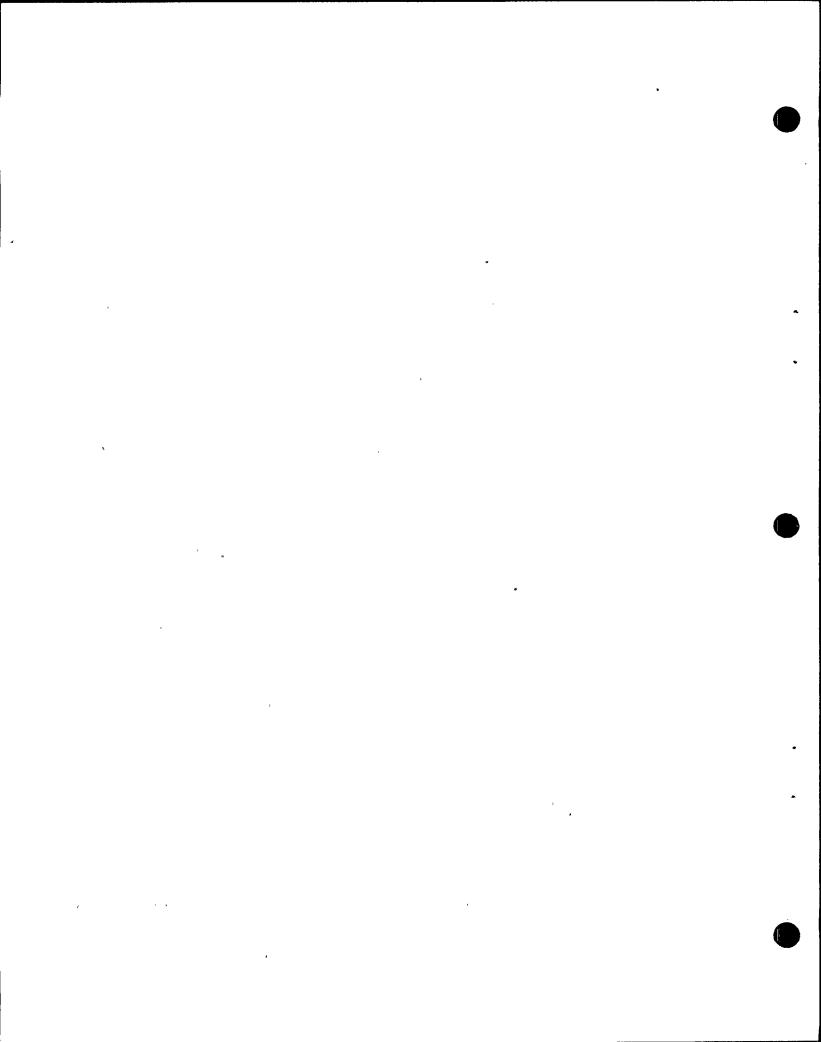
There was absolutely no attempt by Intervenors to lay any foundation for that memorandum at all. And the vitness was in fact on the stand. They had the opportunity to do so, and they did not do so for apparently a good reason.

MRS. BOWERS: Well, we'll broak now, and give

Mr. Kristovich an opportunity after lunch to go through each

one of these.

(Whereupon, at 12:10 p.m., the hearing in the above-entitled matter was recessed, to reconvene at 1:10 p.m., this same day.)



## AFTERNOON SESSION

(1:10 p.m.)

. 1

MRS. BOWERS: We'd like to begin.

Whereupon,

## RICHARD B. HUBBARD

resumed the stand as witness for and on behalf of the Joint Intervenors and, having been previously duly sworn, was examined and testified further as follows:

MRS. BOWERS: Mr. Kristovich, do you want to proceed with your response?

MR. TOURTELLOTTE: I think I still had a couple of other items in the conclusion. We're down to the conclusion, I think.

MRS. BOWERS: That's right; we broke for lunch at that point.

MR. TOURTELLOTTE: The first sentence under 4, Conclusion, is a legal conclusion and should be rejected for that reason; that is, for the reason that he isn't competent, and that legal conclusions are not within the purview of an expert to make anyway.

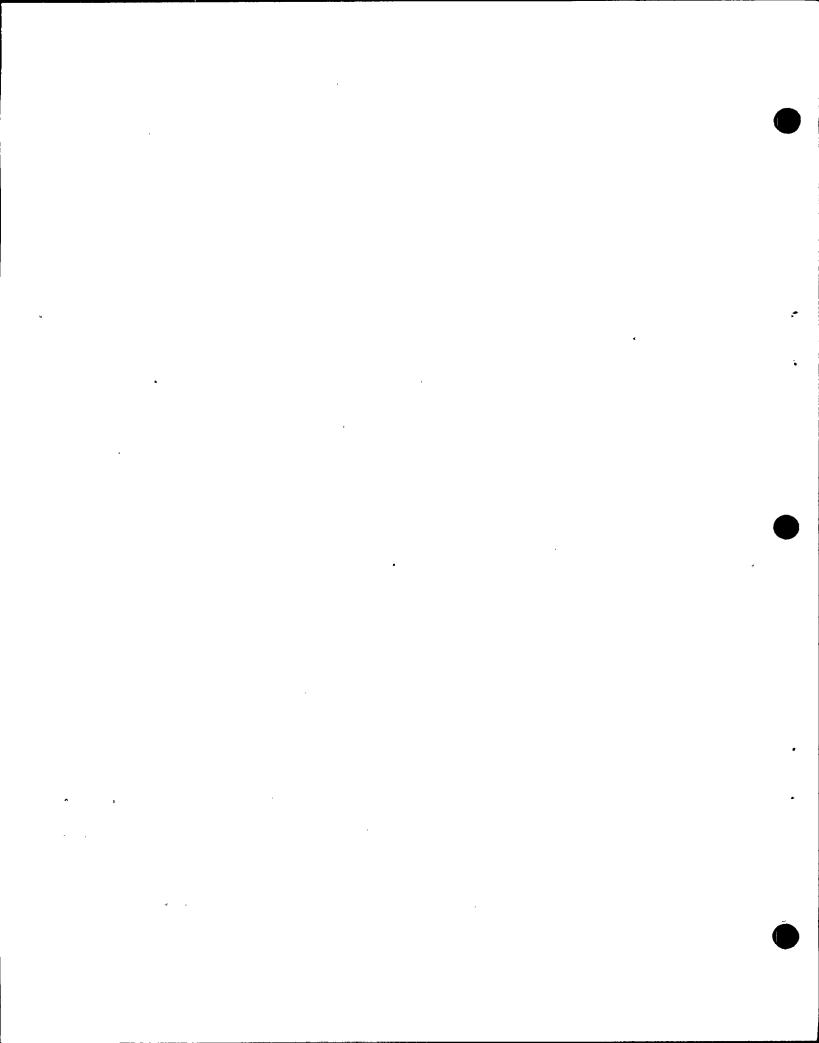
The second sentence is also a legal conclusion.

Moreover, it implies an evaluation of the importance of the

OBE which requires a legal of technical expertise that this

witness does not possess, and, therefore, is also objectionable
on that basis.

27 16



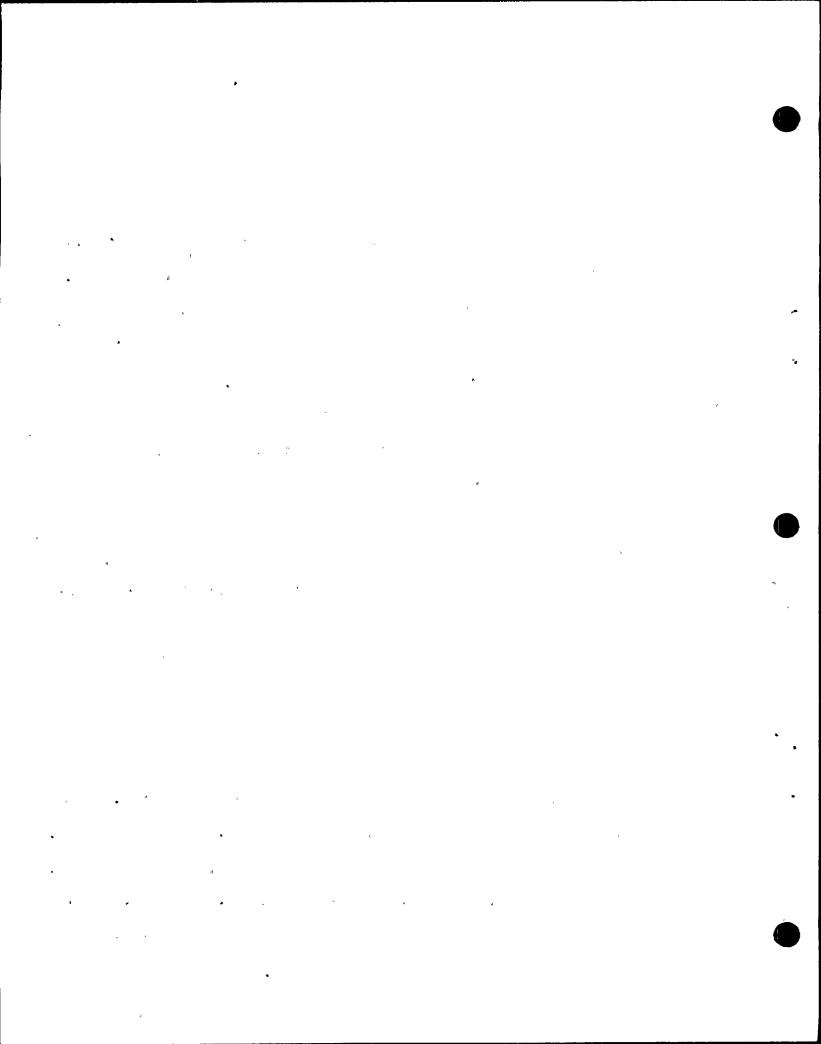
I don't have any objection to the next sentence.

The next sentence, which starts out "However, where a nuclear plant is located in an area of high seismicity, as is the case for Diablo Canyon units, an exemption to the regulatory requirements is not justified," that's objectionable because (a) Mr. Hubbard is not a seismologist, and even though he attempted to give this some more credence by citing Gawthrop today, he is not in a position as a seismic empert to even make that kind of a citation. Moreover, it is a conclusion which only this Board can reach based upon the facts in evidence, and therefore it's a legal conclusion and should be rejected for that reason.

The final centrace is also objectionable both for the reason that it is a legal conclusion and that this witness does not possess the expertise necessary to evaluate the necessity for making a re-analysis of the Diablo Canyon nuclear plants for OBE equivalence.

That's the sum and substance of the objections on the testimony itself.

Attachment C should be stricken because it is not competent evidence. It is not acceptable to present this type of hearsay into evidence by simply offering it up. And we have no real understanding as to whether it is in fact what it represents, and we don't know whether it represents the truth of the matter asserted, therefore it is of little or



no value.

WRB/wb3

b3 2

3.

4 5

.12 

The final -- I've got Attachment B that's written on this, although it comes after Attachment C. It looks like a couple of tables entitled "Auxiliary Building, Maximum Absolute Horizontal Accelerations," and another set of tables on the second page which is entitled "Containment Exterior Structure, Maximum Absolute Horizontal Accelerations.

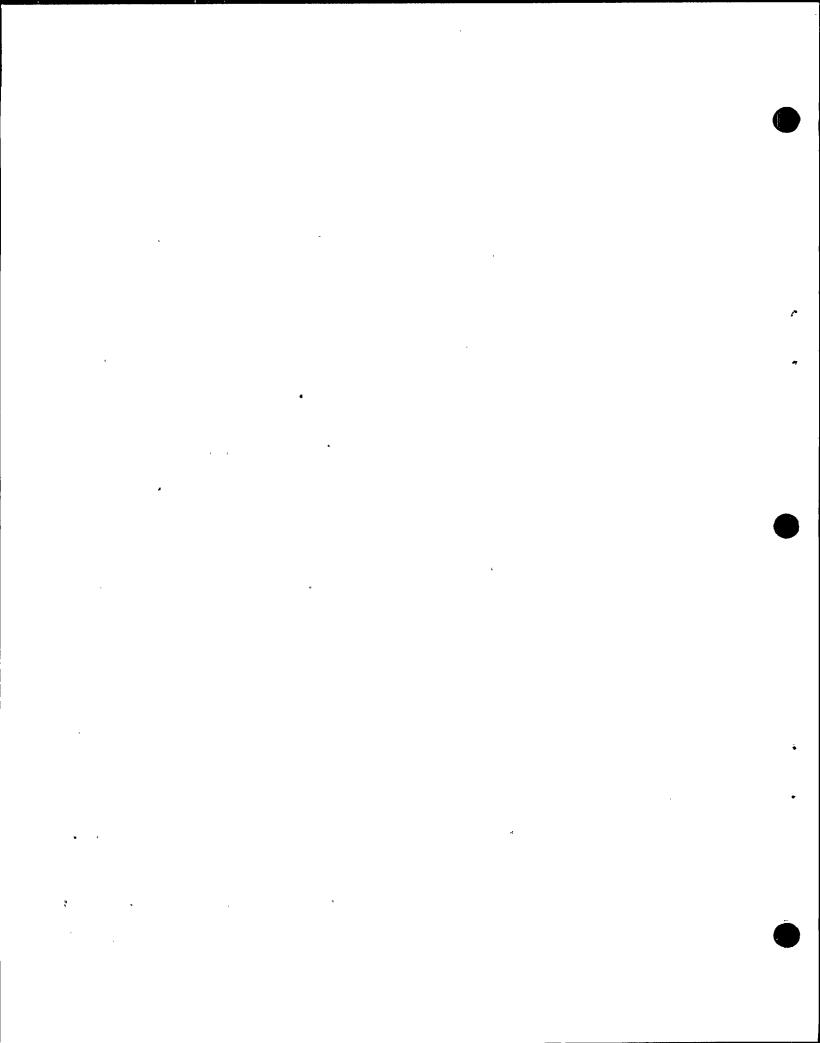
My copy is backward. The first one I gave you was on page B-2 and the second one I gave you is B-1.

Likewise, this information is information which would be used by an expert, or might be used by an expert. There's no way to tell whether it is or is not. But we do know one thing, that this expert does not possess the — or, rather, this witness does not possess the expertise necessary to evaluate horizontal accelerations or other accelerations, since he is neither a seismologist nor a structural engineer, and therefore it should be stricken because it is not competence.

I think before we proceed to the next piece of paper we probably ought to deal with Contention 4.

MRS. BOWERS: Well, Mr. Norton, before we go to Mr. Kristovich to go down through the whole thing, we'll give you an opportunity to state a position on what has been said.

MR. NORTON: If I may take the attachments first,
I have a very strong predisposition to not allowing into



2

1

3

4

5

6

7

8

9 10

ii

12. 13

14

15

16

17

18

19

20

21

22

23

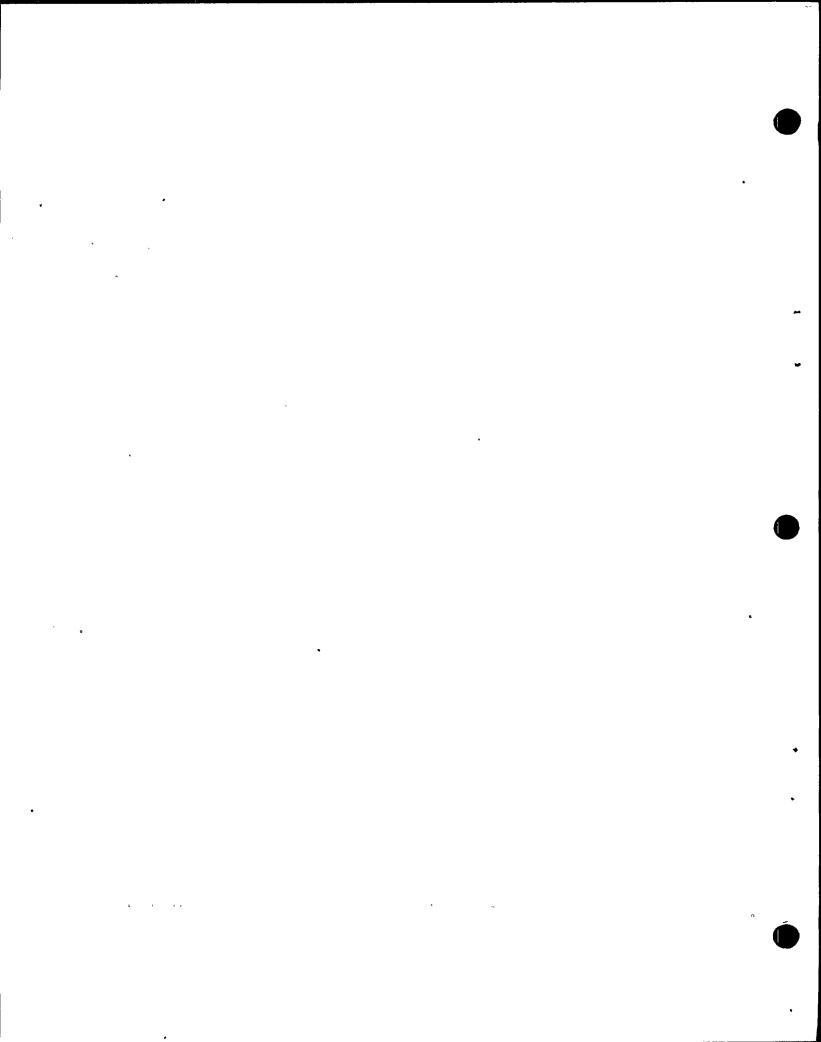
24

25

evidence documents for which there is absolutely no foundation. And I think that's the problem with Attachments B.C. and D. --excuse me; A, B and C. The opportunity to crossexamine Mr. Bettinger as respects Attackment C was presented to the Intervenors and the opportunity, of course, on discovery to ask questions in terms of written interrogatories. They hever did. And to take someone's minutes of a meeting and sponsor them into evidence for the truth of the facts stated therein is far worse than just allowing hearsny. There's just no foundation whatsoever for a document like this to be in evidence. I don't know whether it's accurate or not: that's not the point; the point is, there is no basis to determine whether or not it's accurate and the circumstances under which it was taken, the meaning of the words, what the author intended, how sure the author is of the words. he used, etc. etc

Minutes of meetings— I think you could take judicial notice of the fact that minutes of meetings are sometimes complete, sometimes incomplete, semetimes accurate, sometimes not accurate, depending on— and this looks like a large meeting with a number of people talking. I have no idea, and that's why a foundation is required for something like that.

As to the conclusion, the legal argument aspect of the conclusions, I think far more important than the fact



12.

that they could be argued to be legal arguments is the basic lack of expertise of this witness to make those conclusions.

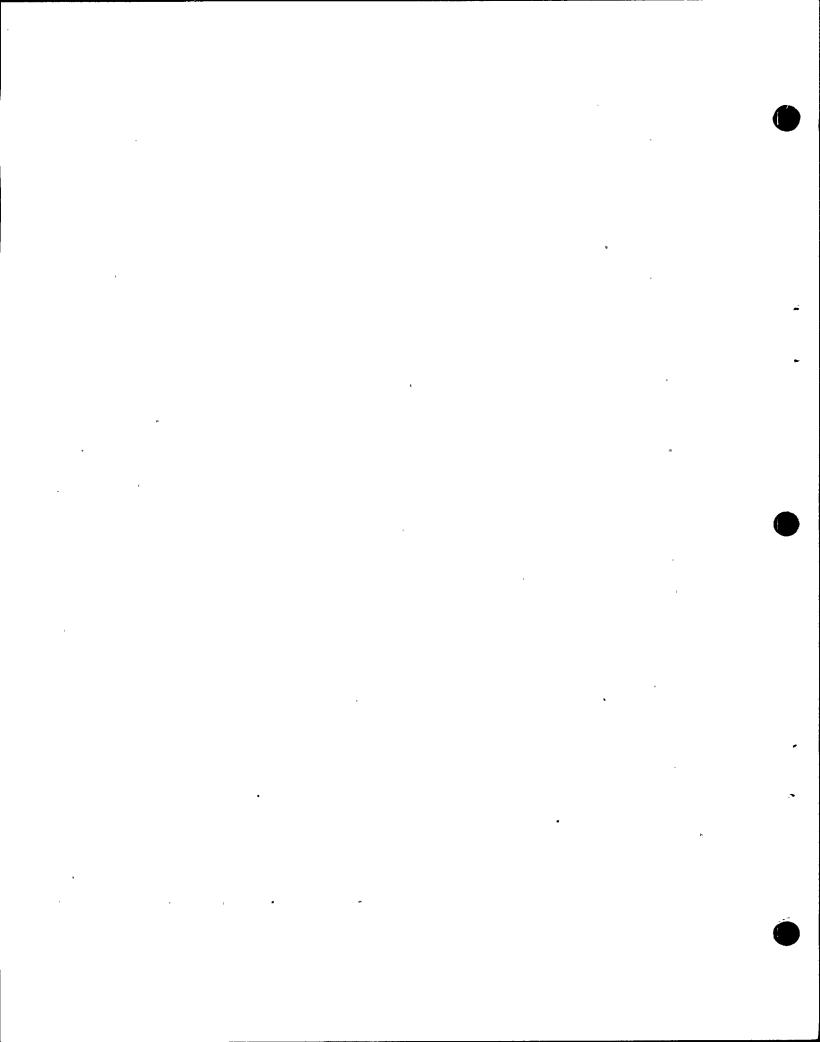
I think the voir dire amply demonstrated that Mr. Hubbard does not have the expertise to be making such conclusions because he doesn't have the expertise to do any of the analyses or examine any of the analyses upon which one must base such a conclusion. Anybody can state a conclusion, but you have to have the expertise upon which to arrive at that so that it will have some meaning to this Board. And I really take no position on the legal argument aspect of it. I simply don't feel there has been any showing that this witness has the expertise to draw such conclusions.

MRS. BOWERS: Mr. Kristovich?

MR. KRISTOVICH: Well, with reference to the statements on pages 4-3 and 4-4 down to the beginning of the last paragraph on 4-4. I would merely like to reiterate that the Appeals Board in Indian Point Units 2 and 3 said that witnesses can give opinions whether certain regulations are met, and that Mr. Hubbard's professional training and background allows him to make the statements he made in these pages.

testimony beginning the fifth line down on that page, the sentence beginning "In past Staff practices, for other recent West Coast sites the SSE and OBE values of ground

7.120



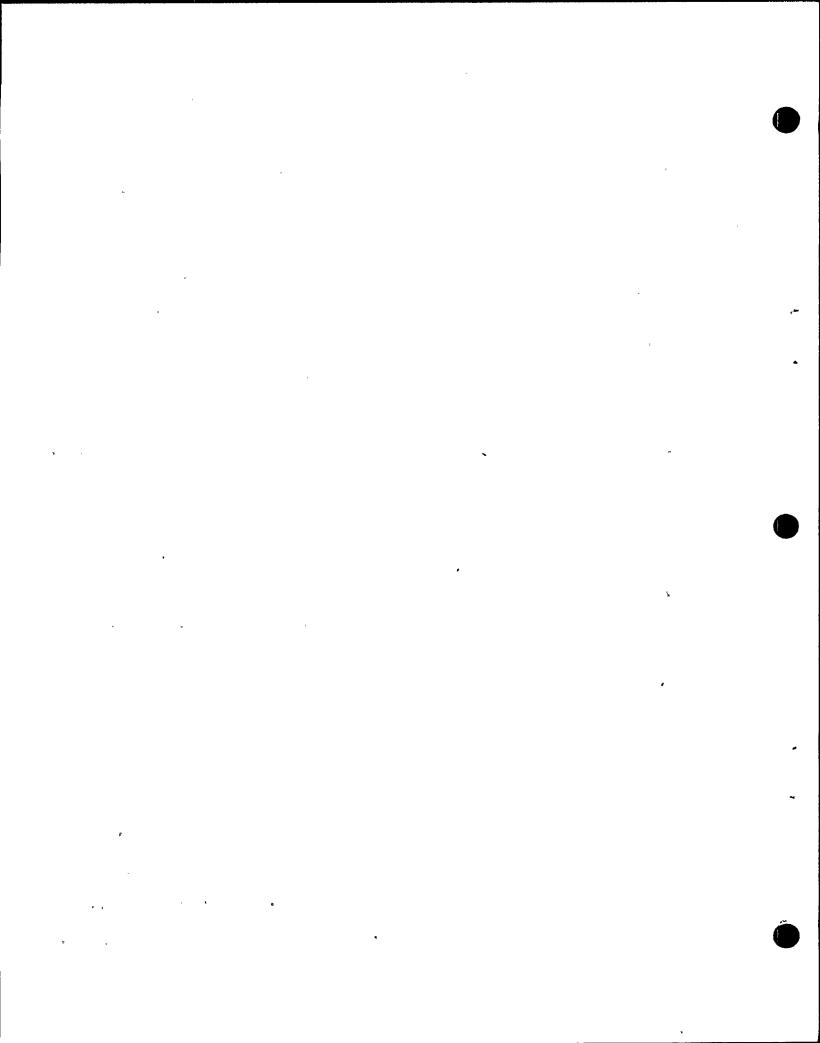
acceleration were selected as follows: and then there's a recitation of three sites with the applicable SSE and OBE citations.

