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481st Meeting

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS)

481ST MEETING

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FRIDAY,

APRIL 6, 2001

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ROCKVILLE, MARYLAND

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The Committee met at the Nuclear  
Regulatory Commission, Two White Flint North, Room  
T2B3, 11545 Rockville Pike, at 8:30 a.m., Dr. George  
E. Apostolakis, Chairman, presiding.

COMMITTEE MEMBERS PRESENT:

GEORGE E. APOSTOLAKIS	Chairman
MARIO V. BONACA	Member
F. PETER FORD	Member
THOMAS S. KRESS	Member
GRAHAM M. LEITCH	Member
DANA A. POWERS	Member

## 1 COMMITTEE MEMBERS PRESENT: (cont'd)

2 WILLIAM J. SHACK Member  
3 JOHN D. SIEBER Member  
4 ROBERT E. UHRIG Member  
5 GRAHAM B. WALLIS Member

6

## 7 INVITED EXPERT:

8 STEPHEN L. ROSEN

9

## 10 ACRS STAFF PRESENT:

11 SAM DURAISWAMY  
12 CAROL A. HARRIS  
13 JOHN T. LARKINS  
14 JAMES E. LYONS  
15 MAGGALEAN W. WESTON

16

## 17 ALSO PRESENT:

18 PETER BALMAIN  
19 TOM BERGMAN  
20 RALPH CHACKAL  
21 NANCY CHAPMAN  
22 DAVID FISCHER  
23 BOB GRAMM  
24 AL GUTTERMAN  
25 SCOTT HEAD

1 ALSO PRESENT: (cont'd)

2 KAMAL MANOLY

3 EILEEN McKENNA

4 MATHEW A. MITCHELL

5 A.C. MOLDENHAUER

6 JOHN A. NAKOSKI

7 BOB PALLA

8 STUART RICHARDS

9 GABU SABO

10 THOMAS SCARBROUGH

11 G.E. SCHINZEL

12 JACK STROSNIDER

13 DAVID TERAQ

14 DALE THATCHER

15 HAROLD VANDERMOLEN

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## I N D E X

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South Texas Project Nuclear Operating	
Company (STPNOC) Exemption Request	

P-R-O-C-E-E-D-I-N-G-S

(8:30 a.m.)

CHAIRMAN APOSTOLAKIS: The meeting will now come to order. This is the second day of the 481st meeting of the Advisory Committee on Reactor Safeguards.

During today's meeting, the committee will consider the following: the South Texas Project Nuclear Operating Company's exemption request; closure of Generic Safety Issue 170, reactivity transients and fuel damage criteria for high burnup fuel; report of the Materials and Metallurgy Subcommittee regarding risk-informing, 10 CFR 50.46; future ACRS activities; report of the Planning and Procedures Subcommittee; reconciliation of ACRS comments and recommendations; and proposed ACRS reports.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act. Mr. Sam Duraiswamy is the designated federal official for the initial portion of this meeting.

We have received no written comments or requests for time to make oral statements from members of the public regarding today's sessions. A transcript of portions of the meeting is being kept,

1 and it is requested that the speakers use one of the  
2 microphones, identify themselves, and speak with  
3 sufficient clarity and volume so that they can be  
4 readily heard.

5 I would urge the members to read Item 13  
6 that was handed out this morning, reconciliation of  
7 ACRS comments and recommendations, because we will  
8 have to visit this issue later today.

9 Now, it's my pleasure to announce to the  
10 committee that, acting upon the recommendation of  
11 Chairman Meserve, the Commission has decided to give  
12 the NRC's Honorary Distinguished Service Award to Dr.  
13 Powers for his leadership of this committee during  
14 1999 and 2000.

15 (Applause.)

16 Dr. Powers will be recognized at the 24th  
17 Annual Awards Ceremony on Thursday, June 7th, at 2:00.

18 I'm also pleased to announce that Dr.  
19 Peter Ford is now an official member of the ACRS, with  
20 all the rights, privileges, and responsibilities --

21 (Laughter.)