I would merely like to recall that a similar recitation was in Mr. Hoch's testimony. At that time I made a motion to strike the similar testimony. This Board denied that motion to strike and allowed the testimony in. The circumstances are exactly the same. —well, not exactly the same: there's actually more basis for this testimony.

Mr. Hoch couldn't answer where he got the figures he used. Mr. Hubbard has testified this morning that he got those figures from going to the SERS for those plants, from a call to Sandra Wastler of the NRC. And, if anything, there's more of a basis for our figures than the figures of Mr. Hoch which were allowed to stay in.

paragraph beginning "The Applicant in the April 11th, 1978 letter." I'm really not sure of the basis for this motion to strike. Mr. Hubbard is merely stating an historical fact and he is referring to a lotter in the Appendix to the Hosgri Report. Witnesses for the Applicant were allowed to have historical statements in their testimony as background. This is merely what this statement is.

MR. TOURTELLOTTE: Mrs. Bowers, I roalize that I went through all this stuff fairly quickly. If there is come



ខ

îO

question about what the basis for my objection was, I'd be happy to answer any questions about that.

The reason I say that, Mr. Kristovich said he wasn't certain what the basis for my objection was. And I can help refresh his recollecton if he wants.

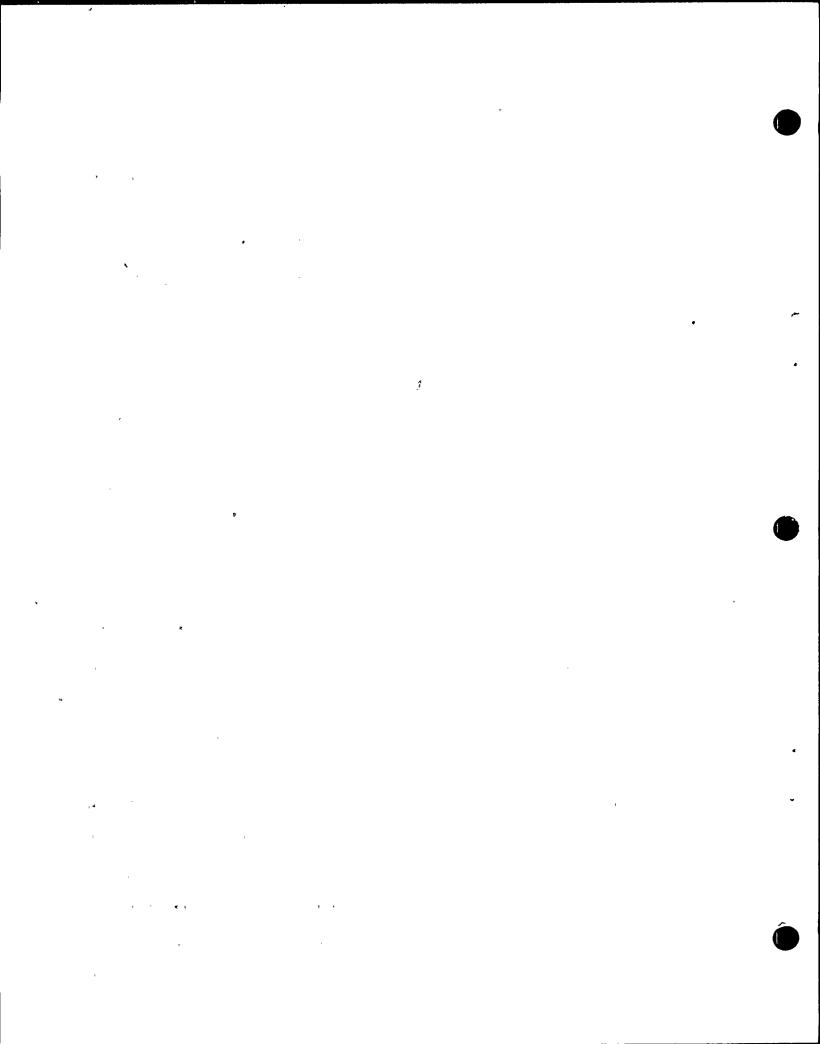
MRS. BOWERS: Well my notes show the basis was "April lith letter not fully identified. Not relevant or material."

MR. TOURTELLOTTE: That's it. Correct.

MR. KRISTOVICH: Well, I don't know if it's a proper basis if the letter is not fully identified. It seems on cross-examination counsel could further ascertain what letter is being referred to. I will direct his attention to the Appendix to the Hosgri Report where the letter can be found.

As for relevancy, as I said before, it's marely stating an historical fact and putting the testimony in content, as Applicant's witnesses were allowed to do in their testimony.

with regard to Section 3.2, Design significance of OBE, Staff argues that it is legal argument and outside the expertise of Mr. Hubbard. Well, similarly, with all Staff's contentions that certain statements are legal argument, I would only refer back to Indian Point Units 2 and 3, that it is not improper for a witness to give his opinion as



î

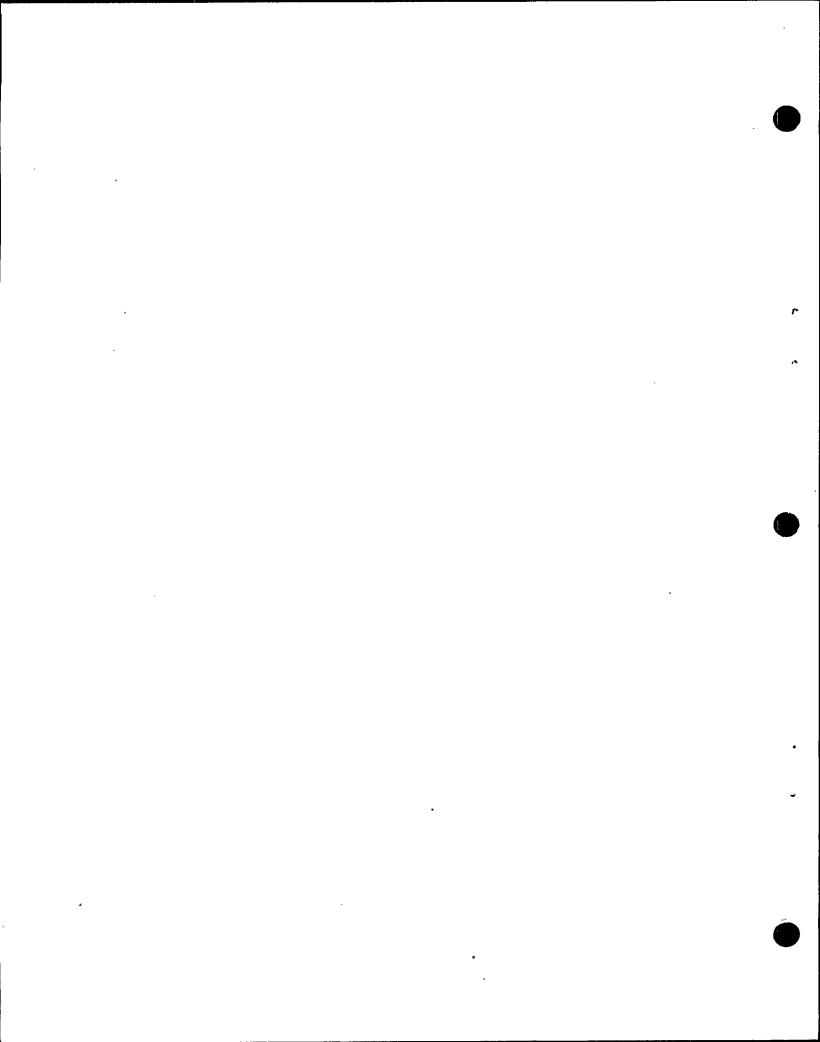
to whether certain regulations are met.

As for being outside of the expertise of this witness, well, with direct reference to the first full paragraph on page 4-6, the first full paragraph under the indented sentences, I believe Staff stated that this was a legal conclusion with no support in the facts. To my recollection, last week there was testimony regarding piping, and a witness said in some cases the OBE was controlling. This statement is also based on Attachment C and Mr. Lindblad's and other statements in that attachment. And I will address that attachment when I come to it.

strike the paragraph at the bottom of that page beginning "Further, the OBE value," and that paragraph continues on to the next page, by saying that is outside Mr. Hubbard's expertise. As part of the quality assurance program for General Electric, Mr. Hubbard did similar work. These statements are within his expertise.

On page 4-9, the section entitled "3.3. Vertical acceleration values underestimated," the Staff states that this is outside the area of the expertise of the witnesses because he does not know how to calculate loads, and therefore it is impossible to make the statements he is making here.

based on Attachment B which I will address shortly.



Mr. Hubbard's statements here are statements of fact. They don't require any tremendous calculations. I think by definition what he says is true; and the figures in Attachment B will speak for themselves.

inspection," a motion to strike was made regarding the sentence beginning on the sixth line from the bottom of the page, which begins "Determination of internal equipment damage," and the basis for that motion is it's outside the expertise of the witness. At General Electric where Mr.

Hubbard worked he had responsibility for deciding whether equipment put on shaker table tests could still be shipped to customers for use. And his work in the Quality Assurance program qualifies him to make this type of statement.

sentence, the sentences following that statement as being legal argument. I would marely refer the Board back to the previous Indian Point Units 2 and 3 citation. Applicant said that the statement was not competent testimony because TAB-B-50 and TAP-B-49 were not in evidence. It seems to me that the FSAR — in the FSAR there are thousands of citations to various documents. Those documents are not in evidence. I don't see how this differs from that situation.

Still on page 4-11, beginning half way down the page, the sentence beginning "Clearly absent demonstration of

**(•**-

r • • 

WRB/WSM
UWRB/wbl
W V

1.

· 3

· 4

:12

End lE.

.20

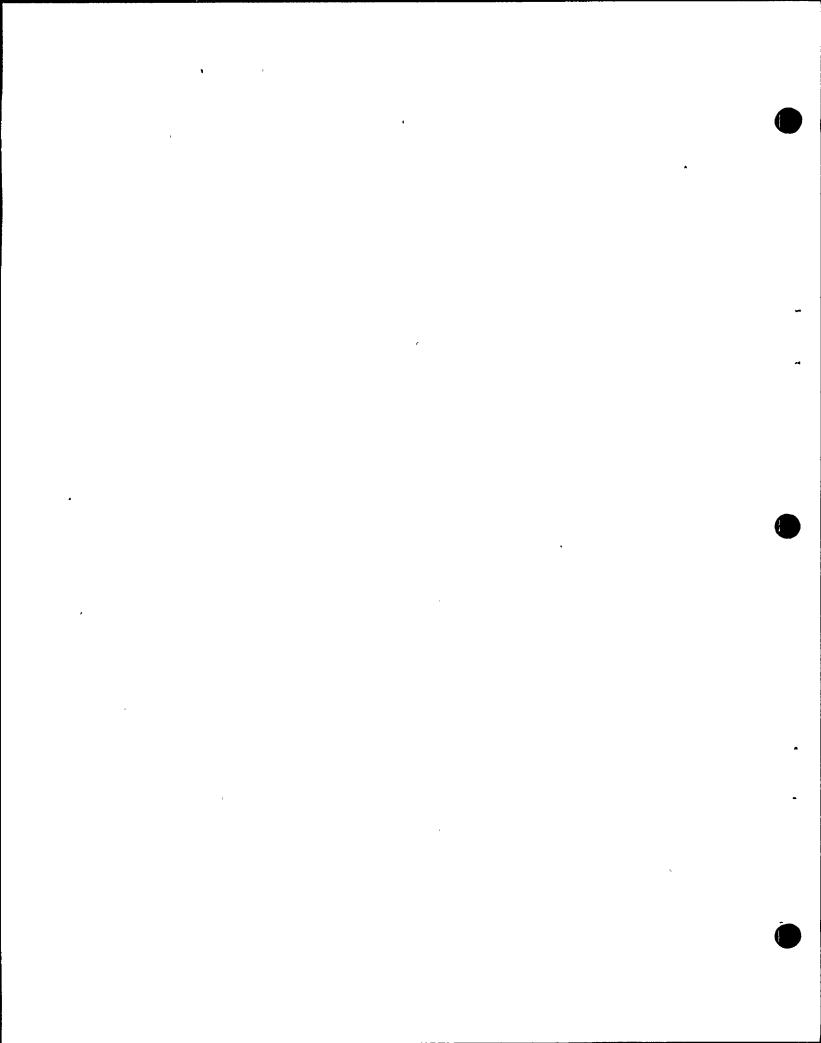
. 22

an acceptable post-OBE inspection procedure, " the motion was made to strike because it was a legal conclusion. It seems to me really it's a factual conclusion: this is Mr. Hubbard's opinion, it's not a legal conclusion. And that is an improper basis for strike this statement.

MR. NORTON: Excuse me, Mrs. Bowers. I believe there was also an objection that that sentence -- that the witness had demonstrated no expertise in that area, in addition to the legal conclusion. At least that's what my notes indicate.

MR. TOURTELLOTTE: That's correct.

MR. KRISTOVICE: In response to that I would merely state that Mr. Hubbard's professional training and experience is adequate background for making this statement.



1F WRB/agb1

7.250

·8

,9 

1.7

Design for Increased OBE, a motion to strike this section was made on the grounds that it was immaterial, outside of Mr. Hubbard's expertise, not competent because — well, that Attachment C upon which these statements are based, is not competent.

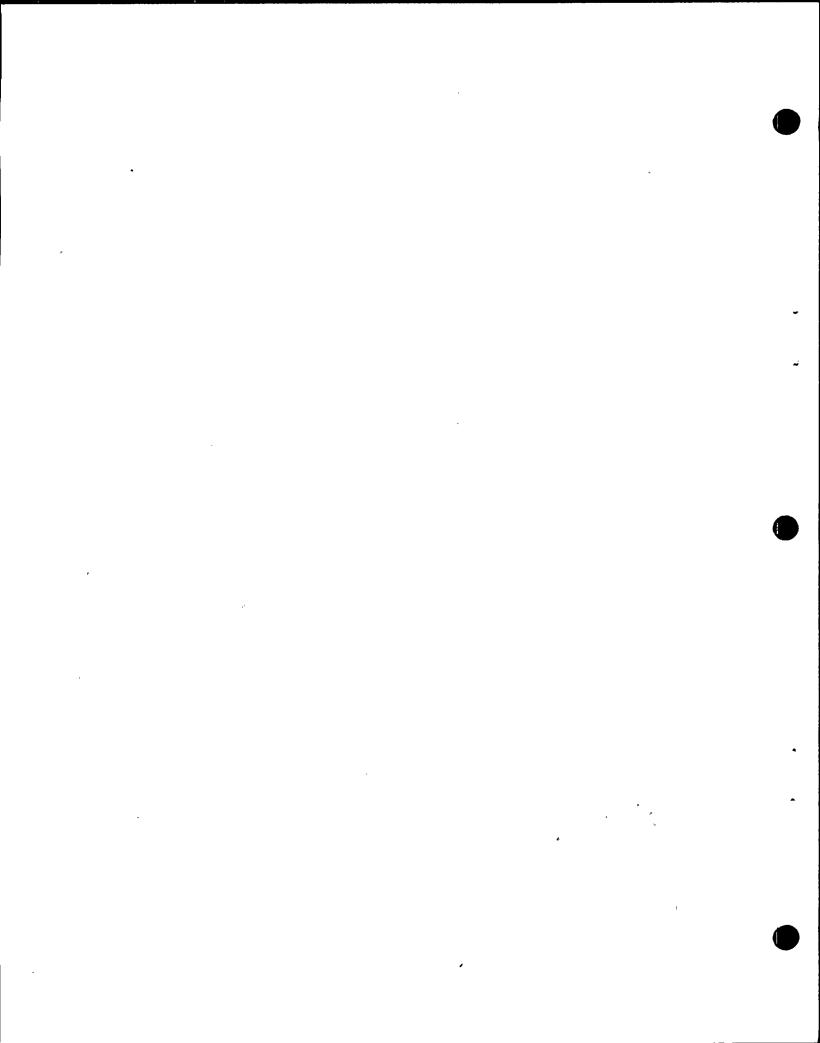
In response to that, I would say that these statements are based on Attachment C. Attachment C is a document obtained by Intervenors on discovery of PGSE papers.

I don't believe the authenticity of that document is in question.

If Intervenors have -- Pardon me, if Applicant has problems with that document, if their position has changed from the statements made in that document, they have ample opportunity to put Mr. Bettinger, who signed that document, on the stand on rebuttal. They have opportunity to crossexamine Mr. Hubbard on what is stated in that document.

It seems that the only basis to object to that document being in is authenticity, and I haven't heard any convincing evidence that that isn't an authentic document and that we didn't get it from FGSE during discovery and it should be left in. And therefore, the statements in 3.5 should be left in because they're based on that attachment.

With regard to the conclusions on Page 4-12 and 4-13, I won't go through it sentence-by-sentence but -- well, for the first two sentences, maybe I will, since there are



WRB/agb2

only four sentences in the section.

The Staff has moved to strike the first two sentences because they're legal conclusions. In reponse to that, I would merely cite to Indian Point Units 2 and 3 and the right witnesses have to give opinions on whether certain regulations are met, as Applicant's witnesses did in their written testimony.

The first sentance on Page 4-13, where Mr. Hubbard!

"Howover, where a nuclear plant is located in an area of high saismicity, as in the case of the Diablo Canyon units, an exemption to the regulatory requirements is not justi-

fied. -- in citing a Gawthrop paper for high seismicity,

And in addition, I suppose, as a basis for a motion to strike that this is a legal conclusion, the Staff suggests that Mr. Hubbard cannot rely on Cawthrop for this citation because ha's not a seismologist.

It seems to me that witnesses can rely on expert opinions of other witnesses and, therefore, it's clearly proper for Mr. Hubbard to rely on Mr. Gawthrop in this case.

With regard to the last sentence, the notion to strike is based on the grounds that this sentence states a legal conclusion.

It: seems to me Mr. Hubbard is merely stating facts

5

3

4,

Z.

8

9

10

3.3

12.

13

14

15

16.

17

18

19.

20.

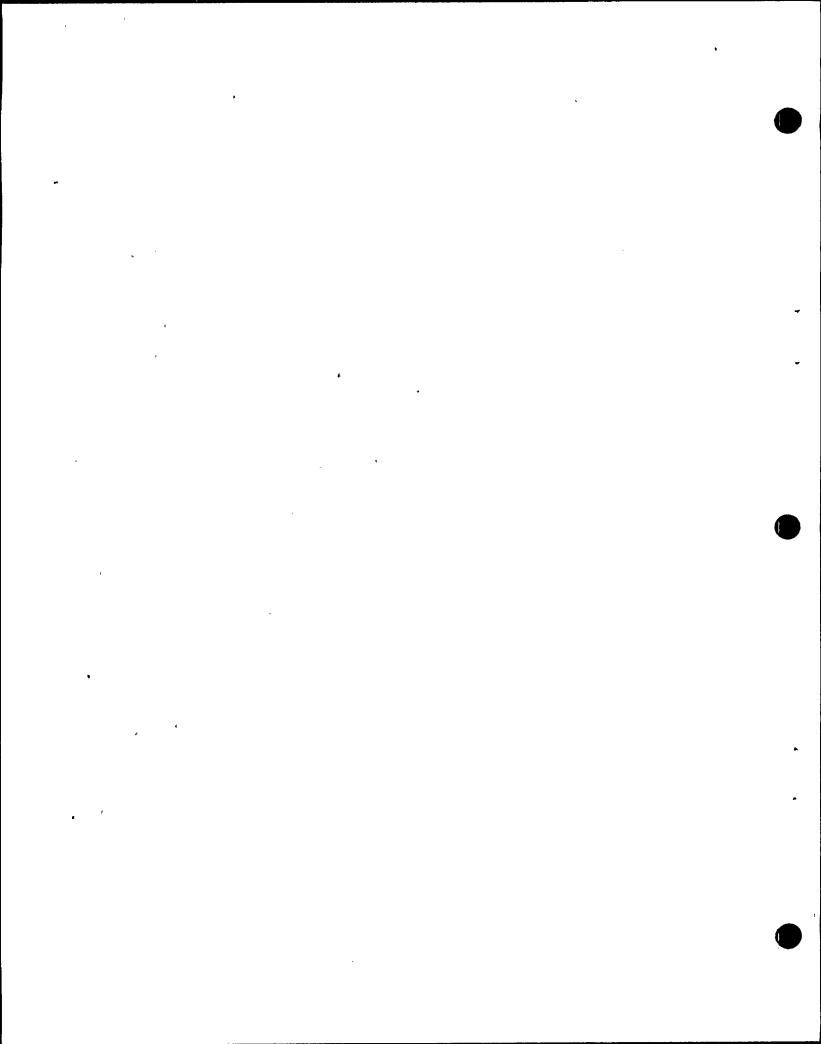
21

22.

, 23

24.

. 25.



in this sentence and, therefore, I don't think that saying this is a legal conclusion is a proper basis for striking this sentence.

Noving to Attachment B and Attachment C, these are both documents obtained on discovery of PGSE papers. I haven't heard anything suggesting that these are not authentic documents, that these are not really PGSE documents. If Applicant and Staff wish to cross-examine on their contents, they may. If the position of Applicant has changed with regard to these documents, they can put on robuttal testimony. But they are authentic documents, Mr. Eubbard can testify to that, and on that basis they should be allowed to stay in.

With regard to Attachment 3, the table speaks for itself. Mr. Hubbard can add and subtract and do those types of calculations with these figures which he needs to do as background for the statements in his testimony.

And if Applicant or Staff wishes to show that he cannot use these tebles to back up the statements he made, the limited statements he made in his testimony, they have an opportunity to do that on cross-examination.

That concludes what I have to say at this time.

MRS. BOWERS: What about Attachment C? I know

you touched on it earlier.

MR. KRISTOVICH: I thought my statements just now with regard to Attachment B and its authenticity also

4

3

.5

6

7.

9

10

.

12.

.13·

.14

15.

. 16:

17

18

19

20

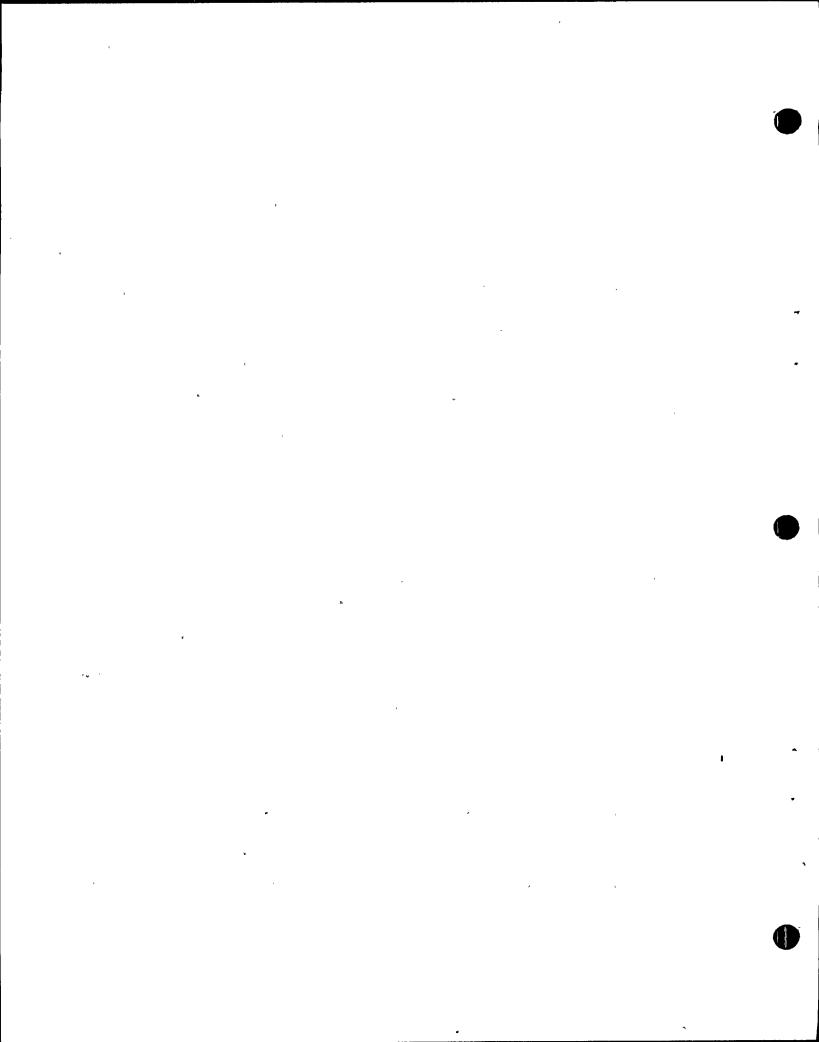
21

22

23

24

25



WRE/aqb4

3

4

5

6

7

S

9

10

-.12

1.3

14

15

16

17

18

19

20

21.

22

23

.24

.25

applied to Attachment C.

Applicant keeps referring to the fact that we didn't cross-examine Mr. Battinger on this document. know any rule of evidence that states we have to cross-examine Mr. Bettinger on this document. Applicant has the opportunity to put Mr. Bettinger on the stend in rebuttal, if they wish to disacree with the statements in this document which is signed by Mr. Bettinger, and they have the right to crossexamine Mr. Hubbard on the use of this document. But Mr. Hubbard will testify that this is an authoritic document. obtained from PG&E on discovery.

MR. NORTON: Excuse me, Mrs. Ecwers. May we raply before Mr. Tourtellotta, so that MR. Tourtellotta gats his last opportunity?

MRS. BOWERS: Go ahead.

'MR; NORTON: I just have a few things;

First of all, indeed, either Mr. Kristovich --I believe it was Mr. Kristovich, moved to strike Mr. Hoch's use of four or five plants showing where an OBE less than one-half had been used. The basis for that motion to strike, however, was because the numbers weren't available.

He incorrectly stated that he moved to strike the numbers, but I believe he moved to strike the statement regarding those plants because the numbers were not available.

Now he did not object on the basis of relevancy

. . • 1 •

.

1 ;

,12 

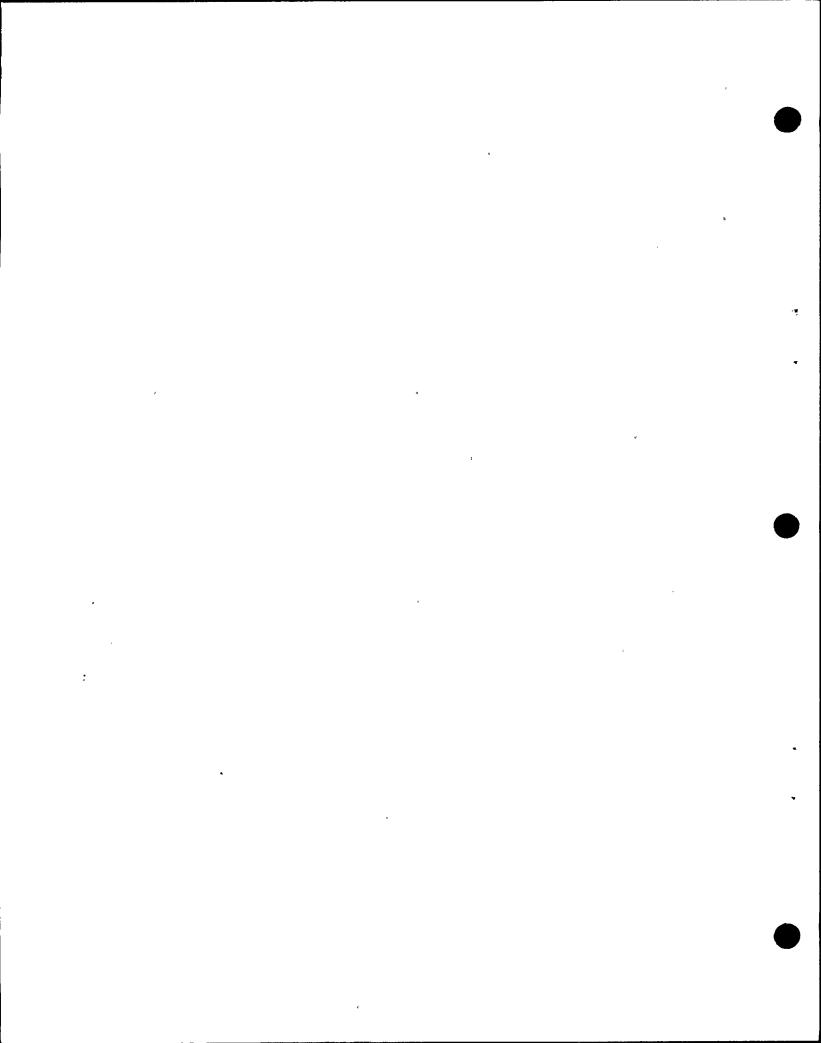
or materiality. Had he done that, I would suggest that the Board maybe should have struck the material as not relevant to these proceedings. The question before this Board is whether or not Diablo Canyon is safe to have an operating license issued.

an attorney didn't object to it in an earlier stage or in another case or at another time doesn't mean that you allow improper evidence in when a proper objection is made to that evidence.

tainly applicable in terms of evidence. Because a lawyer fails to make a proper objection in one instance doesn't mean that he can't later make a proper objection to enother piece of evidence and have it excluded.

And no objection was made by Intervenors when Mr. Hoch testified regarding the other plants as to relevency or materiality and that's what the objection to these plants is in this case.

We keep hearing the fact that Indian Point said an expert can say whether or not regulations have been complied with. Well, there's no question about that. Obviously an engineer can say whether or not some regulation has been complied with in an engineering sense. The point is, however, that if he doesn't have the professional qualifications to make



3

Δ

5

6

7

8

9

10

**i**i

12

13

14

15

16

17

18

19

that judgment, it then becomes a legal argument.

I don't have the professional qualifications to make a determination as to whether, from a mechanical or structural engineering standpoing, 10 CFR Part 50 and Part 100 have been complied with, but as a lawyer, I can take the expert testimony of my witnesses and cite that as factual evidence and then make the argument.

What we have here is a person who does not have the expertise to make that judgment making the argument.

Unfortunately, he's not a lawyer, he is putatively an expert witnesses.

As to the attachments, I'm airaid I don't understand at all where Mr. Kristovich is arguing when he says well they are authentic. I assume they are authentic, they ra copies, I assume, of originals. That isn't the basis of the objection, that they're not authentic. The basis of the objection is that there is absolutely no foundation for these documents, and I am not obligated to lay a foundation for Intervenors' documents, that's Intervenor's job. They have to lay the foundation, and they can do that in a number of ways. They could have done it by cross-examining Mr. Bettinger, that's one way they could have laid a foundation for Attachment C. They could have done it by having a request for addition. They could have done it by asking interrogatories.

		•		
		;		
•				
			•	
			•	. <del></del>
				-
			,	•
16.			·	•
				À

2

3

5

6

7.

?

; ::

ij

12:

13

14

. 15

16

17

; 18

19

20

21

22 23

24.

25

They didn't do that. And now they're saying that I have the opportunity to lay the foundation for them. I'm not going to lay the foundation for them, it's not my job, it's their job. And there has been absolutely no foundation for those documents and under no circumstances should they be put in evidence.

Finally, he talks about the tables. Well, he says, Mr. Hubbard can add and subtract. So can I. Unfortunately, I don't have the expertise, and neither does Mr. Hubbard, to make a meaningful use of those tables, to go through an analysis and show X, Y or S. Meither one of us has the ability to do that, although we certainly can add and subtract, so the fact he can do that is not a basis for allowing those documents into evidence.

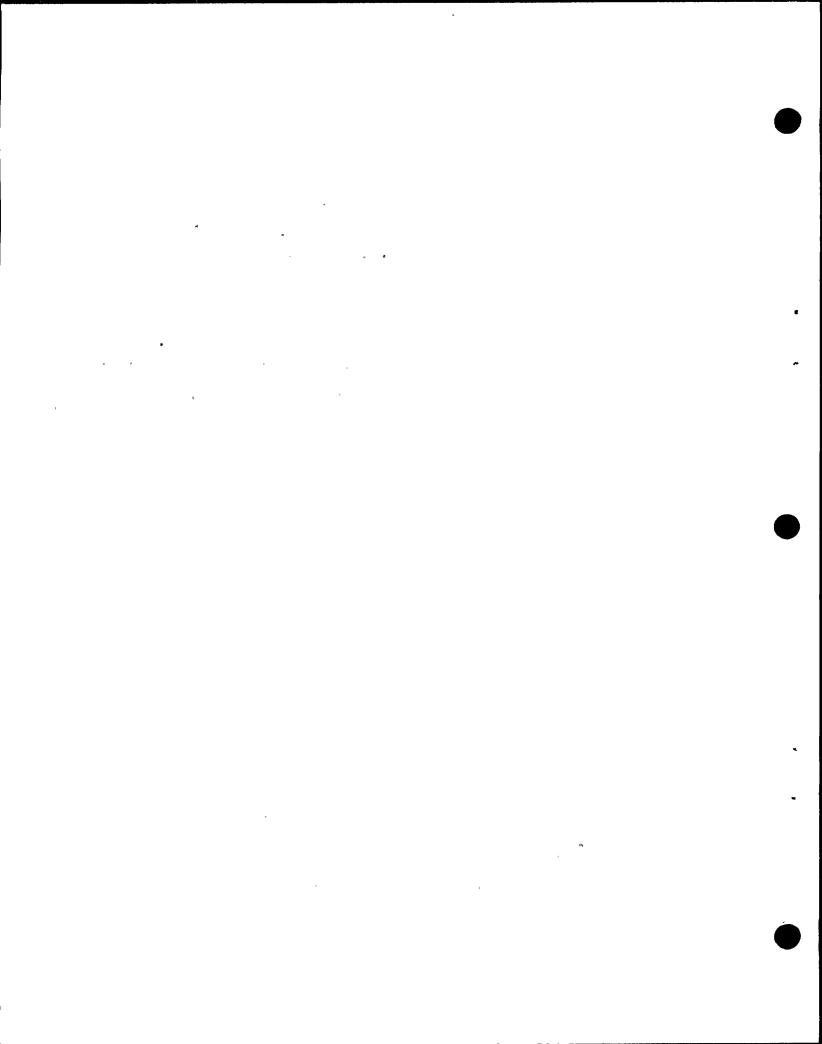
That's really all I have.

MR: KRISTOVICE: May I respond to that, Mrs. Bowers?

MRS. BOWERS: Well, we want to chop this off as soon as we can but go shead briefly.

MR. KRISTOVICH: Well, with regard to Mr. Hoth's testimony, I don't have a copy of the transcript on that day here. I believe I made a motion to strike based on grounds of relevancy, I can't remember for sure. I think I did. Like I said, I don't have the transcript here.

I would merely like to comment also that it's



2

4

5

.8

ġ

9

íO

11

12.

1.3

14

15

16.

1.7

18

19

20

21

. 23

24

25.

curious that the Staff at that time, if I remember correctly, didn't make a motion to strike on relevancy and now in this case they have. They can choose to make motions to strike when they want to, I just find it curious that in one case they would and in one case they wouldn't, if they are exactly the same situation.

With regard to the tables in Attachment B, Mr. Hubbard refers to these tables as the basis for making specific statements. He uses these tables for a limited purpose, and I believe it is clear that he has qualifications to use those tables for the limited purposes for which he makes the statements.

MR. NORTON: Excuse me, Mrs. Scwerz. We have to terminate this someplace. Mr. Kristovich is not making new argument, he's repeating old argument. And you know, it's not a question of who has the last word, it's who has the correct word.

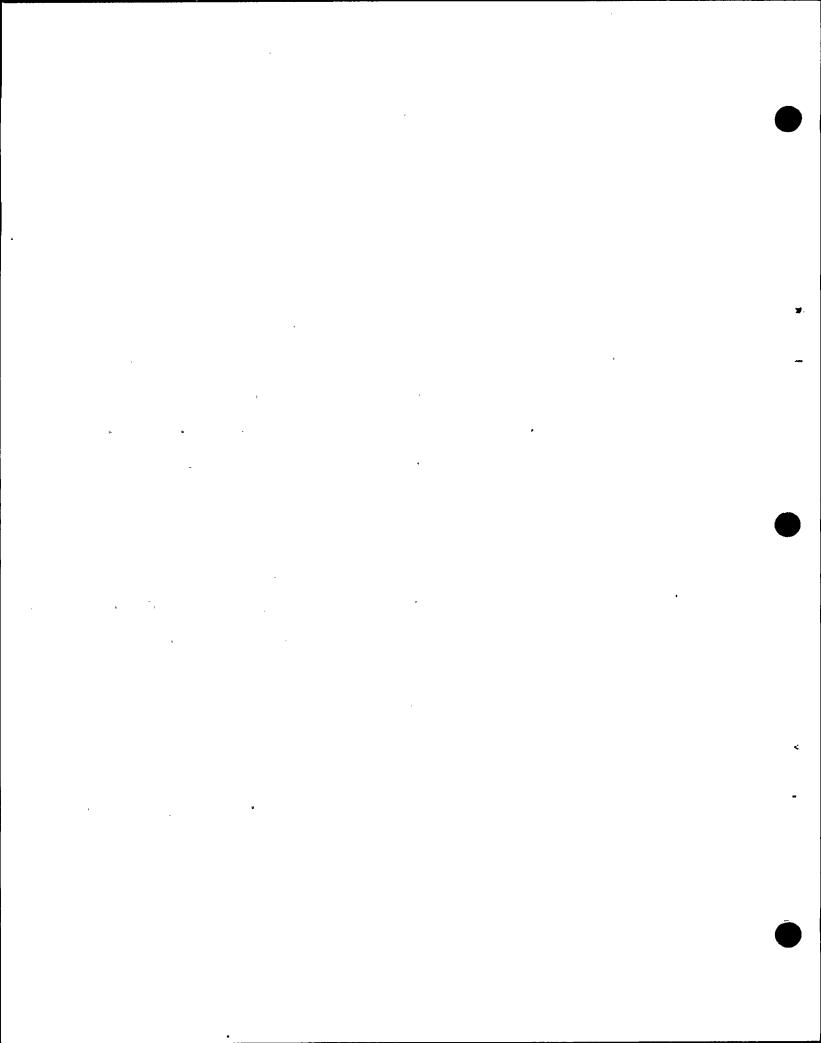
MRS. BOWERS: We empected you to be limiting it to new words.

MR. KRISTOVICH: That's all I have to say.

MRS. BOWERS: Mr. Tourtallotte, you're the movent.

And we do ask you not to repeat prior argument.

MR. TOURTELLOTTE: I recall one time when I was in a case and I made the statement I would briefly recapitulate and it took me an hour and 45 minutes and the judge just about



threw me out of the courtroom.

I'll hav and he balos.

I do feel like, briefly, the reference to Indian Point Number 3 by Mr. Kristovich is correct, supports can state opinions as to whether or not the Regs. are met.

However, as I indicated earlier, the quastion is whether or not the parson who is making the statement is an export in the first place, and whether of not the Rags. are met is not a question of whother the Rage, are mat in a legal sense, but, whether or not the standards, whether the technical standards established in the regulations are being met, and that requires a degree of expertises. It also requires a degree of technical analysis.

And sheart the technical analysis and absent the expertise, then a witness -- and that's all you have left, not an expert witness, but a witness, -- cannot state opinions about what the regulations do or do not mean.

> Lot's sea if I can eliminate some of this. (Pause.)

Mr. Kristovich indicated that Attachment B speaks for itself, and I find that a rather unique way to defend an introduction of a document. If indeed documents can speak for themselves, then we're wasting a lot of time being here. We can all send our documents in to a central control contor and they can all speak for themselves and perhaps they will

3

4

5

õ

ક

٠,

10

11

12

. 1.3

14

15

16

1.7

18

19

20

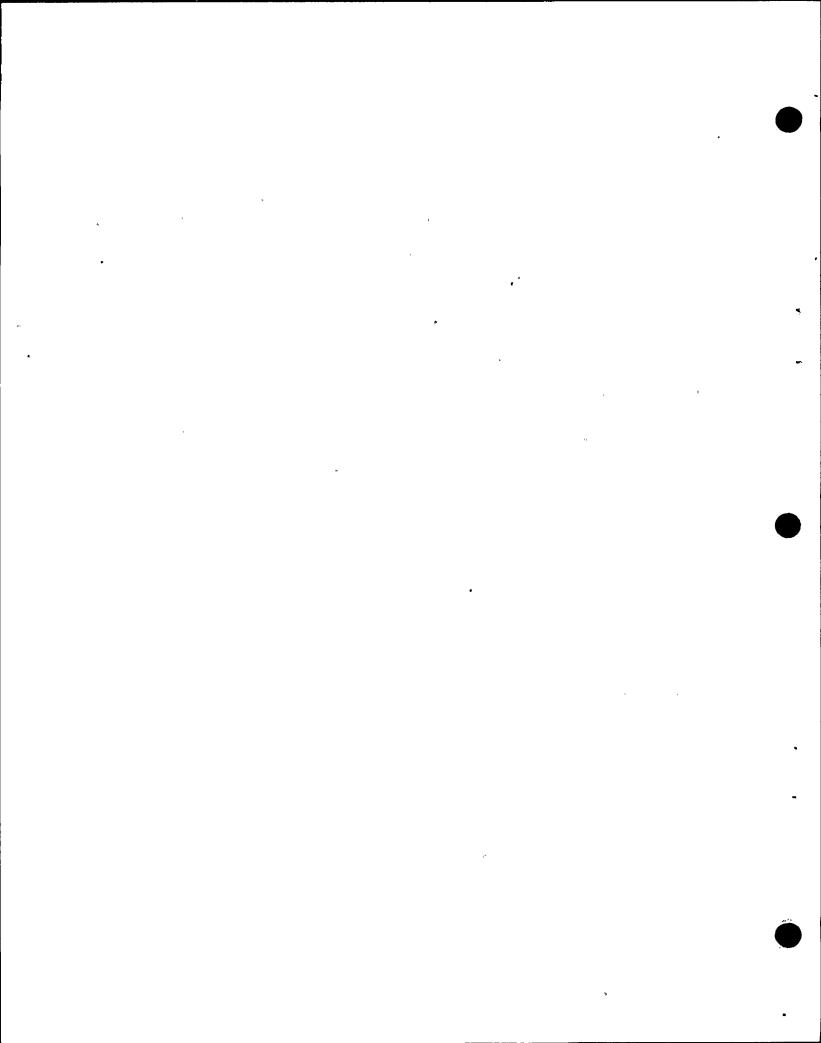
21

22

23.

24

25



engage in the argument that we're engaging in, and we can all get into another business.

(Laughter.)

Attachment C, the question -- Mr. Kristovich stated that authenticity is not in question. And that is not the point. The point is that we have no way of determining, at this point in time, whether the purported facts contained therein are true or not. We don't know whether it's the truth of the matter asserted or not, we don't know whether it's part of the story or we don't know whether it's all of the story. And Attachment C simply has no evidentiary value.

4

3

5

•••

ξ.

8

. .

. .

11

.12

andonflws3

14

15

16

17

18

19

: 20

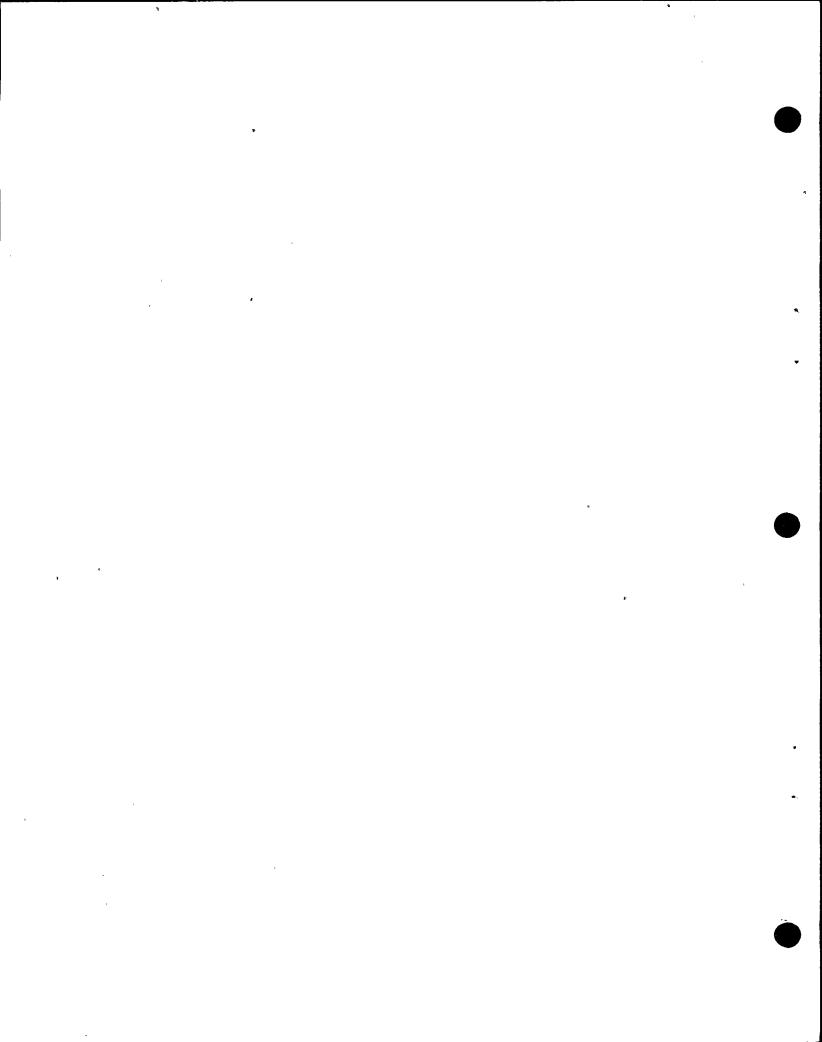
21

22:

23

24

25



1

2.

3

5

б

7

8

9

1G

3 1

12.

13

14

15

16

17

18

19

20

21

: 22

23

34

25

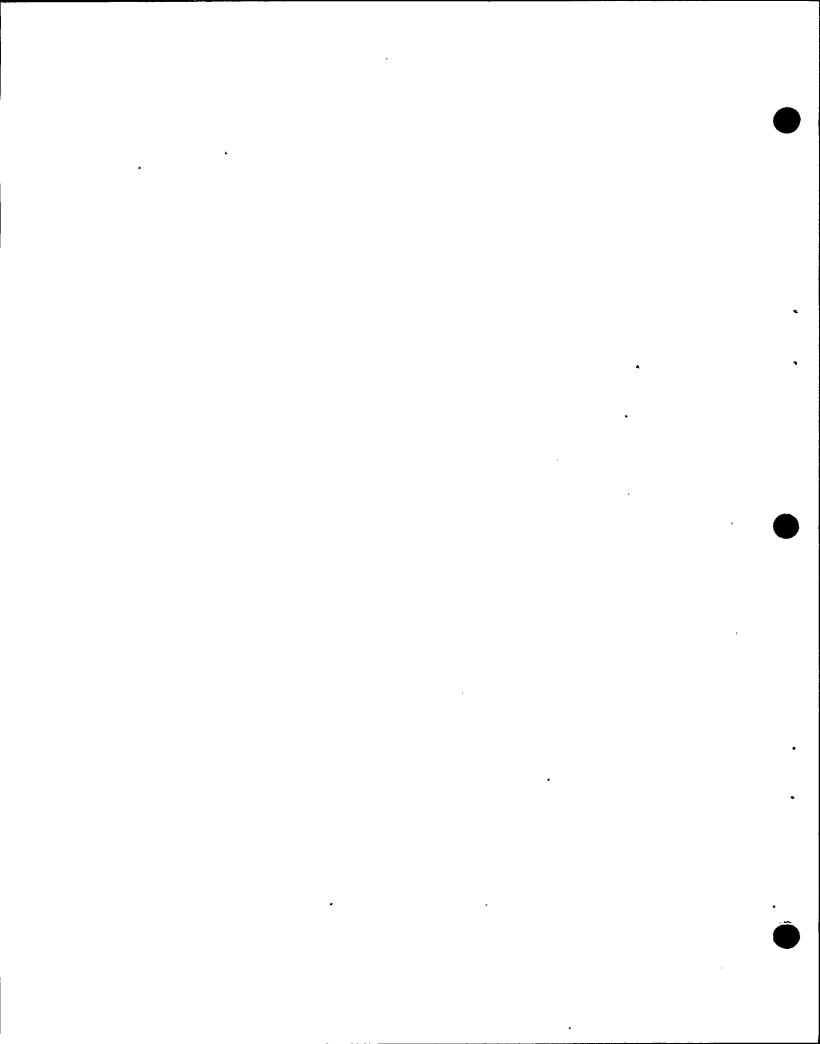
Mr. Kristovich also made the statement that witnesses can rely upon other expert witnesses in citing Gawthrop, and that's also a rather peculiar situation, because all we would need then is a collater of expert opinion for the purposes of coming up here and rendering advice to the Board.

The Board does not reed a collater of expert opinion. The Board can get its own staff members to go out and gather documents together, if that's all that's important.

What we need is the keen analysis of people who have expertise in the area that they're testifying about, and not someone who simply is a form of librarian who draws various pieces of information together for the purposes of presenting them.

This witness is not a seismologist, okay? So he's citing Mr. Gawthrop. He can't possibly know since he's not a seismologist whether Mr. Gawthrop's article is worth citing or not. He doesn't have the background in the discipline necessary to evaluate the importance of Mr. Gawthrop's article. If he doesn't have that, that background, then the simple presentation of a fact excerpted from that particular document is of no evidentiary value in this case.

Finally, I would like to say that we're talking about Contention number 4, and we're talking about operating basic earthquake. Essentially what I have done is made a



2

3

• 55

G

ଚ

9

10

motion to strike, which involves striking virtually everything that is stated therein. And I have tried, on almost a sentence-by-sentence basis, to tell this Board why I thought all of that information should be stricken.

However, I would invite the Board's attention to the fact that this is operating basis earthquake.

fact that the voir dire early this morning clearly indicated that he did not know how -- Mr. Hubbard did not know how to calculate loads. He didn't know fundamental load formulas.

He didn't know anything about structural and mechanical engineering that one must know in a fundamental way.