22 -- such as they are today.

23 And Mr. Stephen Rosen is an invited expert  
24 to this ACRS meeting, and the paperwork is being  
25 processed for him to become a full member, subject to

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1 reconciliation of any conflict of interest matters.

2 Finally, I would like to introduce Mr. Rob  
3 Elliott. Rob, where are you? From NRR, who will be  
4 working with the ACRS staff for a few months,  
5 principally in the area of license renewal.

6 And with that, I will turn the meeting  
7 over to Mr. Sieber, who will guide us through the  
8 first session of the day on the draft final safety  
9 evaluation report for the South Texas Project Nuclear  
10 Operating Company, STPNOC. Any way to pronounce this?

11 (Laughter.)

12 Exemption request. Jack?

13 MEMBER SIEBER: Thank you, Mr. Chairman.  
14 Before we start, I will mention that I brought with me  
15 and provided copies of the INEEL technical letter  
16 report on commercial practice. And this is a draft  
17 report. I don't think it's been issued as a final  
18 report, and it might make some interesting reading.  
19 And at least it will provide ballast for your suitcase  
20 when you travel back home.

21 This is one of a series of meetings on the  
22 South Texas Project exemption request. The initial  
23 exemption request was filed July of 1999. The SER was  
24 issued in November. We have already had three  
25 meetings with South Texas, the last one of which



1 involved the categorization process. In today's  
2 discussion, we'll describe issues related to and the  
3 process of what really is special treatment, what does  
4 it mean, and/or commercial treatment.

5 And with that, we have a mixture of NRC  
6 and STP folks at the table, and they will jointly give  
7 the presentation as they go through it. And I'd like  
8 to introduce from NRR the Senior Project Manager for  
9 this project, John Nakoski.

10 John, would you like to go ahead?

11 MR. NAKOSKI: Yes. Thank you.

12 My name is John Nakoski. I'm a Senior  
13 Project Manager for the South Texas Project,  
14 specifically for the exemption request. Here with me  
15 from the NRC is Jack Strosnider, Division Director for  
16 the Division of Engineering in NRR, and to my right is  
17 Scott Head. And I'd ask that he introduce the folks  
18 that he has up here.

19 MR. HEAD: My name is Scott Head. I'm the  
20 Manager of Licensing at the South Texas Project.  
21 Joining us today is Alan Moldenhauer, one of our PRA  
22 staff members. We have Glen Schinzel, who will be  
23 doing most of our presentation. He is the Project  
24 Manager of our Option 2 effort, our exemption request  
25 effort.

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1                   Joining us also is Ralph Chackal from our  
2 staff, and one of our legal representatives, Al  
3 Gutterman.

4                   MR. NAKOSKI: And with ACRS' indulgence,  
5 I would like to modify the agenda as outlined in the  
6 meeting notice. As was indicated, we would like to do  
7 a joint presentation to the ACRS for efficiency and  
8 using the two hours that we have allotted.

9                   And with that, if we could go to the  
10 second slide, I'd like to just give you some  
11 perspective where we are in this process and what  
12 level of effort has gone into it. As was mentioned,  
13 the submittal -- original submittal was submitted in  
14 July of 1999. We've had a number of meetings with  
15 South Texas, and we have met with ACRS on a number of  
16 occasions.

17                   In December of last year, we met with the  
18 ACRS on the draft safety evaluation that was issued in  
19 November of last year. We also met with ACRS in  
20 February, a subcommittee of ACRS in February on  
21 categorization, and today we're going to be talking  
22 about treatment issues that were identified in the  
23 draft safety evaluation.

24                   Going forward, you'll see there's a TBD --  
25 to be determined -- bullet in there. We are still

1 working closely with South Texas to resolve the  
2 remaining open items. All of them have not been  
3 resolved yet. When those are resolved, we will be  
4 able to follow a schedule similar to what's laid out  
5 here as far as intervals.