Forget about the more esoteric applications of mechanical and structural engineering. He didn't even know the most fundamental rules that apply, or the fundamental formulas that are applied, in those disciplines.

Consequently, anything that he has to say about the operating basis earthquake, whether it's a legal argument or whether it's not a legal argument, he simply doesn't possess the expertise to testify about it.

Mr. Kristovich can talk until he's blue in the face about the fact that he used to work for GE, and he used to be in the QA program. But he cannot overcome the fact that this morning, right now, Mr. Hubbard is incapable of answering the most fundamental questions about the disciplines

ర

ent y test so

12

11

13

14

15

16

17

18

18

20

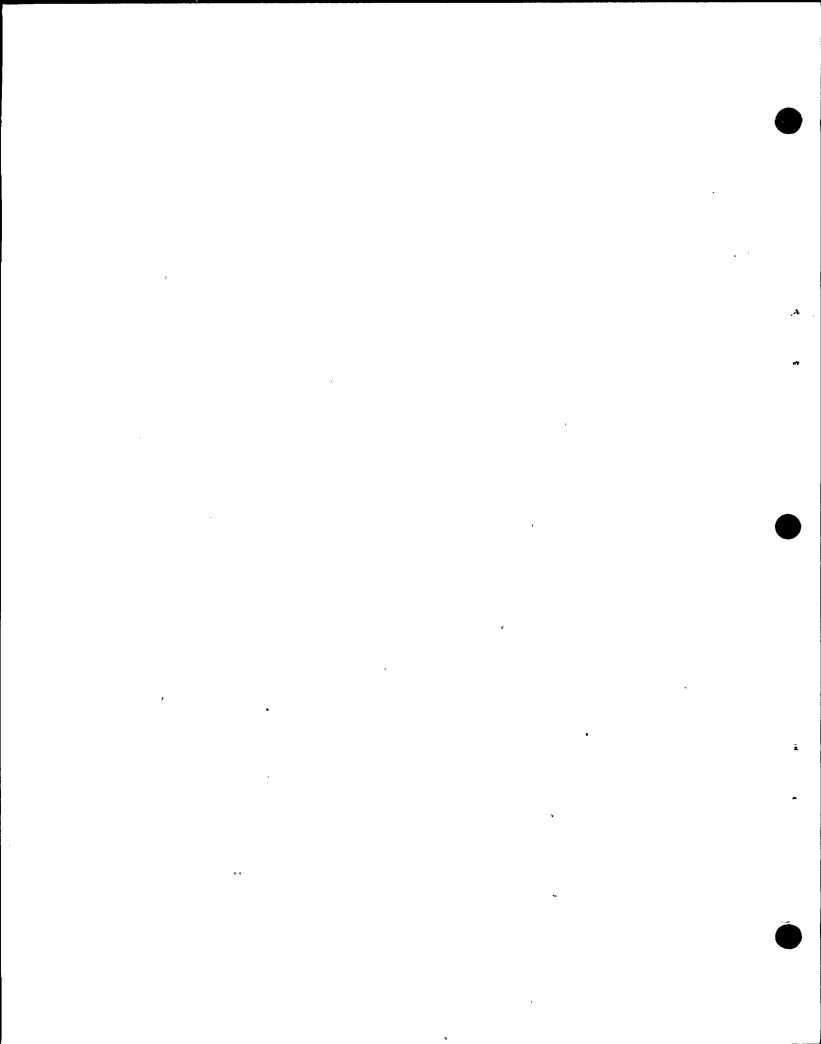
21

22

. 23

24

25



necessary to evaluate what an operating basis sartinguake should be or should not be.

-10

1.3

MRS. BOWERS: We have a logistics problem. I don't know that we can carefully consider this out on the windy bluff. Since most of you welcome the opportunity to leave the room, maybe we could encourage you to do that now. And, of course, the lobby is open and these other mocas are open around here.

But we're going to have to go through this carefully, so -- sorry about this --

MR. NORTON: Are you going to run up the flag to let us know when to come back?

(Recess.)

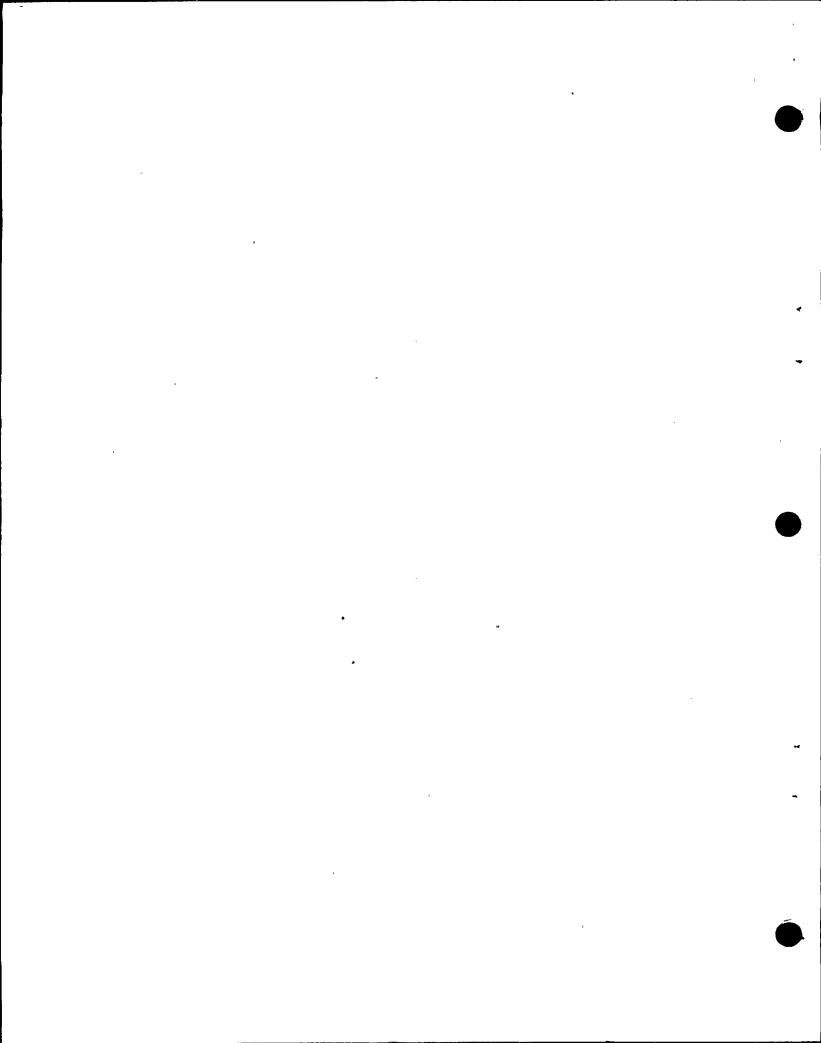
MRS. BOWERS: We'd like to get started.

I'll run down through the whole thing, and there may be a problem with my notes where we might have to have a Board discussion on part of it, but I don't think so.

Beginning on page 4-3, under III. DISCUSSION OF ISSUES, the motion asks that that section down to the beginning of the last paragraph on page 4-4 be stricken on the basis that it was a legal argument.

some extent paraphrasing them. And we don't see an argument there. So it will not be stricken.

Now, the Staff didn't ask that the last paragraph,



ĩ

ΰ

\_

12.

nor did the Applicant, on page 4-4 be stricken.

Beginning on page 4-5, the fifth line down, "In past Staff practices for other recent West Coast sites," we were asked to strike in that it wasn't relevant.

We were also asked to strike the next paragraph referring to the April 11 letter as not relevant or material.

We are going to leave that information in the record. We think on cross-examination and on direct more information can be brought out. But we do think that there is sufficient relevancy not to strike.

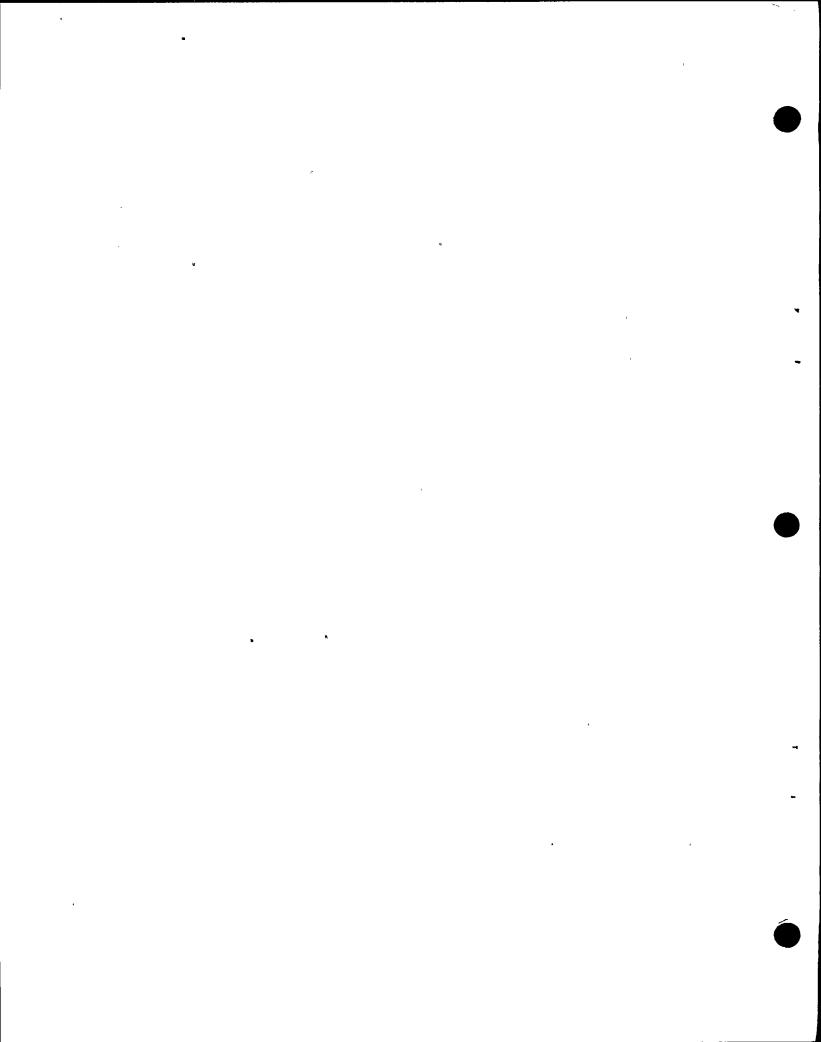
ka ngapangagatan na na kalagaga na agus na gara na palaga a kapanangan na ana na kabuntan a naguntang dibabbu na kababba na kababba na

Following 3.2; Design Significance of OBE, again we're faced with striking what is the quotation of the Rogs. And so we won't strike that. But when you get over on the next page, 4-6, the first paragraph under the quote will be stricken as a conclusion that this witness does not have the expertise to support.

Now, the rest of that -- and it is, in effect, to some extent a legal conclusion -- the rest of that page was withdrawn by the witness, until you get over to page 4-8.

Beginning the last paragraph there, "Further, the OBE value is also a key parameter in the seismic design. that will be stricken, since it's an opinion that should be based on expertise. And this witness has not been qualified as having expertise dealing with these matters.

But beginning with, "For example, if testing is



•

ŝ

?

12.

to be utilized for design verification of safety-related electrical equipment,..." we will not strike that sentence, or the following quote. And we are assuming that the last sentence, dealing with the seismic test program at Wyle Laboratories, is also related to electrical equipment. So we won't strike that. But we expect some testimony on that.

Now, 3.3, Wartical Acceleration Values Underestimated, the first sentence we think is a conclusion and expertise has not been established. So it will be stricken.

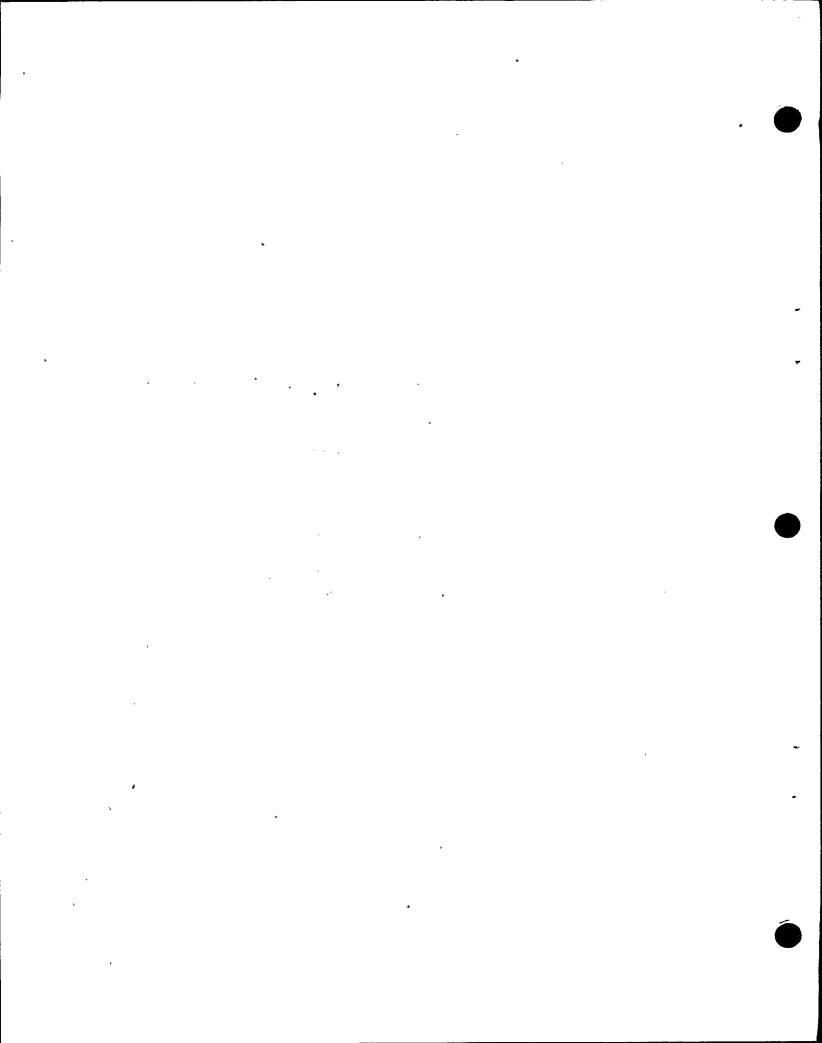
As far as the rest of that paragraph, on the mext page, the second line, "Assuming that the Applicant utilized the same procedure..." we will not strike the rest of that paragraph -- no -- wait a minute. 3.3, Vertical Acceleration, we agreed to strike the first sentence, right?

MR. BRIGHT: Right.

MRS. BOWERS: We agreed to leave in, beginning "For example, as shown in Attachment S..." we agreed to leave in the next sentence, and then the last sentence on the page begins, "The result was that in the Mosgwi reanalysis the vertical loads were a factor of two (2) to six (6)..." we agreed to leave in, correct?

MR. BRIGHT: Yes.

MRS. BCWERS: But the next sentence, "Assuming that the Applicant utilized the same procedure..." there's no data to indicate the combination of vertical and horizontal



24

25

loads is significantly understated for the OBE. Didn't we agree that that would be stricken?

MR. BRIGHT: Yes.

MRS. BOWERS: Yes. That's the last santence in

Now, going to the next section -
MR. TOURTELLOTTE: Excuse me. What was the
basis for striking that?

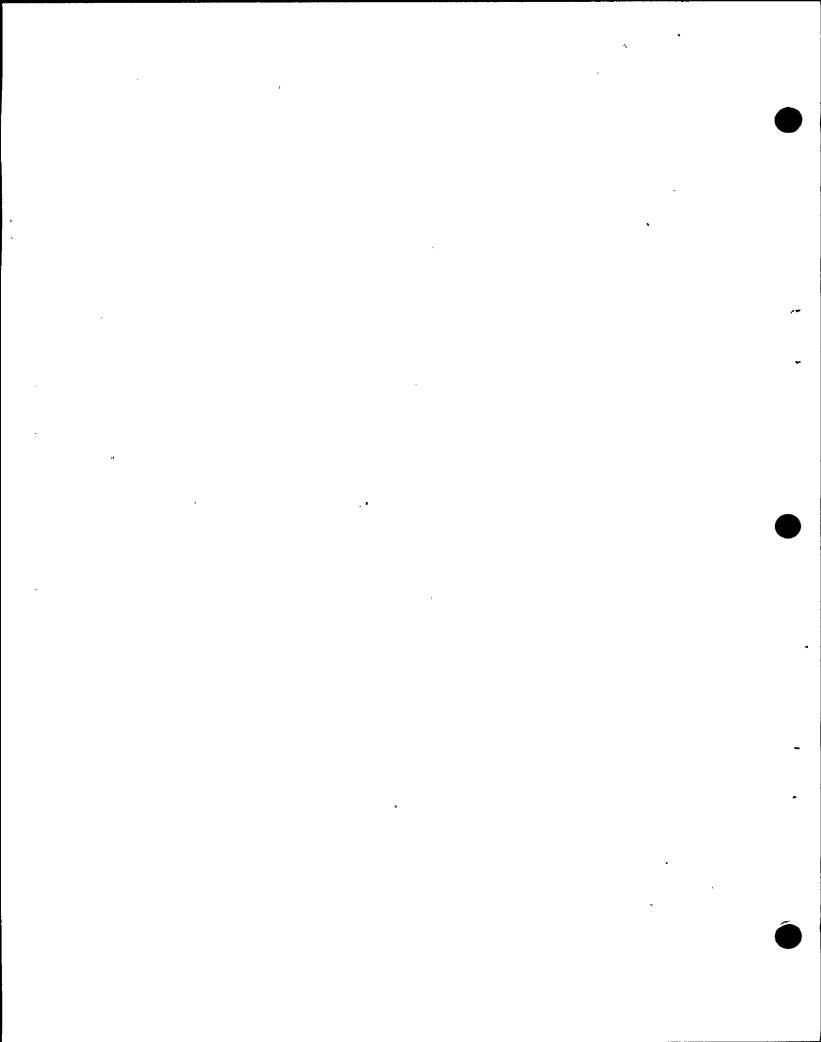
MRS. BOWERS: As a conclusion for which supertise has not been established.

والإراج والمراج والأمراء والمراجع والمناج والمراجع والمراجع والمناقب والمراجع والمراجع والمناجع والمتراج والمراجع

And then 3.1, Post-OBE Inspection, we will leave in -- well, the quoting of the regulation and then the paraphrasing, down to the words in about the sixth line.

"Determination of internal equipment damage..." We think that is a conclusion that there's no expertise for, and so it will be stricken.

Going to the next sentence, "The requirements for this post-OBE inspection are stated in Section(ump-te-ump) of the Standard Review Plan," and then there's reference to the Task Action Plan, we will not strike that. We're putting this in the same category as — what was the name of that other thing:——Fugi? Fugro?——the report that we heard a lot about that was never introduced? And we think this is simply in the same area of reciting documents. In order for this to have weight or meaning there would have to be a



ĩ

δ

.

further explanation -- down to the sentence beginning "Clearly, absent demonstration of an acceptable post-OBE inspection procedure..." that is out based on the fact that there isn't the expertise.

Now, going to 3.5, Difficult to Upgrade Design for Increased OBE, that entire section is out. There's been no foundation for the documents that were introduced, and certainly there could have been some questions asked of some of the prior witnesses.

Now, when it comes to TV, CONCLUSION, the first will be modified.

Applicant selection of an OBE corresponding to a horizontal ground acceleration of 0.20g contravenes the express language of Appendix A, V.(a)(2) to 10 CFR Part 100."

The rest of the paragraph is out as conclusions without the necessary expertise.

Ou the attachments, Attachments C and E are out as lacking foundation.

Were you able to follow that?

MR. KRISTOVICH: I was just unclear about the modification of the first sentence in the conclusion, what you added.

MR. NORTON: I have a question, also.

MRS. BCWERS: We're identifying Appendix A,

. 

V. (a) (2).

2 ||

3

3<sub>,</sub> į

/i

4

\_

J

5

7

8

9.

1G

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

MR. KRISTOVICH: Thank you.

MR. WORTON: Mrs. Bowers, did you strike Attach-

ments B and C?

MRS. BOWERS: Yes. No foundation.

MR. NORTON: Well, you left a sentence in on 4-9 which says, "For example, as shown in Attachment B..." and you've struck Attachment B. I'm not sure how you can strike Attachment B and not strike that sentence. Or just strike it through, "For example, as shown in Attachment B for..." and strike that postion of it and leave in, "the containment..." that's one possible way you could do it.

But I don't see how you could leave the sentence in without the Table.

MRS. BOWERS: You're suggesting that we just simply drop the phrase, "... as shown in Attachment B?"

MR. NORTON: Yes..

MRS. BOWERS: So it would read, "For example, for the containment exterior structure..." and so on?

MR. NORTON: That isn't what I suggested, but that's better than what I suggested.

MRS. BOWERS: This was an oversight. We meant to drop the reference to Attachment B.

MR. KRISTOVICH: So does that mean you're striking the words, "As shown in Attachment B?"

• . • 

MRS. BOWERS: Yes.

3

MR. KRISTOVICH: Okav.

4

5

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

23

24

25

MRS. BOWERS: Now, let me check and see how you want to proceed. We've had the motion to strike in specifics of the part of Joint Intervenors 65 dealing with Contention 4, but we have not had that sume information on Contentions 5, 6 and 7.

MR. NORTON: Mrs. Bowers, perhaps we could proceed by doing the summary of Contention 4 and the crossexamination of what remains of that testimony before proceeding to Contentions 5, 6 and 7, and, you know, disposing of that contention first and then moving on to the others.

I just offer that as a suggestion, because certainly that testimony is all fresh in our minds at this point in time.

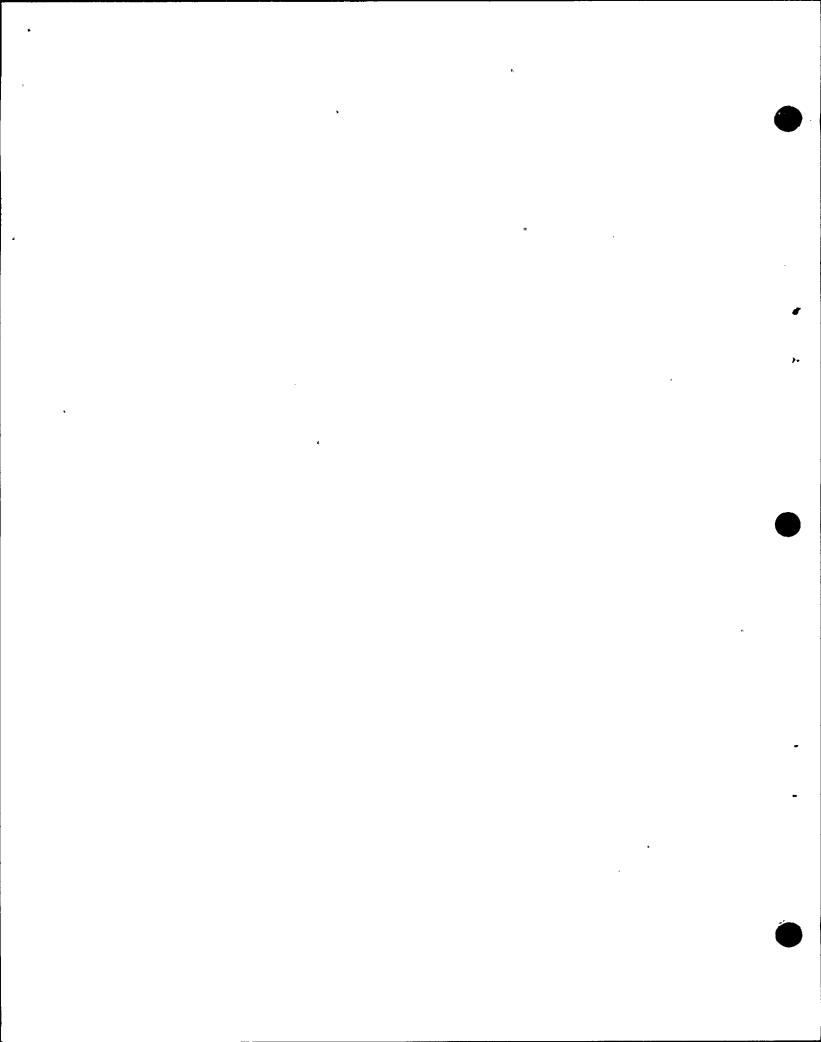
MRS. BOWERS: Mr. Kristovich?

MR. KRISTOVICH: That sounds fine.

MRS. BOWERS: That's fine with the Board. We were hoping, if there was a motion to strike any part of Contentions 5, 6 and 7, that we might have that information before we adjourn this evening.

MR. NORTON: Well, there is, and I think the cross-examination on Contention 4 will be very short, of the testimony that is left.

MRS. BOWERS: Mr. Tourtellotte, I don't know



whether we're interrupting your motion or not. Do you have any objection to proceeding with Contention 4?

MR. TOURTELACTTE: You mean cross on 4?

MRS. BCWERS: Yes. Well, first there would be the summary, and then perhaps further direct.

MR. TOURTELLOTTE: If he wants to summarize 4, do you mean?

MRS. BOWERS: That's what was suggested.

MR. TOURTELLOTTE: Okay. I don't have any problem with that, if he wants to summarize 4 and then cross on it. No problem.

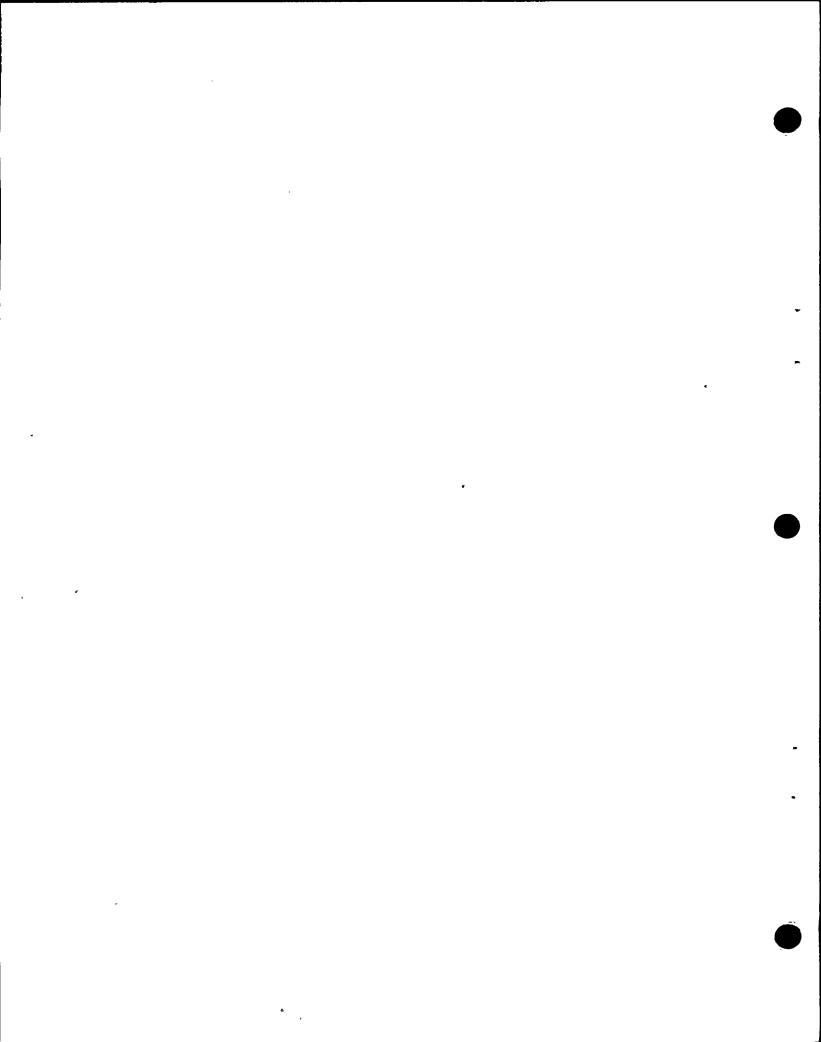
that discussion at the bottom of 4-9, because I think all of that information that is there is information which comes from Attachment B, including, "The result was that in the Hosgri reanalysis, the Hosgri vertical loads were a factor of two (2) to six (6) greater."

I think that all comes from Attachment B. And it's difficult to know how Attachment B can be striken without striking the rest of it.

MR. NORTON: Well, Mrs. Bowers, I think the same thing Mr. Tourtellotte does, and I was going to ask Mr. Hubbard if that were the case and if it were, I was going to move to strike that based on that. But I don't know whether that's the case or not, and that hasn't been established

								•	
			4						
				•					
								*	
et.			τ						
						•			ř
				4					
				`					
					e				
							2-		
	•								
								*	
									~
		<b>4</b>	•						•
	•		6	f -					
		4							
8									

I assume that also is the case, but it may not be. MR. TOURTELLOTTE: Well, we can go ahead then. 3 Why don't we do that? We still have the right to make 4 a motion to strike after the cross-examination. We could 5 make it again. So I guess we should go ahead with cross. MRS.EOWERS: Well, you're reserving the right, is that correct? 3 MR. TOURTELLOTTE: Yes, you reserve the right, whether it's actually an inherent right, after cross-examina-9 10 tion, to make a motion to strike. MR. NORTOM: Well, that is unless you stipulate 11 it into evidence. : 12 (Laughter.) 13 14 MR. TOURTELLCTTE: Right. 15 Well, actually, what we're talking about is that if some new information is developed during the cross-examina-16 tion which was not previously known, and that new information 17 provides an adequate basis for a motion to strike, a motion 18 to strike is in order. 19 The case that I'm citing is Vermont Yankee, 20 ALAB-179. 21 Why don't we go ahead with cross? 22 'MRS. BOWERS: Well, the summary. Mr. Kristovich, 23 we assume you understand that the summary would relate to 24. those matters that were accepted? 25



MR. KRISTOVICE: Yes.

I think we can just proceed with cross-examination. We've been talking about this all day so far.

Mrs. Bowers, would it be appropriate to offer it into evidence at this time? Well, I guess since the subsequent testimony is all part of Joint Intervenors' Exhibit Number 65 perhaps I should wait until we go through the second half of the testimony.

MRS. BOWERS: The entire exhibit, yes.

MR. NORTON: We are only cross-examining on the testimony that is being proposed, and only that portion of which has not been struck, but you can cross-examine on proposed exhibits whether they're in evidence or not. There's no reason you can't.

MR. KRISTOVICH: Would it be easier if we broke up the two pieces of testimony and gave them separate exhibit numbers?

MRS. BOWERS: I don't think it really matters, but I suspect that the Reporter has already handled it as one exhibit.

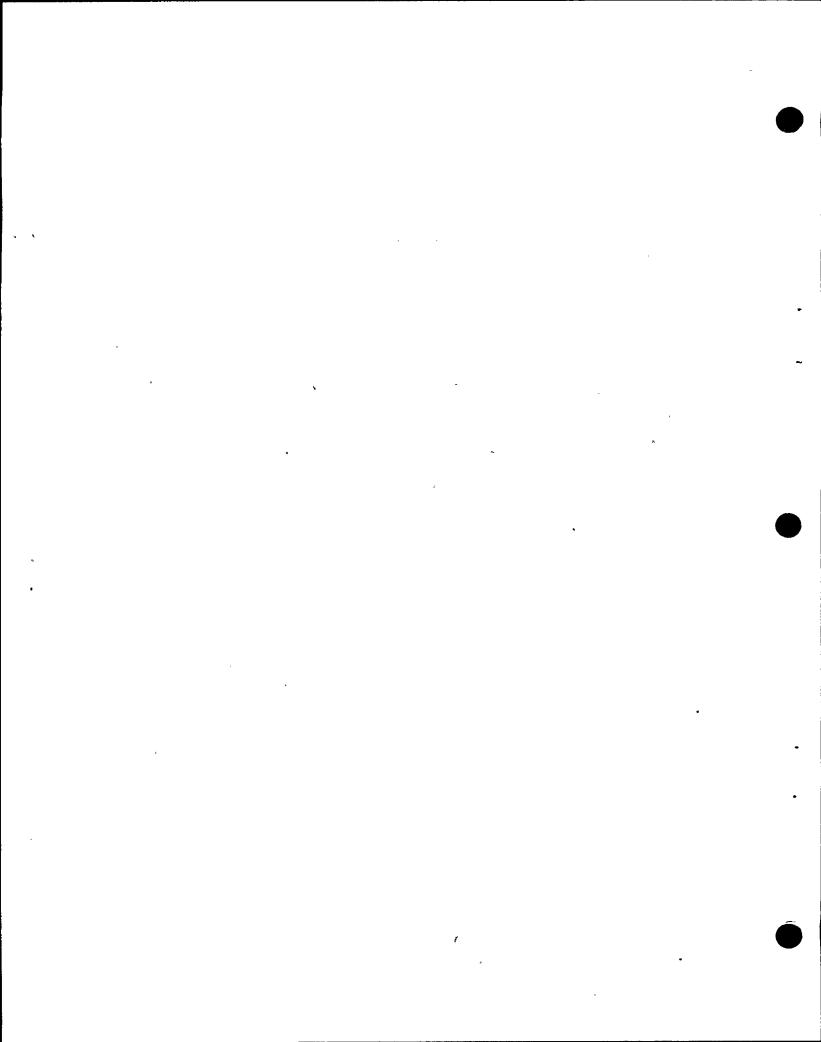
MR. KRISTOVICH: Okay.

MRS. BOWERS: Mr. Norton, since it's been several weeks since we had the Intervenors' witness, am I recalling correctly that you think you follow the Staff?

MR. NORTON: No, I think I went first with

ុរិ2 

•



wel 13

ଚ

MB fls 15

Intervenors' witnesses, and the Staff went after I did.

MRS. BOWERS: Fine. Well, why don't you go ahead, then?

## CROSS-EXAMINATION

## BY MR. NORTON:

Q Mr. Hubbard, directing your attention to 4-5 of the testimony, you are aware of other nuclear power plants which have been granted construction permits and/or operating licenses where the OBE is less than one-half of the SSE, is that not the case?

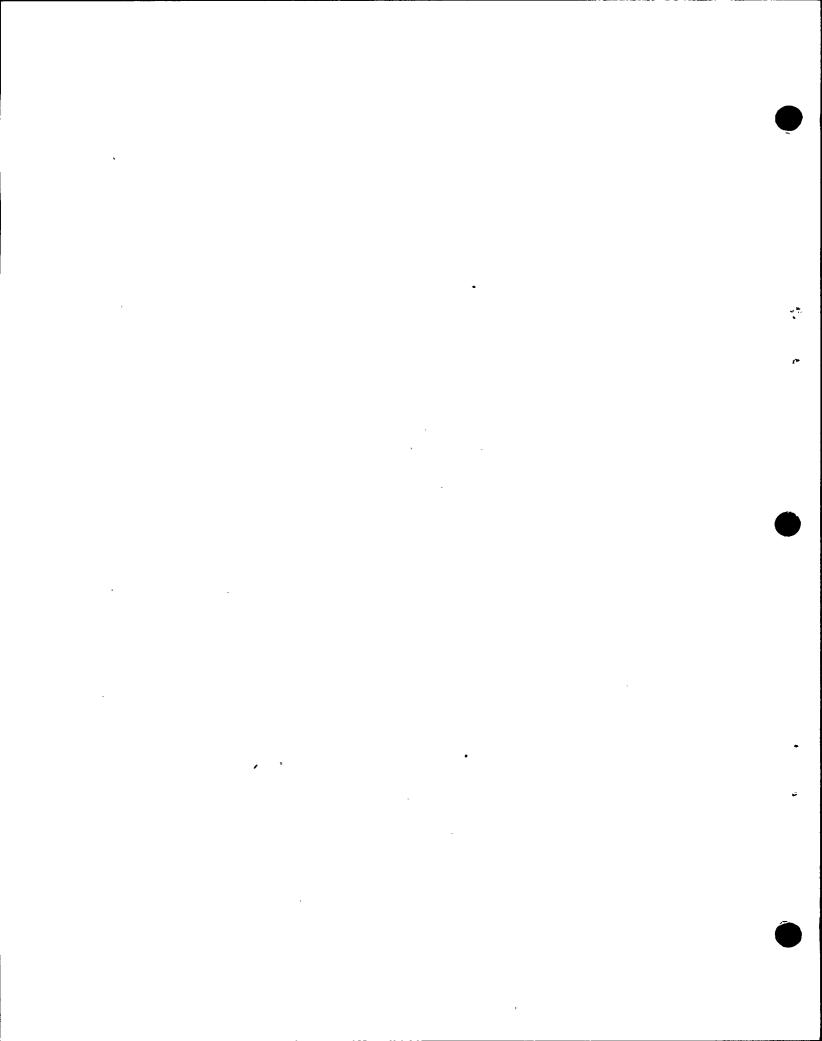
A The first part has to do with operating license.

I'm not aware. It's a multi-part question. The part about operating license I'm not aware of any plants that are in the operating license that have OBEs less than half of SSEs.

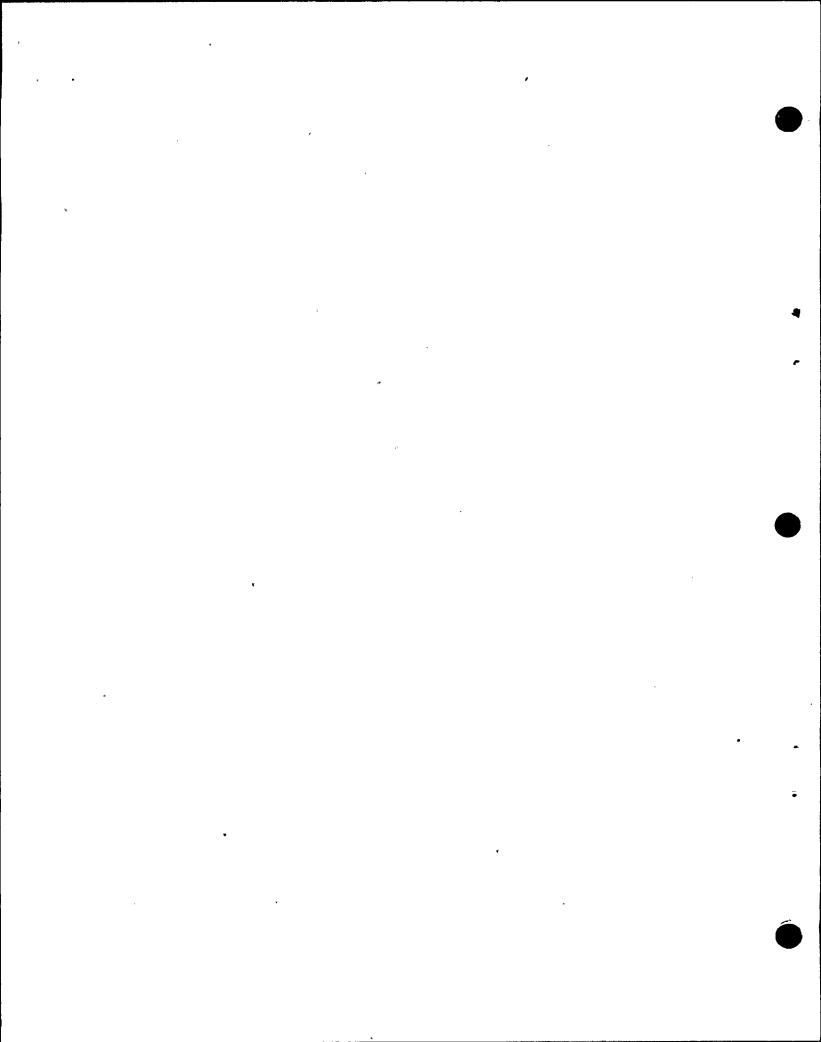
• • . . •

•	
MADELON 1	Ω All right.
clo mpbl flws WELG	at you are aware of plants, then, at least in
3	your mind, that have been granted construction permits whose
4	the OBE is less than one-half of the SSE?
5	A I am not sure that the construction pendits have
6' .	been issued.
. 7	O You have no basis, then, to coatrovert the treti-
8	mony of Mr. Hoch to that effect? You haven't made a review
9.	of all of those plants and come to an independent decision
10.	that what he said was not true, is that correct?  MR. KRISTOVICH: Could we have a specific refer-
12: 13	ence to which part of Mr. Hoch's testimeny you're referring to?
14	MR. NORTON: Well, we discussed that earlier this
15	morning. And I was obviously referring to the testimony
16	regarding Byron and Braidwood, and there was some discussion
17	as to whether that was one or two facilities, and so on.
18	Those facilities that were listed in Mr. Hoch's testimony as
19'	having on OBE of less than one-half of the SSE.
20	THE WITNESS: I have data on those that was
21."	provided me by Sandra Wastler of the MRC on Newsmoor 9, 1978.
. 22.	BY. MR. NORTON:
23	Q Yes.
24	And my question to you is:

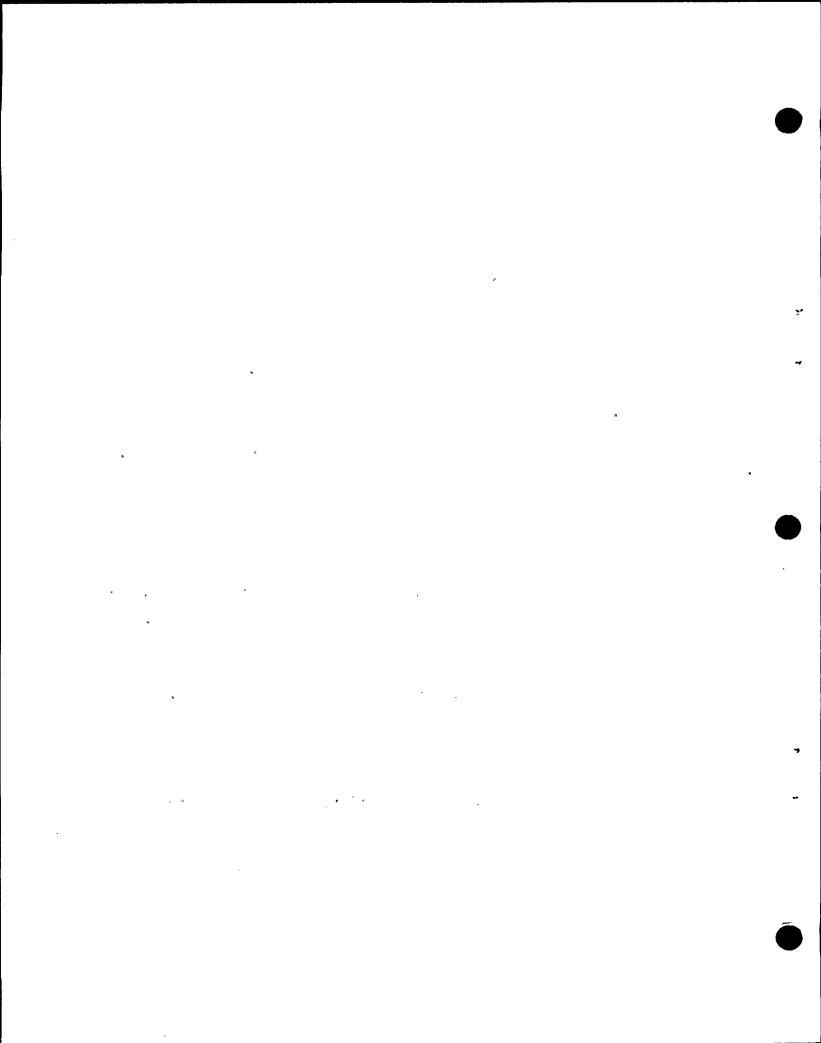
Do you have any basis to dispute Mr. Hoth's



	- {	
mpb3	1	Q Well, the numbers I have arel. and .25.
	2	Do you have any reason to dispute those other
	3	than hearsay?
	4	A No, I do not.
	5	Q Okay.
	6"	Now dispecting your attention to 4-6, you have
	7	thic statement no, encuse me, I think that was struck.
И	8	You don't have it anymore. So let's move on:
	ð	Okay.
	10	The bottem of 4-8, where it says "For example",
* ** ; ;	71	over to 4-9. You have IEEE Standard 344-1975.
*	12	Can you tell the Beard whether or not that
п •	13	standard is required under the regulations to be used for
	14	Diablo Canyon?
ν	15	A My understanding is that it's not required.
·	16	Q All right.
	17	. A However, in SER number 7, on page 371, there is
	18	a statement that the Applicant committed, at the Staff's
ž .	19	zequest, to utilize 366-1975.
•	20	I could give you the exact
	21	· Q In testing equipment?
	22	A In testing equipment, yes.
	23	Q Then you refer to:
:	24	"Thus, the value of the CBE utilized in
	25 .	the seismic test program by the Applicant, such



mpb4 as for the tests at Wyle Laboratories, is of 2 safety significance." 3 ARe you aware of what the OBE level was that was 4 used in those tests? 5 No, I am not. 6" Do you recall Mr. Young's testimony that it was 7 either 50 or 60 percent of the SSE? . 8 Yes, I do. 9 All right. 10 So you do now have available to you information that indeed under those tests an OBE in excess of 50 percent -- equal to or in excess of 50 percent of the SSE was used, do you not? That was Mr. Young's tostimony and I have no 14 reason to dispute that. 16 All right. 17 So then this sentence disappears in terms of significance, dossn't it? It in fact does exactly -- the Applicant did exactly what you call for in this sentence, did 19 he not? 20 It surely appears so. A 21 All right. 22 Getting down now to the part of the testimony 23 that was discussed just prior to the beginning of cross-24 examination as to whether or not it should be struck, isn't 25



ಕಿರ್ಡ

.5

it a fact that those sentences that were left in, which are the last six lines on page 4-9 and the first line and several words of the second line of the next page, were based upon your review of Attachment B to your testimony?

A The factors of two to six are based on my analysis of what was Attachment B. The rest of the conclusions are based on what is in SER Supplement 7.

Q Okay.

In other words, the first two sentences on page

4-9 are based on SER Supp 7; that the sentence - the remainde

of the testimony that was not streek - in other words, the

last three sentences - was based on Table B, is that correct?

A Probably, to be perfectly correct, the first sentence would have had most of its basis on Attachment B.

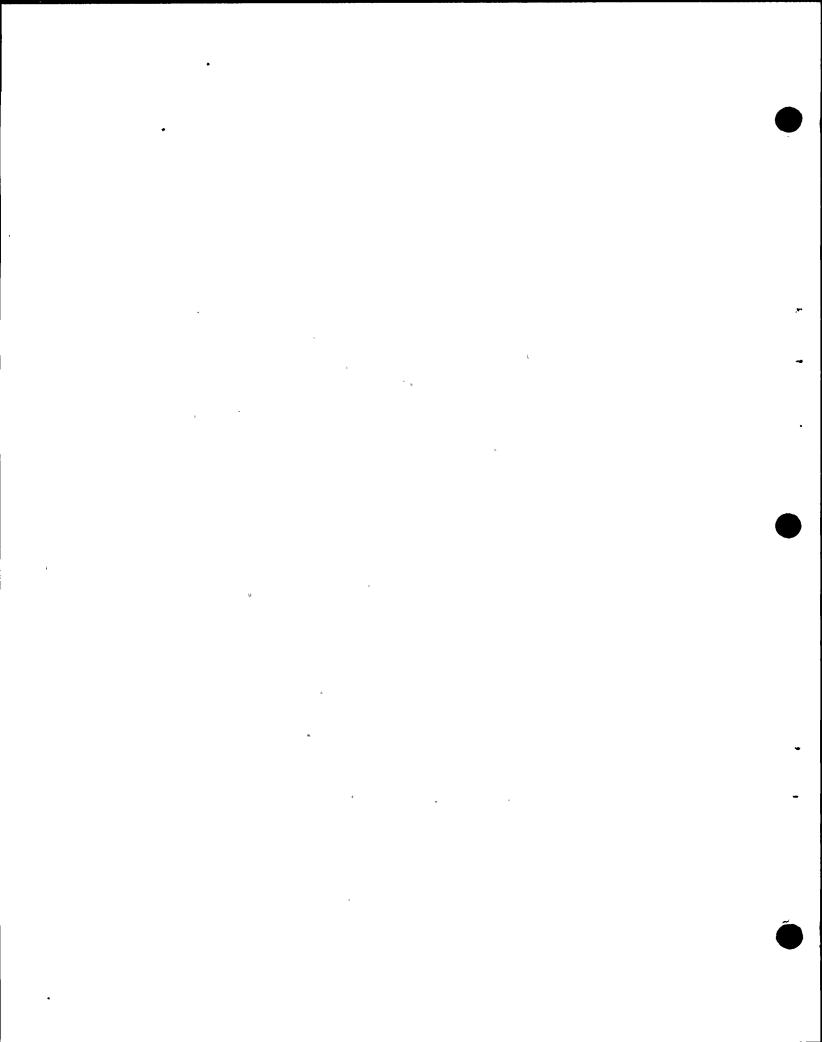
The second sentence primarily on what's in the SER, and the third sentence primarily from what was Attachment B.

\_ Q Okay.

Now moving on to page 4-10, the section of your testimony entitled Post-OBE Inspection, have you personally reviewed Pacific Gas and Electric Company's Diablo Canyon Inspection Plan, as testified to by Mr. Shiffer on, I believe, Friday?

A No, I have not. That was not provided during discovery.

Q Did you ever request it?



•	• }}
mpb6 1	A We received about 13,000 documents during discover
2	and this was not one, to the best of my knowledge, that was
3	included.
4	Q And you don't know whether you specifically reque
5	ed that document or not, do you, or whether it was included
6	in any category in which you did request documents?
7	A Our impression would be that in a broad interpret
8	tion that it could have been included. But we could under-
9	stand why it was left out.
10	We never specifically asked for it.
11.	Q Okay.
. 12	And did you ever specifically ask the question
13	in an interrogatory, request for information, et catera, as
14	to whether such a plan existed?
15	A To the best of my knowledge, we did not.
16	Q So not having reviewed it, do you feel that
17	you can make the statement that you make, in primarily the
18	last sentence of the testimony that's left on page 4-10, it
19	says:
20	"In order to determine the capability
21	of a plant to resume operation following an
22	OBE, an adequate inspection of the plant and
23 <sup>.</sup> ,	site area must be performed. a
24.	Not ever having reviewed the plan, I take it
^	If the world not be within your area of computing the contract the

Y . • 

mpb7

plan was good, bad, or indifferent, is that correct?

A I believe not.

would take production line equipment and put it on a shaker table and shake it for this sort of testing, and then we would hand — they would come back into the manufacturing process and we'd have to fix the welds and rado the tests essentially that — the sort of things that Mr. Shiffer mentioned. I mean, that was the type of program that we did before we then shipped it out to the plant as if it were new equipment.

And at that time we had a hard time really eatistiving ourselves that what we were shipping was really equivalent to new equipment. And so my personal opinion is that it's that type of inspection to verify really that you have not degraded the equipment in some way that you can't detect, that that is indeed a problem and it's an inherent problem in trying to reinspect.

Q Well, that's right.

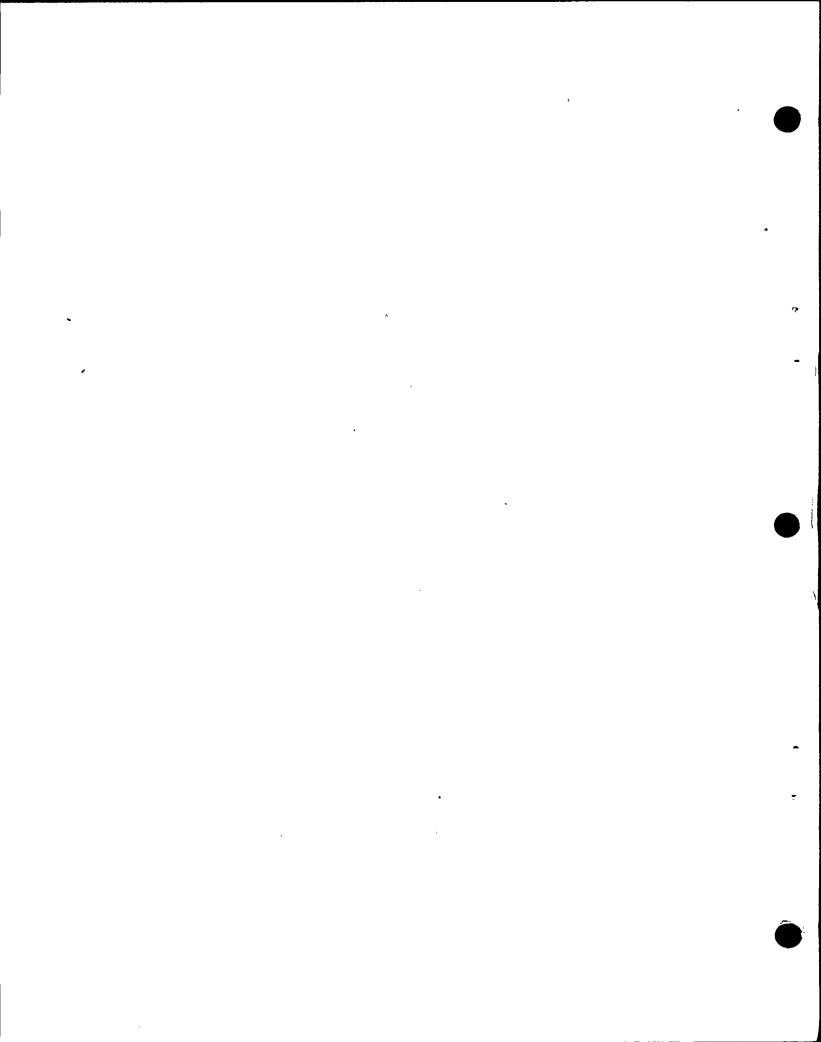
You testified on voir dire, I believe, that you -- no, you didn't testify, that was the lawyer, Mr. Kristovich, who testified in response that you are responsible for determining whether or not that equipment should go back, or should be sent to the customer? Is that correct?

A Yes.

Q All right.

25.

î.



<b>\</b>	t 8dqm.	So Mr. Kristovich's testimony in that regard was
•	2	correct?
	3	A That's correct.
$\odot$	4 :	Q All zight.
	5	Well, let me ask you this:
	6	Did you ever make the determination that indeed,
	7.	yes, the equipment tested should go to the customer?
	8	A Yes, we did.
	<b>9</b>	Q No, did you, Mr. Hubbard? I thought that was
	10	your responsibility.
e Mi	13	Did you make that decision?
	12	A Yes, I made that deviation.
	13	Ω Okay.
	14	So now you've made the decision in the past that
	15	equipment tested should go to the customer as new equipment
	16	when that was your job to make that decision. But now as a
	17	witness you're saying that someone who has a plan for test-
	18	ing that doesn't have the ability to do that, is that correct?
	19	A I would say that at the time that was a very
	20	difficult decision to make, and in hindsight that I might not
	21	have made the same decision.
<i>(</i>	22 ,	So based on my experience that while I made the
	23	decision a certain way at that time, I might make it different
_	24	today.
•	25	Q Let's get over to TAP B-49.

				•
				•
		,		ă.
			·	
	•			•
				•
,		•		•

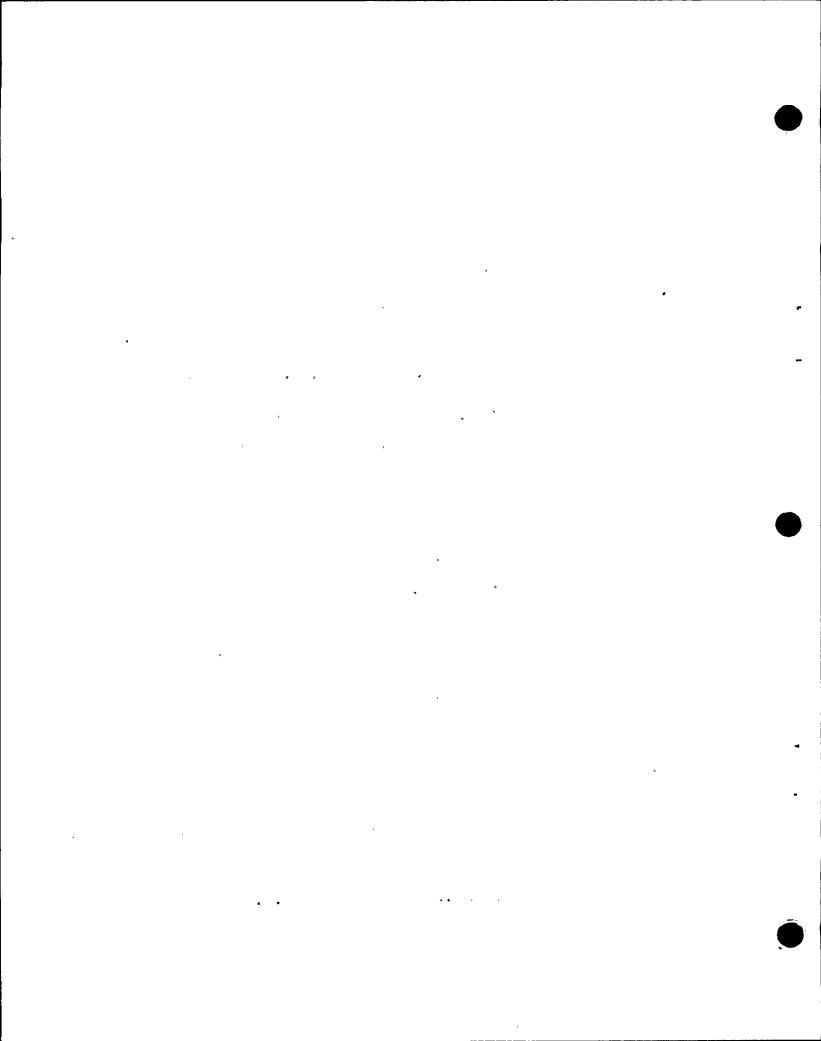
edqm	1	Do you have a copy of that?
٠.	2	A Yes, I do.
	3	. Q Could you tell me where in there it states that
	4	how it's relevant to Diablo Canyon, where in there it talk
	5	about this OBE situation, whore MAP B-49 addresses the OBE
	6	situation? Where the words "OBE" or "earthquake analysis" or
	7	-earthquake inspection" or "inspection for earthqueke damage"
	8	or any of that is contained in that?
	9	A TAP B-49 addresses two issues. The title in
	10	*In-Service Inspection Criteria and Corrosion Provention
, <b>3</b> a	11	Criteria for Containment". And the way I have it, it was
ı	12	part of the NRC's testimony on generic issues on Black Fex.
•	13	Q Could you answer my question, please?
	14	A The answer to your question would be it doesn't
	15.	specifically talk about OBE
	16	Q Does it talk about earthquakes at all, or stresses
	17	as a result of earthquakes or inspection of equipment as a
	18	result of earthquakes? Does it in any way relate to earth-
	19	quakes?
ï	20	A It talks about in-service inspection 🛶
;	21	Q Excuse ma.
r d	22.	Could you answer my question?
;	23	A The answer to the question is it does not talk
:	24	about earthquakes specifically. But a full answer, then, would
2	25	say that it has to do with in-corvice inspection, and that's

• --1 • • 

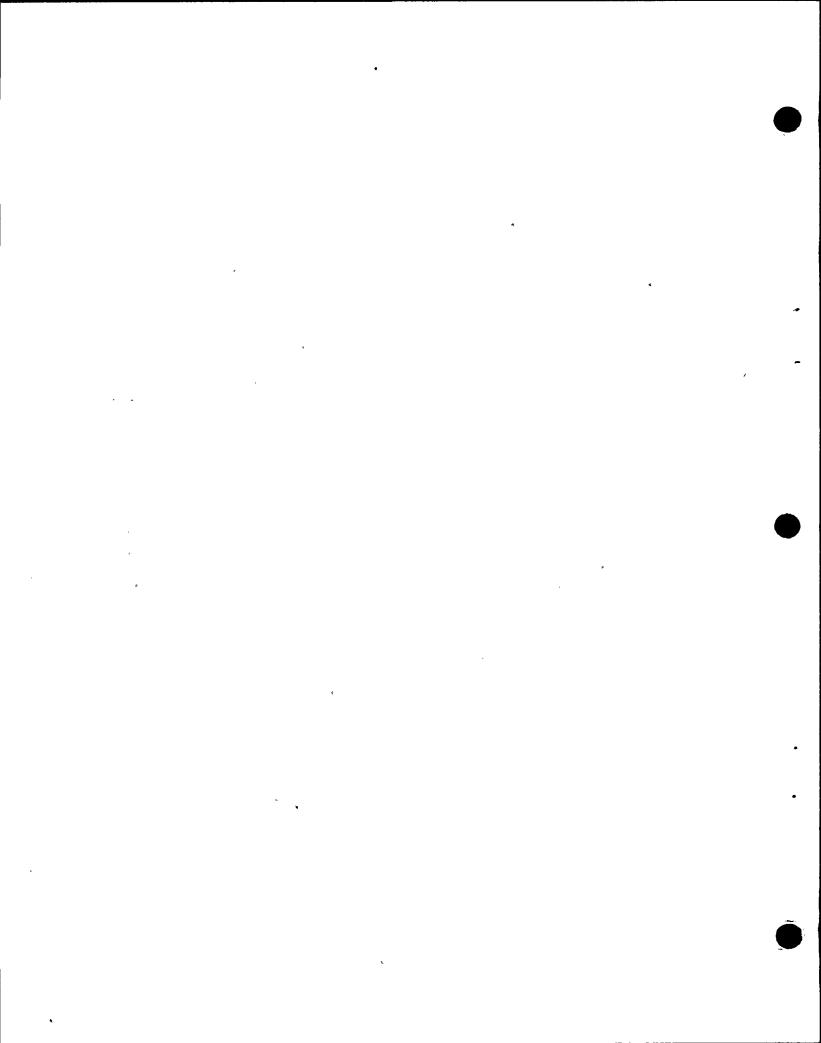
mpbl0 1 what we're talking about in post-OBE inspection, the ability 2 to go in and look at something following an event. 3 So in spite of the fact it doesn't talk about 4 earthquakes particularly, it is relevant to inspection Zollow-5 ing some sort of an event. 6 And your statement goes on to say that: 7 o...detailed and comprehensive oritaria 8, need to be developed for performing in-service 9 inspections of all types of containment." 10 But you haven't reviewed the plan that the Staff and the Applicant -- or the Applicant has prepared 12 that the Stall has reviewed regarding inspection of Diable 13 Canyon, is that correct? 14 Inspection of the containment? A 15: Inspection as referred to by Mr. Shiffer. 16 I have not. All right. Q 17 MR. NORTON: Just a moment. 18 19 (Fauss.) MR. NORTON: Excuse me, Mrs. Bowers. 20 What was left in at the conclusion of what was 21 22 struck? I. think -- . 23 MRS. BOWERS: The first sentence was laft in as limited by inserting after Appendix A, a small a and followed 24 25 by a small b2 in print.

• . . 

mpbll 1 MR. NORTON: Right And the rest of it was struck? 2 MRS. BOWERS: Yes, the zest of the conclusion. 3 MR. NORTON: Okay. That's what I thought. 4 All right. I have no further cross. 5 MRS. BOWEES: Mr. Tourtellotte? BY MR. TOURTELLOTTE: Mr. Hubbard, I invite your attention to the Ω bottom of page 4-4, the last full paragraph right below the 9 quoted material, where it says: 10 "In addition to horizontal and vertical 11 ground acceleration, the other factors which 12 are required to define the OBE include the 13 corresponding values of velocity, displacement, 14 and duration. " 15 Mr. Kristovich stated that you got that from the 16 regulations. I'm sure you'll be glad to give us a citation 17 for that. 18 Could you give us a citation? 19 Yes, Mr. Tourtellotte. 20 In Section 6A2, under Operating Basic Earthquake-21 MR. NORTON: Excuse me. 22 Could the witness give us a page? 23 THE WITNESS: Page 501 of the 1978. 24 MR. NORTON: Thank you. 25



mpbl2 1	And now could we have the cite again?
2	THE WITNESS: On the right-hand corner at the
3	bôttom it says:
4	The operating basis earthquake shall
5	be defined by response spectra.
6`	Then, if you turn back to page 496 for the
7	definition of "response spacesa", it says:
8	PA response spectra is a plot of the
ð ,	maximum responses, acceleration, velocity, or
10'	displacement. a
. 11	And then it goes on. So that's where accelera-
12	tion, velocity, or displacement came from. And the matter
13	of duration, if you go back to page 502, the first part,
14:	number two, having to do with operating basis earthquake,
15	the last sentence says:
16	The analysis for TAP shall take into
17,	account soil-structure interaction effects and
18,	the expected duration of vibratory motion."
19	So that's where the four terms came from in the
20	regulations, Mr. Tourtellotte.
21	MR. TOURTELLOTTE: I have no other questions.
22	MRS. BOWERS: Do you have further redirect, Mr.
23	Kristovich?
24	MR. KRISTOVICH: No redirect.
25 <sup>· ·</sup>	

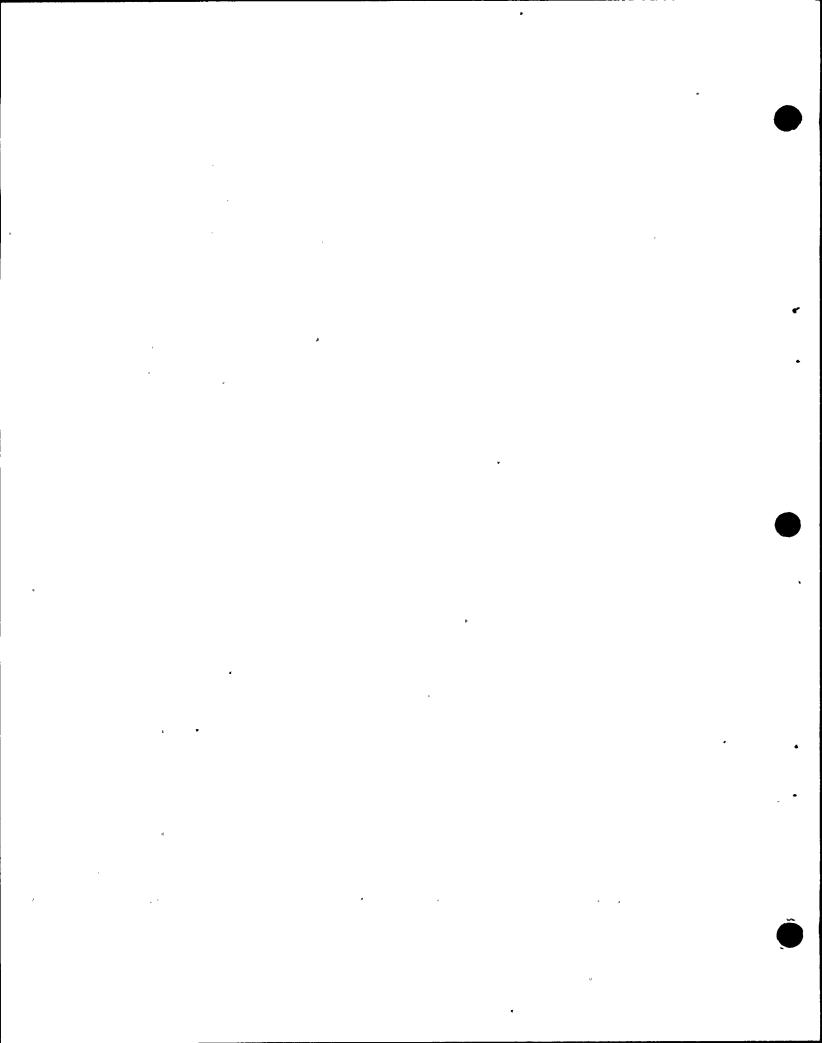


mpbl	1	EXAMINATION BY THE BOARD
	2	BY MR. SRIGHT:
	3	Q . Let's see. In terms of what we were talking
	4	about, or you were talking about just before we quit, it.
•	5	says:
•	6	The other factors which are required to
"	7	define the OBE include the corresponding values
	8	of velocity, displacement, and duration."
,	9.	On page 496 under L, Definition of a REsponse
٠.,	10	Spectrum, it says:
• • •	<b>i</b> 1.	" is a plot of the maximum responses
	12	(acceleration, velocity, or displacement)"
•	13	Well, and when you say "and", you're implying
	14	that you've got to know all of them. And this says "or",
+	15	implying that it can be defined in terms of one of them.
•	16	This appears could you explain this?
	17.	A The spectra for each of those can be taken
	18	you know, you would have it for acceleration, for velocity,
	19.	or for displacement. And they are related to each other, as
	20	we discussed earlier.
	21	So I wasn't trying to say that they were all -
	22	what it really says here, the response is a plot of one of
:	23	those three, and they are related. And they do have a dura-
•	24	tion on them.
	<b>25</b> ]	Q So you are saying, then, that the regulation which

-

,		
mpb2	i	. Was identified and your statement here say the same thing?
	2	A I beliave so, yes.
	3	Q Thank you.
	4	A That was the intent, Mr. Szight.
	5.	CROSS-EXAMINATION ON BOARD QUESTIONS
	6	BY MR. TOURTELLOTTE:
	7'	Q Mr. Hubbard, in light of that question, you
	8	wouldn't object, then, if in your testimony we inserted in
	9	place of the word "and", if we inserted the word "or"?
.,,	10	A No, I would not.
* 2	11	Q Would you do that voluntarily so we don't have
	12	to go through the motions of doing that?
• •	13	A Yes, that's fine.
	14	MR. NORTON: Wall, I think where the word "or"
	15	goes is between the words "velocity" and "displacement", as
	16	I just read Mr. Bright's question, as I read the 'statute.
	17	But frankly, that's why obviously it doesn't take a lawyer
	18.	to make legal argument. You know, that's why statutes are
	19	subject to construction argument, is because of the word
•	20	"and" and "or" and so on and so forth.
	21	MR. BRIGHT: I think in terms of what I was saying
	22 (	that if it read "include the corresponding values of velocity
	23.	or displacement and durations.
	24	THE WITNESS: That's correct.
	25 <sup>.</sup> .	MR. NORTON: That's correct. I thought-orn

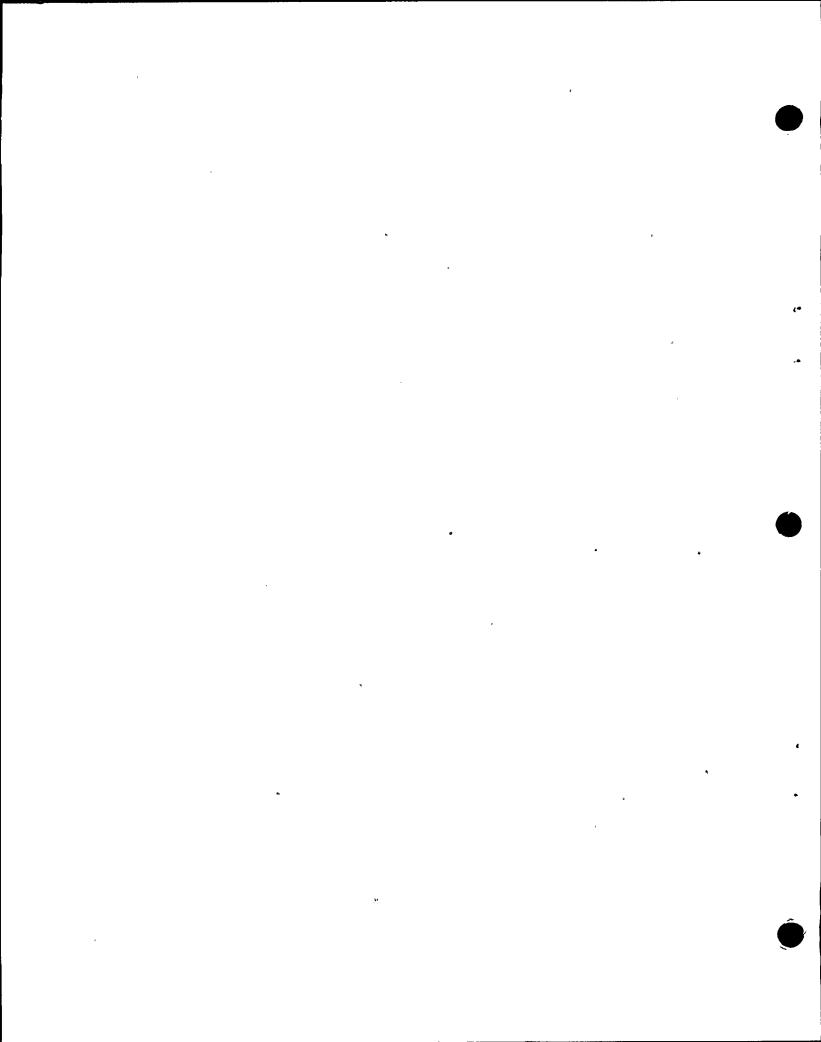
Ο.



there's any question that it was not taken into account in

-1

A



	1	
කුර්4්	1	this case at all. I don't think that's the import of the
	2	testimony.
	3	. So I don't have any problem with that "and dura-
	4	tion <sup>o</sup> ,
	5	BY MR. TOURTELLOTTE:
	6	Q Wall, I asked the question:
	Ť.	Is duration a part of zeeponse spectrum, of the
	8	response spectrum. Is it?
	9	MR. KRISTOVICH: I thought that had already been
	10	asked and answered.
٠.	11	MR. TOURTELLOTTE: Well, the answer was not
-	12	responsive. It's been asked, that's true; but the answer
` "^	13	was not responsive.
•	14	MRS. BOWERS: Could you enswer, Mr. Hubbard?
	15	THE WITNESS: The enewer is no.
	16	MR. TOURTHLOTTE: Okay.
	17	MRS. BOWERS: Wow we've really gotten out of
	18	sequence here.
	19	The Board has no further questions.
	20	But, Mr. Kristovich, do you have any further
	21	questions?
	22	MR. KRISTOVICH: No.
	23 -	MRS. BOWERS: Mr. Norton?
	24	MR. NORTON: No.
•	25	MRS, BOWERS: Do you have any further questions,

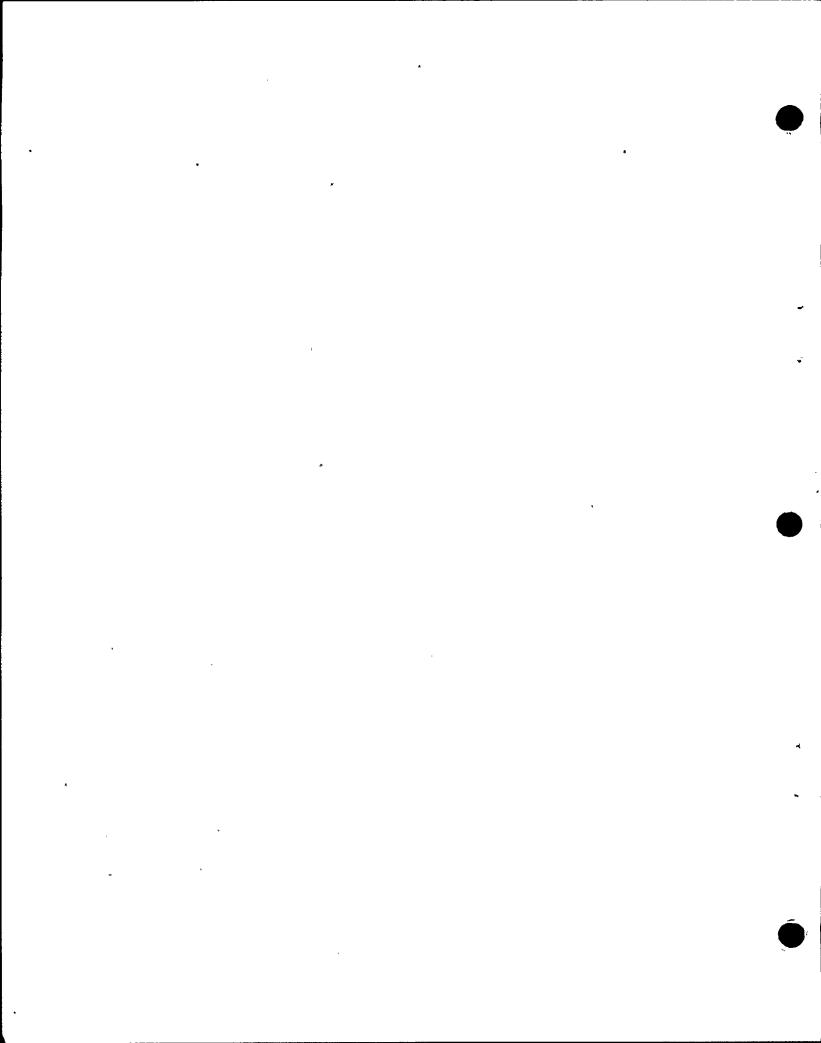
, 

1 Mr. Tourtellotte? mpb5 2 MR. TOURTELLOTTE: Yes. 3 I guess I just want to get this one sentence 4 Another part of it suddenly bothered me. cleared up here. 5 BY MR. TOURTELLOTTE: 6 Ω It says: 7 "In addition to horisontal and vertical 8 ground acceleration, the other factors which are required to define the OBE..." 9 10 And my understanding on the basis of what we've just said is that the other things that we're talking about 12 here are stated in the disjunctive rather than the conjunctive So that all three are not required, but may be used. 13 14 Would it be a better terminology to say that instead of "which are required", to say "which may be used"? 15 Well, once you have the acceleration you can get 16 the velocity and displacement. So I think it -- you know, 17 18 it , would be all right to say "may be used", yes. I mean, once you have the acceleration, the others follow. 19 20 But they're not really required by the regulations, isn't that true? 21 The regulations that you cited me are stated in 22 the disjunctive rather than in the conjunctive, isn't that 23 correct? 24

You would have to, I guess, define for me the

25.

A



7 Pdqm

ß.

words "disjunctive" and "conjunctive".

} Ckay.

It means that it's a situation in which all of those things are not required, but you may use any one of the several, that the several are not required together. But the several may be resorted to on an individual basis, It's the difference between saying "or" and saying "and".

When you say that you can do this or that, or that you do this and that, one means that you have a selection of doing one or the other, the other means that you have to do both. That's the difference between disjunctive and conjunctive, conjunctive being the one that requires both.

A As I said before, I don't want to quibble on words. Once you have acceleration you can get velocity and displacement from that.

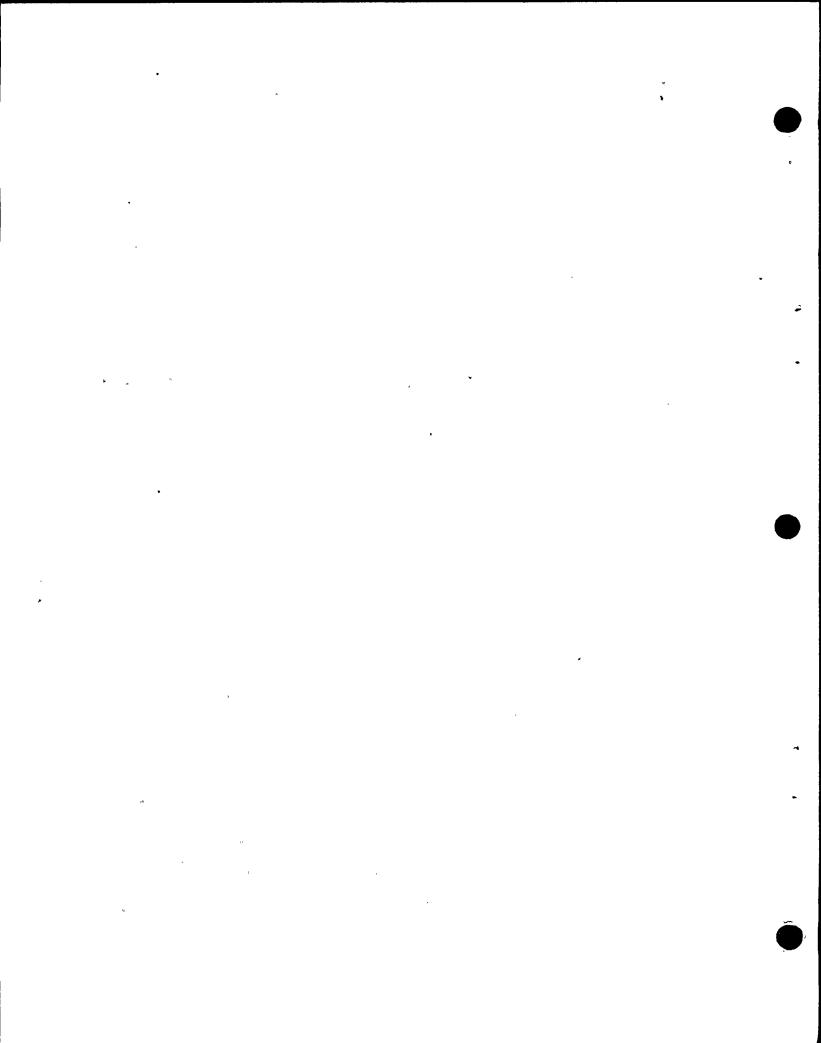
So it would seem satisfactory to me that you could do your analysis using whichever one of the acceleration or velocity you thought was appropriate to be used.

That would be my understanding.

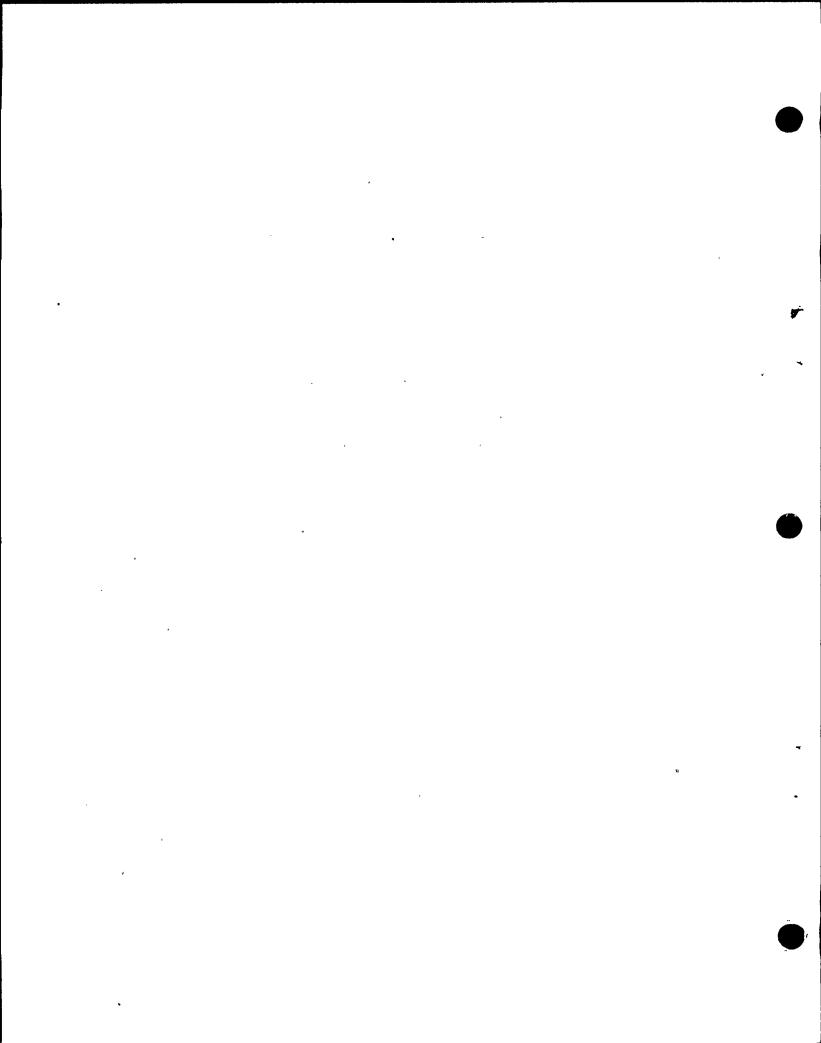
So I guess I would be in accord with what you ware saying.

- Q Would it be satisfactory if we were to strike the words "are required" and insert the words "may be used".
  - A I believe so.
  - Q Would you be willing to do that, then, or assert

.



•	mpb7 1	that that's the way you would offer your testimony?
•	2	A Yes, that would be acceptable.
	3	Q Okay.
3	4	MR. TCURTELLOTTE: No other guestions, then.
	<b>5</b> .	MRS. BOWERS: Well, the Board has nothing further
	6	on Contention 4.
	7	Now can we go to the next part of Joint Intervend
	8	65?
	9	MR. TOURTELLOTTE: Could we renew a motion to
**	10	strike with reference to the items at the bottom of page 4-9,
	11	based upon
	12	MRS. BOWERS: Walt a minute.
	13	You're back on 4, is that right?
	14	MR. TOURTELLOTTE: Yes, before we leave 4 I think
	15*	it would be appropriate to take up a motion to strike the
	16	sentance that begins "For ammple" down through DDE.
	17 .	MRS. BOWERS: What page?
	18	MR. TOURTELLOFTE: 4-9.
	19	And then the last sentence, that is, the next
	2Ó	sentence would be "In", and then the third sentence, "The
	21 <sup>-</sup>	result that was that the Hosgri reanalysis" and so forth
	<b>2</b> 2	also be stricken, those two sentences be stricken on the
e	23	ground that the testimony from the witness was that they
	24	were based upon Attachment B which has been excluded on the
)	25	ground that the witness did not have sufficient expertise to
-	~~	



8dam

offer that document.

2

3

4

5

6

7

8

9.

10

11:

12

13 14.

15

16

17

18

19

20

21

22

23

24

25

MRS. BOWERS: But the sentence in the middle reading "Instead, two-thirds of the peak herizontal" is not affected by this motion, is that right?

MR. TOURTELLOFTE: No, because that he claims comes from the SER rather than from Attachment B. My hope is that the SER is not stricken.

(Laughter.)

MRS. BOWERS: Mr. Norton, before we go to Mr. Kristovich, do you have any position on this?

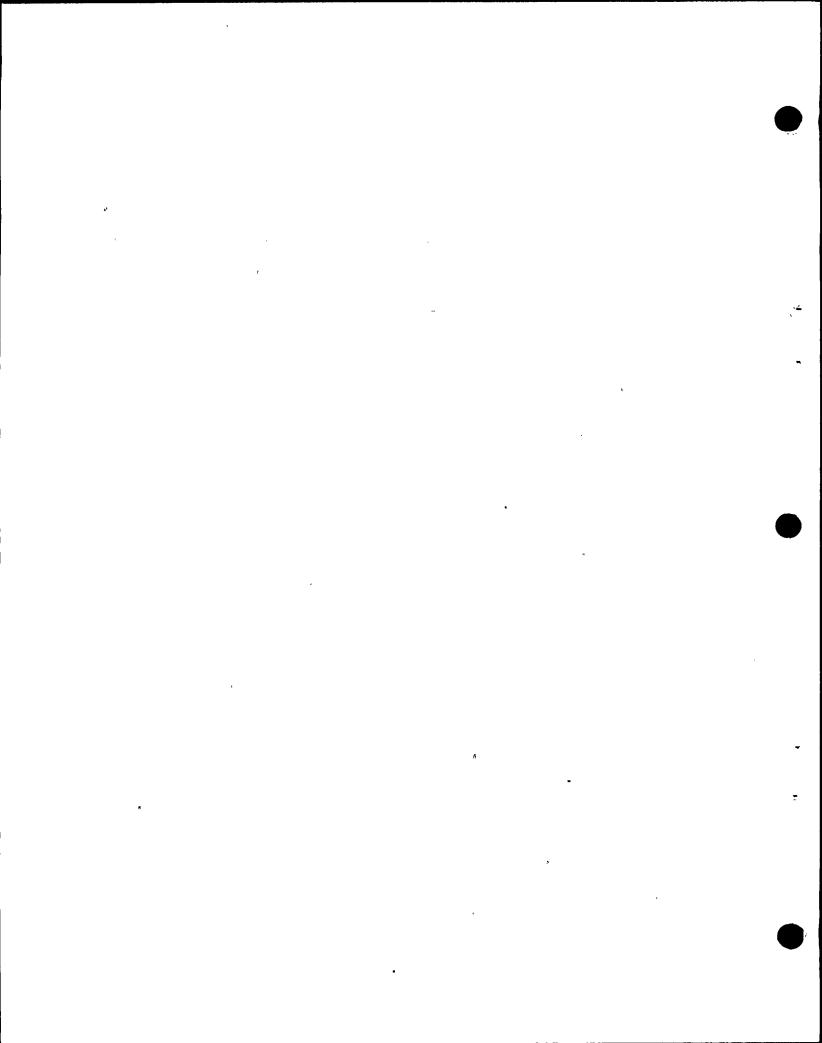
MR. NORTON: Well, yes.

He has admitted that it's based on something that isn't in the record, that has been stricken. don't see how it can remain in the record without its reference point. It's rather meaningless. And if he doesn't have the expertise to interpret the chart upon which it's based, he certainly doesn't have the expertise to make the statement out of thin air.

> MRS. BOWERS: Mr. Kristovich?

MR. KRISTOVICH: My only response would be I recall Mr. Hubbard said he relied primarily or basically on Attachment B for those sentences. So I am unclear whether he relied on other things which would serve as a basis for keeping those sentences in there.

MRS. BOWERS: I don't think he qualified it.



But let's check with the witness. mpb9 Did you qualify, or did you just say Attachment B 2 for each of the two sentences? 3 THE WITNESS: I said "primarily". And I'd have 4 to go back and read Supplement ? -- I have two sources, 5 really. Supplement 7 and this document -- And the document 6 which was Attachment B. But I primarily made the statement 7 based on what was Attachment B for the first and third sen-8 tenca. MRS. BOWERS: Do you have anything further, Mr. 10 MR. MRISTOVICH: Well, perhaps the witness should 12 be given an opportunity to look at Supplement 7. 13 14 **AADELON VRBLOOM** 15 :lws (lG) 16 17 18 19 20 21 22 23 24 25

. · • ı • ONRB/agbl C12 MRS. EGWERS: Are you proposing now that the witness go through Supplement Seven?

MR. KRISTOVICE: I believe it's unclear what the basis of these two sentences were, and if the basis isn't.

Supplement Sevan, then they should stay in the testimony.

MRS. BOWERS: Can you go to it directly, Mr. Hubbard?

THE WITHESS: Yes, it's on Page 322.' It's the top, and it's just two paragraphs. The first sentence says:

was performed rather than desuming an invertent

vertical acceleration throughout the structures,

as was done in the original analysis.

So that would imply to me that the containment auxiliary building -- that there was no dynamic analysis done for the original DDE, so that would support what was shown in sentence number one; the factor of two to six greater that was in the third sentence, there is no mention of those factors in the SER, so that that would be based on what was in Attachment B.

MR. KRISTOVICH: Based on that, Mrs. Bowers,
I would argue that the first sentence should remain in the
testimony.

MRS. BOWERS: Mr. Tourtellotte, do you have a position?

• •

.2

3

4.

.**5** .

ę,

1.3.

12

13

14

15 16

17

18

, 19

. 20

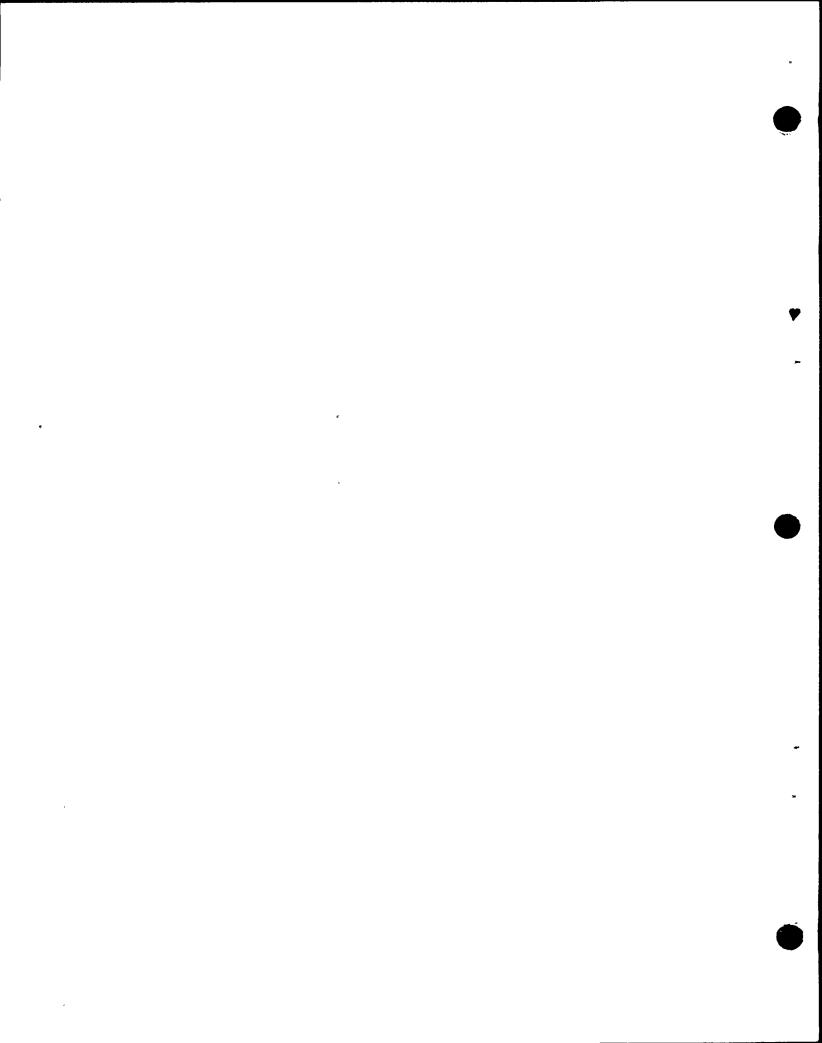
. .21

22

23

24

25



. 2

3

4

5

ક

7 8

g.

10

11

. 13 13

14

15

16

1,7

18

19

20

21

.22

23

24

25..

MR. TOURTELLOTTE: Well, having now looked at that page causes me to want to re-evaluate my motion, because I see that the page he's citing there also does not mantion the middle sentence that:

"Two-thirds of the peak horizontal ground acceleration was used for the vertical acceleration design in the design at all ' elevations."

He cites Page 3-22, and there isn't anything on that page that says that.

Edwever, I will stay with the present motion to strike for right now, and say that the filest sentance up there, while it may be possible for Mr. Hubbard to imply what the first sentence represents in fact is true, it is also possible to imply something else.

And it seems to me that if he does not know of his own accord whether that first sentence is true except on the basis of what was represented in Attachment B, then what he's doing is guessing, and it doesn't really have any weight in any event.

MR. NORTON: Mrs. Bowers, I don't understand it.
The sentence says:

for the containment exterior structure in the auxiliary building, the Applicant did not conduct

Y • \* •

WRB/agb 3 2

4

5

6

7

ઙ઼

î0

12

\$1.

13

15

16, 17

<u>1</u>8

19

20

21.

22

23.,

25·

24.

a vertical dynamic aumlysis for the double design earthquake (DDE)."

Well, very clearly it's based on Attachment B.

I don't see how we can sit here and be arguing that it's based on something clse when it says has shown in Attachment B. Attachment B has been struck, therefore, the sentence should be struck.

MRS. BOWERS: Well the witness answered he primarily relied on Attachment B, and now he's trying to say
that, or he is saying that he also has a reference in Supplement.
Seven of the SER.

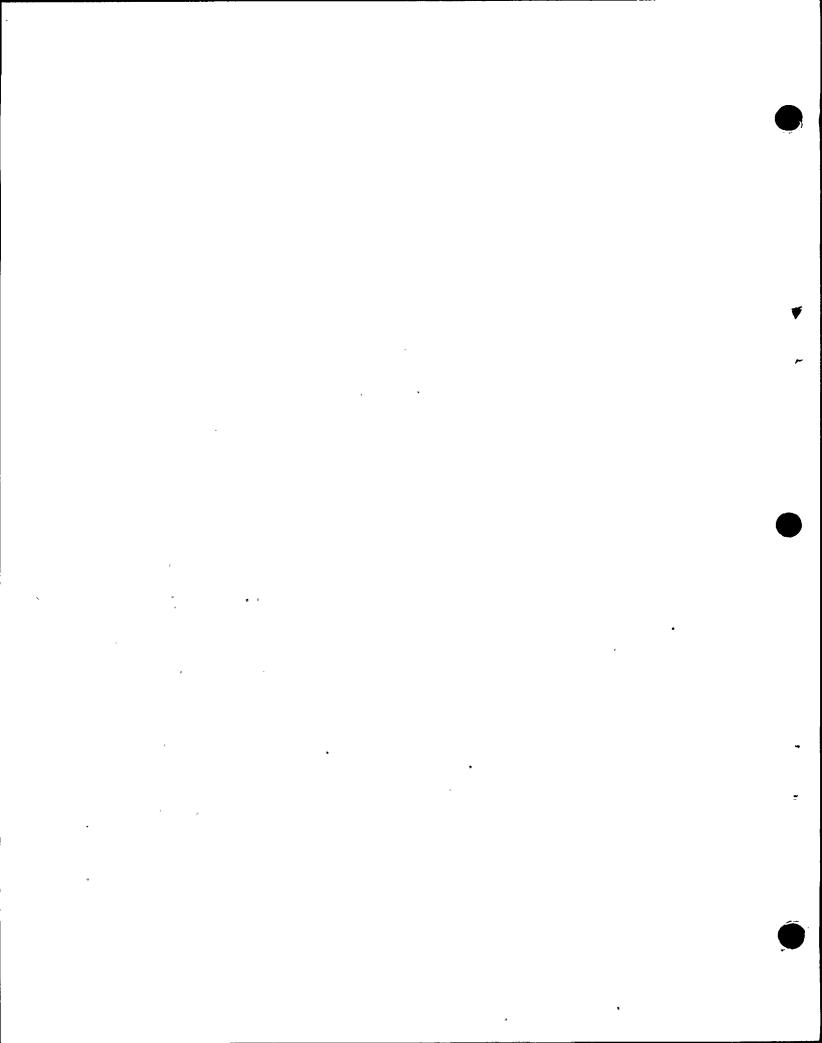
there.

MRS. BOWERS: Well, we struck the words: "as shown in Attachment B." Which you thought was fine.

MR. NORTON: Well, that was until he said that it came from Attachment B, which we decided we were going to discover on cross-examination pursuant to Mr. Kristovich's request, and I thought we did establish that it came from Attachment B.

But frankly I don't care whether it stays in or stays out. I don't think it has any meaning without anything going around it, in front of it or bahind it. But technically, it should not be in.

MRS. BCWERS: Well we don't think there is clear



WRB/z&b4

support for the sentence, for example, so the notion to strike is granted.

But you've indicated another problem, Mr. Tourtellotte, with the sentence following that.

MR. TOURTELLOTTE: I guess I have to make a motion to strike that sentence also, because that page does not support that, there is no mantion of thet particular item on that page sither.

MRS. BOWERS: Mr. Kristovich, perhaps the witness has some memory as to whether the page ditation is correct .೨೦೮ ಇರ

MR. KRISTOVICH: I think we'd have to ask him that.

MR. NORTON: Mus. Bowers, the problem I have is that there's no basis for this witness to be making these statements. Much of the wording on the bottom of 4-9 is, in fact, accurate, bowever, and we're wasting our time trying to strike something that is not inaccurate. If I had some problem with the accuracy of it, I would be fighting a much stronger fight or if I had some problems with the meaning of it. I would fight a much stronger fight because there was no basis for him to be saying it.

But the fact remains that it's basically the same as testimony that the Applicant put in on dross-examination, 7041, 7042, et cetera, of the transcript.

·3

4

**.**5

6

8

.9

11

12

1.3

14

15 16

17

18

19

20

21

22

23

24 ..

25

• • 3 •

2

.З

4 5

,6

7.

-8

9

11.

.12.

13

14

15

16.

17

.18:

.19

20

21

, 22⋅

: 23

ı. 24°

25.

because it's already in the record, those words are in the record. I would agree with Mr. Tourtellotte that there's no basis for this witness, nor does he have the expertise to be making these statements, but they are not inaccurate in this particular instance and so I frankly wish we would move on.

MRS. BOWERS: Well, porhaps the seference to the SER should be stricken, since it doesn't - since it is cited as authority.

MR. TOURTHLECTER: Well, why don't we see if Mr. Hubbard has the correct citation, if it exists.

THE WITNESS: Mr. Tourtellotte, there are numerous places in the FSAR where it says that the horizontal is 2/3rds.

-- the vertical is 2/3rds the horizontal, but I don't have one that I can cite right off the top of my head.

MR. TOURTELLOTHE: You know, if a way I have to agree with Mr. Norton because I don't really have much problem with the accuracy of it. It's just that this witness doesn't have any business testifying about it in the first place and, as a matter of principle, it seems wrong that we should be going through this.

However, maybe the thing to do is because I don't really object to the statement, I'll strike the reference so that his statement can stand for whatever purpose it is.

. "

• • •

, 

, ti.

MRS. BOWERS: Mr. Kristovich?

MR. KRISTOVICH: Fire.

MRS. BOWERS: Well the footcots reference to the SER will be stricken.

MR. TOURTELLOTTE: That's all I have on motions to strike on 4. I don't know if Mr. Moston has anything additionally or not.

Does Mr. Kristovich have enything on motion to strike?

(Laughter.)

MRS. ROWERS: You know, Mr. Tourtellotte, you marked for identification Staff's Exhibit Number 10. which was the equation. Was your purpose just to mark it for identification?

MR. TOURTELLOTTE: Yes, to mark it for identifica-

MRS. BOWERS: Okay.

So we can go on to the other document, Contentions 5, 6 and 7.

MR. TOURTELLOTTE: If it's satisfactory with the Board, what I would like to do in this case is approach the subject matter from a sort of a generalized basis. I think that we went through the other document on a sort of a sentence-by-sentence approach, a paragraph-by-paragraph approach. And basically for this document, my approach would

,5

3

4

5

â

;9

10

- -

1.1

12

.1,3

1,4

15

<u>.</u>

16

17

18

19

20

21

00

23

24

25

=वर्त्वीतः • . • • •

not be any different.

3

.5

,6

.7.

8

9

10

1.4

**, 1**5, .

16

17

18.

<u>19</u>.

20

21

22

23

24

25

MRS. BOWERS: Excuse me. Mr. Tourtallotta, bafore you proceed. I really should inquire if Mr. Morton has crossexamination or motions.

MR. NORTON: Well, Mr. Tourtellotte-it's aica to see somebody besides myself wearing the black hat, so I'll 'just sit back and let Mr. Nourtellotte proceed.'"

MR. TOURTELLOTHE: I object to the characterization of my hat.

(Laughter.)

MRS. BOWHRS: Why don't you proceed, Mr.

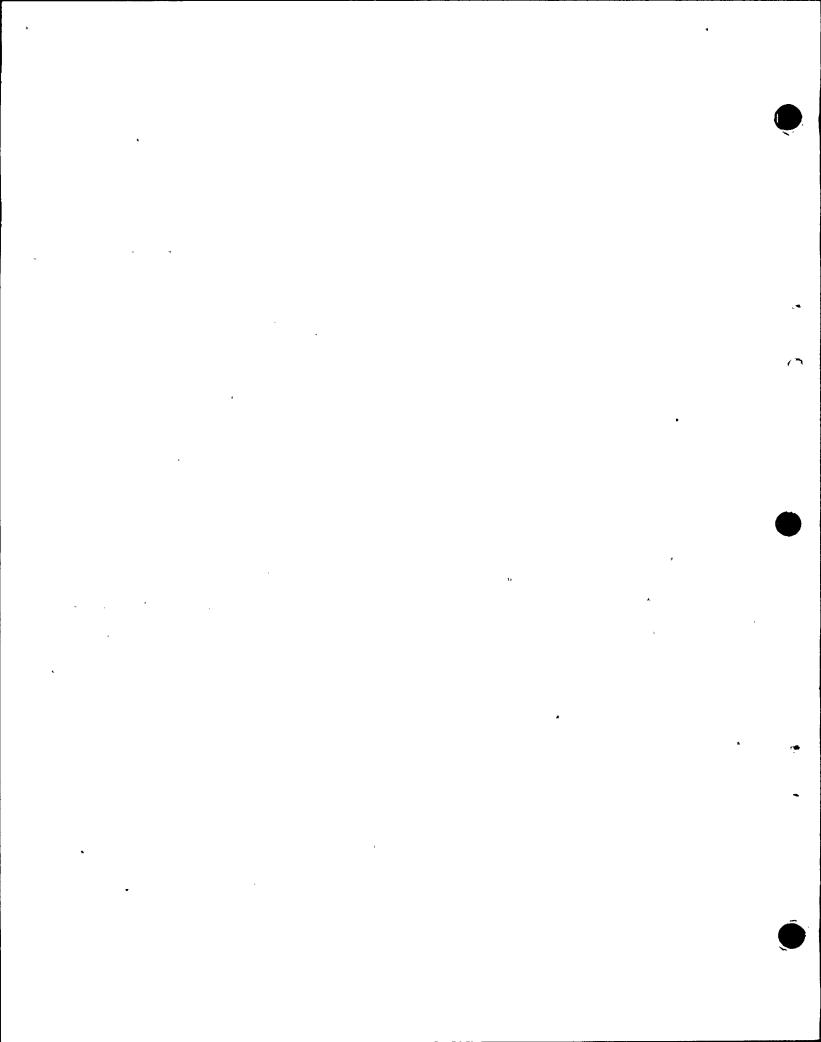
Tourtallotta?

MR. TOURTELLOTTE: Basically we don't object to the Introduction, which is I, the statement of the contention, II, discussion of the issues right on down to the conclusion.

We have two fundamental problems. One is that the majority of this material really constitutes a legal argument, and that Mr. Hubbard is not competent nor is it appropriate to make lugal arguments in the form of expert testimony, and we'd object to it on that basis.

I emphasize the mature of his legal assertions. Page: 5,6,7-8, the last sentence of the second paragraph under 3.4, where it says:

"The Board should determine for what pariod of time such tests will remain valid for:



3

4

.5 .6

7

:8

9

10

3.1

12

13

14

15

16

17

. 18

` 1,9

20,

21.

22

23

24 :

· 25

demonstrating conformance for the regulations and limiting the operating license issued so that it is not valid for any longer than that period."

as to how the Board should rule in this case. And it really is not within the purview of this witness to make that kind of determination, because that's a legal determination. He can present scientific analyses upon which that kind of a conclusion may be drawn, but it's a conclusion that would be drawn by his lawyer and not by him as an expert witness, if he were an expert.

That takes me to my second overall objection, which is that the voir dire this morning clearly indicated that he is not a structural engineer, that he does not possess the expertise necessary to make a seismic re-analysis of structures, systems and components, and that he does not know the basic formulas. We've been through that argument before with reference to Contention 4 and the OBE, and the same argument applies to the seismic re-analysis of structures, systems and components.

This is semething that a structural engineer would know about, it's something a mechanical engineer would know about. It is something which Mr. Mubbard does not possess the expertise to draw any conclusions about.

o. ٦ • 1 ; . ì 9 9

Consequently, unless some further explanation is required. I would rather not go through on a santance-by-sentence basis.

Maybe I can say that, again, since it's the responsibility of the Intervenor who is presenting this witness to demonstrate the expertise of the witness and he has not done so with reference to classification of safety-ralated Category 1 structures and components, 3.2 should fall.

Since he does not understand the basic formulas or the basic equations used in calculating actual material strengths, he doesn't understand the simple concepts like primary and secondary stresses, he doesn't understand the simple concept of bending stresses, it seems he would be incapable of making any conclusions at all about the use of actual materials under 3.3.

this morning, I would like to make an addition to the objection to 3.2, and I think I'll have to ask the Board to share memories with me.

Unfortunately, Mr. Fleischaker isn't here, and I don't think he was there then anyway. It was Mr. Rushforth but Mr. Hubbard was and Mr. Tourtellotte was and that was in Los Angeles in a prehearing conference approximately a year, and a half or two years ago. I believe it was almost two years ago now where Intervenors attempted to make 3.2 a

5.

7

6

2

4

**,8** 

**ئ** 

10.

i.1,

12

13

14

15

16.

17

18

.19

- 20

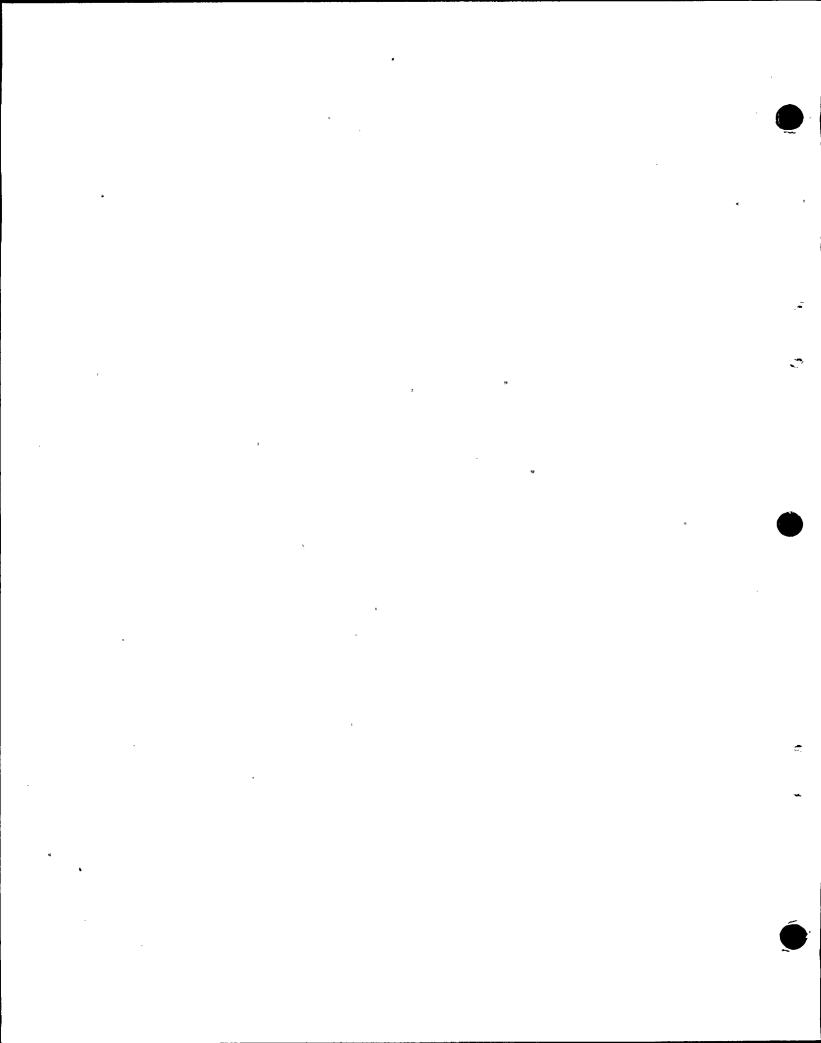
21

.22

23:

24

25:



Έ.

4

.6

.7.

ß

.9

**10** 

ΙĴ,

1.2

Stant

13

14

. 15 . 16.

1.7

18.

19

20

21

22

24

.23

**25**-

contention in these proceedings and asked this Board to require that the Applicant and Staff make a list of all Class lequipment, structures, systems and components.

That contention was -- that request for an added contention was expressly rejected by this Board, and this 3.2 is nothing more than that contention stated again and it has already been rejected by the Board as a contention in these proceedings.

MR. TOURTELLOTTE: With respect to 2

MRS. BOWERS: Just a minuta.

Mr. Kristovich, do you have any information on

MR. KRISTOVICH: I would have to ask Mr. Hubbard about that.

MRS. BOWERS: Mr. Hubbard was thre.

THE WITNESS: Would you like my understanding of that?

MRS. BOWERS: Well it can either come now or later.

Perhaps you want to go ahead, Mr. Tourtellotte,
and then we'll go back and give Intervenors the opportunity.

MR. TOURTELLOTTE: That might be the quicker way.

3.4 involves seismic qualification, requalification program. This, by its own title, indicates that a conclusion has been drawn by this witness that the requalification program is inadequate. It requires him to make some kind of an

• • η e . • •

evaluation, and in order for that evaluation to carry any weight it has to be supported by some kind of background and information and study and testing, and the witness has conceded and demonstrated that he is not really an expert in seismicity and consequently would not possess the expertise necessary to evaluate a requalification program to determine whether it is adequate or inadequate.

• چ . 1 .

D WRB/

රි

9.

14.

15.

C13

Section 3.5 entitled "Load response combinations not in accord with Regulatory Guida 1.92," again this witness demonstrated this morning on voir dire that he did not know how to calculate loads, he didn't understand basic formulas for calculating loads or basic formulas that were used by structural engineers and mochanical engineers in figuring out load combinations, and therefore he would not really be in a position of determing whether it was in conformity with Regulatory Guide 1.92 or not. That is the first part of that, that is, that he does not possess the expertise.

Guide 1.92, that is irrelevant in any event, because
Regulatory Guide 1.92 is not a regulation and it has been
clearly established in the development of administrative
law before the Board, licensing boards and the appeal boards
at the AEC and the NRC, that a regulatory guide in no way is
compelling; that a regulatory guide is simply put out there
for the applicant to use as a yardstick to determine what
course of action they might take, and they have the freedom
to take alternate courses of action if they see fit. The
alternate course of action has not been attacked, and even
if it were attacked this witness does not possess the expertise to attack it with any credibility or with any probative
value.

I might also invite the attention of the Board

. ٦ • . at μ •

"In the original seismic analysis," that whole paragraph
there is really irrelevant because the original seismic
analysis of piping systems is not what is important. The
important item in this case is, Are the piping systems as
they have been designed and installed, are those piping
systems capable of withstanding the Hosgri event without undue,
without posing an undue threat to the public health and
safety.

Under 3.6, Design in excess of yield, once again this witness has indicated that he doesn't know those basic formulas that deal with this subject matter. Indeed, the very simple question that he was asked about yield being equivalent to failure was an inaccurate response, and he is incapable from the standpoint of expertise of making the kind of evaluation that is made in 3.6. And that should be stricken.

The conclusions, of course, are actually based upon everything that is stated in the first part of the paper. And it's my judgment that those, too, should fail for the reason that he neither possesses the expertise to make the technical judgment nor can he make the legal judgment that's involved there.

Attachment A should be stricken because it has no proper foundation and is not competent for evidentiary

п • u . . •

3

4

purposes.

WRB/wb3

Attachment B also is not competent. The proper foundation is not laid anywhere for its use for evidentiary purposes.

5 6 And Attachment C is objectionable for the same reason as Attachment A.

Attachment D I think we had some discussion on

7

8

earlier. And I think the witness has already been questioned

9

about it to some extent. He has indicated that he really doesn't understand the subject matter that's involved here

10 11.

nor does he understand exactly how these figures were arrived

12

at or how this list was compiled, nor does he have any specific

13

information that any of it really applies to Diablo Canyon,

14

That's our motion to strike.

15

MR. NORTON: We would join in the motion. Only

17

as to the last attachment, Attachment D, these are -- this

18

again is an example of a witness, much like the Gawthrop

19

illustration, of a witness using someone else's non-specific

20

paper entitled "Examples of Deficiencies of Component

21

Quality Assurance, and somehow bootstrapping that in by

22

saying, Well it's an expert who wrote the paper, and perhaps

23

it can be related to Diablo Canyon so therefore I'm adopting

it and relying on it, when the individual doing so has no

24

expertise in that field.

so that it's not relevant.

i. . \*\* 

It's a very, very dangerous precedent. It

puts the Applicant in this case at a tramendous disadvantage
in not being able to cross-examine anybody about it. We

can't cross-examine Mr. Hubbard because he doesn't have the

expertise, and we can't -- as much as we would like, we

can't cross-examine Mr. Okrent.

MRS. BOWERS: Mr. Kristovich?

MR. KRISTOVICH: Well since Mr. Tourtellotto
painted with a broad brush I will also, and merely incorporate
all the arguments I previously made regarding the first piece
of testimony.

And with regard to the statement that certain parts of this testimony constitute legal argument, legal conclusions, I would merely once again say that witnesses in this type of proceeding may testify as whether the regulations have been met, give their opinion as to whether the regulations have been met.

The major problem seems to be with expertise.

And I think we pretty well this morning and this afternoon discussed Mr. Hubbard's expertise.

I would merely say that it appears to me that his professional training and experience allow him to make the statements in his testimony, and the Board will have to go through it paragraph-by-paragraph, line-by-line, and make that decision.

Ä

!3

• • . • • • •

14.	FIRE	3/	dw	5

MRS. BOWERS: Do you have anything further? Nothing further. MR. KRISTOVICH:

MRS. BOWERS: Is there any way we could consider this overnight rather than going down through--

MR. NORTON: Mrs. Bowers, I almost think that's going to be a necessity. Because, unlike 4 which was fairly short, at least relative to this piece of testimony, there has not been a lengthydiscussion by all three counsel and the Board, and so on, as to the various sections. We haven't gone through it pieca-by-piece. I think the principles that were argued this morning are obviously the same principles that control here.

I think the Board is going to have to sit down and go over it sentence-by-sentence and make the same kind of a determination it did -- not with necessarily the same result, but the same analysis that it did regarding the testimony on Contention 4. And I don't see how you can do that between now and five o'clock very well, due to the volume.

MRS. BOWERS: We assume Mr. Hubbard will be here tomorrow.

(Witness shaking head negatively.)

MR. NORTON: Mr. Hubbard will not be here Well what if the cross-examination lasts until tomorrow?

8

2

3

4

5

6

7

9

10

12

13

14

15

16

17

18

19

20

21

22

23

24

, · . 

THE WITNESS: Then I will be here tomorrow.

I have plane reservations this evening to leave.

And, of course, I will stay if that's required. I had

intended to fly home tonight and come back tomorrow night,

so I'd be back Wednesday morning. I have reservations to do

that.

However, if it's needed for me to be here tomorrow, I will be here temperow.

MRS. BOWERS: Well we can try to go through it.

tions I had thought that that was fassible. And so, rather than to try to hurry you, expedite you in any manner, it would probably be best to just follow your guidance.

The only suggestion I have is, possibly rather than taking it up tomorrow morning we could do it the first thing Wednesday morning.

MR. NORTON: No, I don't want to proceed in that fashion, bringing in a witness in the middle of this witness' testimony and then coming back to this witness.

MRS. BOWERS: Well, they are rather separate contentions.

MR. NORTON: But we may not be finished with Dr. Brune Wednesday morning. Who knows? Obviously the best laid plans go astray. Because we didn't assume we would take

15.

16.

• · · .

much time on cross-examination with Mr. Hubbard -- and, indeed, we have not; however, we have spent most of the day arguing about a motion to strike.

engagement tomorrow, if that's the problem, or if he was just going to go home for a day. If that were the case, then perhaps he could just go home Wednesday instead, if he were just going to -- you know, if the idea is to just go home for a day. If it's some sort of an appointment or something, that's different, of course.

MRS. BOWERS: Is it an appointment?

THE WITNESS: Yes. I had scheduled an appointment in Palo Alto. However I can cancel that. I had done that since this was the one day in about the next two weeks that I didn't absolutely have to be here, because I thought Dr. Brune would be on the stand.

I would be perfectly willing to go along with the Board and be here tomorrow morning. I had somewhat looked forward to going home.

MRS. BCWERS: We thought you were going home last weekend and we saw you loping around San Luis Obispo.

MR. NORTON: What was he doing around San Luis Obispo? Maybe I can use that in my cross-examination.

(Hilarity)

MRS. BOWERS: Mr. Tourtellotte, does the Staff

. 4

11.

• • • •

G

<u>a</u>

0

have a position on interrupting and delaying the contentions.

5, 6 and 7 until after Dr. Brune's testimony?

MR. TOURTELLOTTE: It's not a very orderly way to proceed, but I don't much care one way or the other.

MR. NORTON: Well it just seems, though, that we have a good shot at finishing Mr. Hubbard and Dr. Brune temorrow and starting with the Staff's case on Wednesday. In other words, we may lose a half day by postponing this until Wednesday. We may finish with Dr. Brune at two o'clock tomorrow afternoon. And then we have to wait for Mr. Hubbard to come back until Wednesday morning to finish that up. And then the Staff doesn't start until parhaps after lunch on Wednesday. And it's the half day that we might avoid losing that I am concerned about.

MRS. BOWERS: Mr. Kristovich, do you have a position on this?

MR. KRISTOVICH: I really have nothing further to add.

MR. TOURTELLOTTE: I would say one thing: it's probably— If you consider how much time we took on the motion to strike and how much time we took on cross-examination, my view is that probably if we got this thing together in the morning at 8:30 and a ruling was made rather quickly, cross-examination probably won't take fifteen minutes and Mr. Hubbard can get out of here in the morning in time to make

an appointment in the afternoon.

My own view is that, given what has occurred on Contention 4, if the general views are maintained— The reason I didn't go into an extensive argument, for instance, about legal conclusions, and so on, is, I have a fairly good idea what the Board is going to do with that, considering what they did with it today.

Citing that as an example, I don't believe that

I'll have more than two or three minutes of cross-examination

after the motion to strike is ruled on. I don't know how

Mr. Norton feels about it.

MR. NORTON: Well, I have my thoughts, but I'm not going to presume in any way how the Board is going to rule. If all the testimony is still in there than obviously the cross-examination is going to last more than fifteen minutes. If, on a ratio, testimony is struck as it was in the first one, the testimony probably wouldn't last more than fifteen or twenty minutes. But I know I can't assume how the Board is going to rule.

So, I don't know.

MRS. BOWERS: We'll adjourn now and meet at 8:30 in the morning.

hearing room after this morning's session, it's not that

Mr. Hubbard is not an expert in certain areas; it's just in

•

7

2

3.

5

6

9 10

4 4

12

13

14

15 16

17

18

19

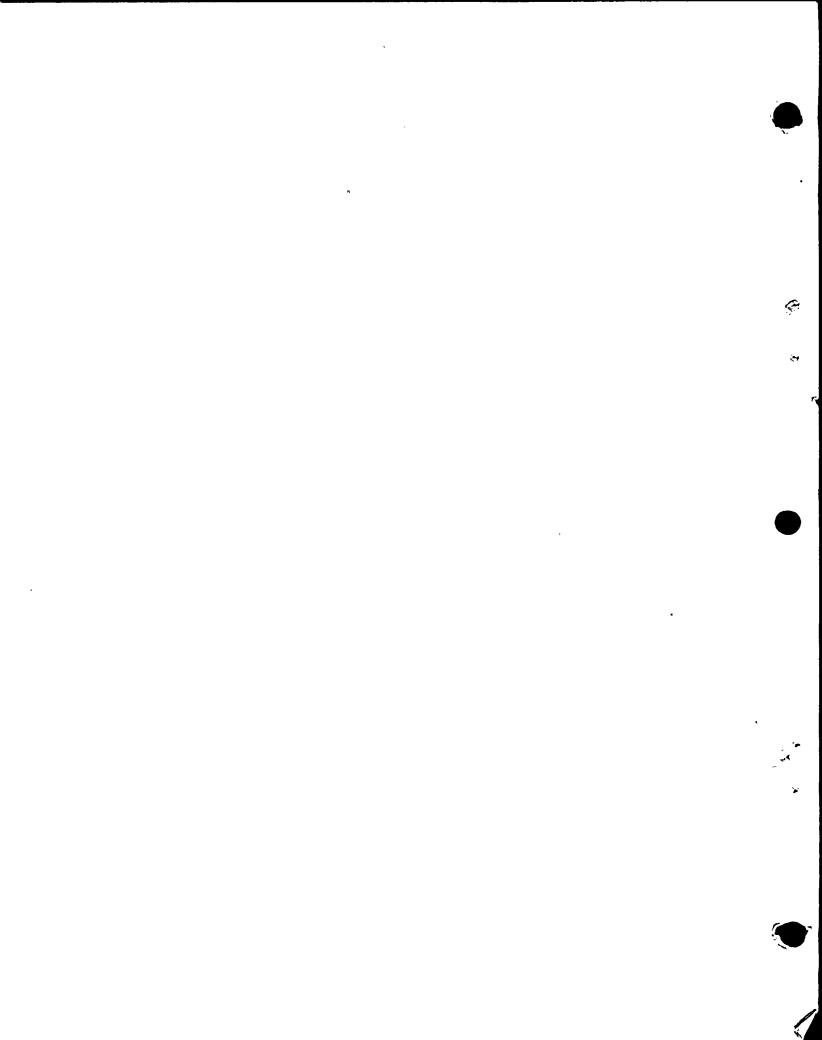
20

21.

22

23.

24



the testimony that's being sponsored here that his expertise has been challenged.

We'll adjourn, then, until eight-thirty tomorrow morning.

(Whereupon, at 4:00 p.m., the hearing in the above-entitled matter was recessed, to reconvene at 8:30 a.m., the following day.)

\$

1 1

15.

\* , ×