6 If we can get the open items all resolved  
7 by the end of this month, I still think we're in a  
8 pretty good position to meet with the Commission in  
9 early June to discuss the issuance of the safety  
10 evaluation and the granting of the exemptions.

11 To move forward, in the draft safety  
12 evaluation there were 16 open and two confirmatory  
13 items. Six of these items have been closed without  
14 any further effort required on the part of either the  
15 staff or South Texas. Six of these open items can be  
16 closed based on an agreement on the details contained  
17 in the South Texas FSAR section that describes the  
18 categorization, treatment, and management and  
19 oversight processes.

20 MEMBER SHACK: Is there a difference  
21 between a finger and a triangle?

22 MR. NAKOSKI: Yes. A finger indicates  
23 that that's a treatment open item. And we will  
24 discuss those in a little more detail later on during  
25 our presentation.

1 Two of the open items on categorization --  
2 we have a success path agreement in principle with  
3 South Texas on how to close those items. It will  
4 require South Texas to provide us additional insights  
5 before the -- additional submittal before those can be  
6 closed. There are two open items that are treatment  
7 open items on repair and replacement and in-service  
8 inspection of ASME code components that South Texas  
9 owes as a revised response to that open item.

10 There is really only one issue that  
11 remains, and that's one of their proposed alternatives  
12 for repair and replacement. And we're working with  
13 them to resolve that issue.

14 Open Item 8.1 is an item related to  
15 environmental qualification, and the staff has the  
16 lead for action in this area. We need to internally  
17 resolve our position on what level of detail would we  
18 expect to be described in the treatment process,  
19 primarily in the area of procurement in their FSAR.

20 And, similarly, Open Item 18.1 that deals  
21 with seismic design requirements or seismic  
22 qualification requirements -- we -- the staff has come  
23 to a position, shared that with South Texas. However,  
24 as you'll see later in the presentation, I think it  
25 requires some further discussion between the staff and

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1 South Texas to consider this item resolved.

2 If we could go to slide 4 in the handout.  
3 I think it's important to let the ACRS understand what  
4 the process was or -- for the staff's review of the  
5 treatment area. The first thing that's important to  
6 recognize is that under Option 2, in which South Texas  
7 is a proof of concept for, the design basis would not  
8 change.

9 Second, is that even low safety  
10 significant but safety-related components --  
11 structures, systems, and components would remain  
12 functional. They still need to be able to do those  
13 safety-related functions that they are credited for in  
14 the design basis.

15 What we would expect to be in the FSAR is  
16 a high-level description of what the elements of the  
17 treatment processes in South Texas' balance of plant  
18 or commercial practices are. We're not asking how  
19 those processes would be implemented. We're relying  
20 on South Texas' engineering judgment to determine how  
21 to implement those elements of the treatment  
22 processes.

23 And it's also important to recognize that  
24 in order to grant the exemption we need a licensing  
25 basis, and that basis is provided in the description

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1 in the FSAR.

2 MEMBER LEITCH: So the key word there is  
3 "low safety significance."

4 MR. NAKOSKI: That's correct.

5 MEMBER LEITCH: But systems -- what is it  
6 -- not related to safety are not included in that.

7 MR. NAKOSKI: Non-safety-related LSS -- to  
8 use the South Texas vernacular, LSS, low safety  
9 significant or non-risk-significant are not subject to  
10 NRC regulatory treatment requirements. And in most  
11 cases, they would not have been before.

12 MEMBER LEITCH: Okay. Thank you.

13 MEMBER BONACA: Multiple trains of very  
14 high safety significant systems can be categorized as  
15 lower. Like for example, medium or low in the  
16 methodology that South Texas has used, because of the  
17 number of redundancies.

18 MR. NAKOSKI: They can factor in -- and  
19 I'll give an answer and let --

20 MEMBER BONACA: Well, the question I have  
21 is that, are there any high safety significant SSCs or  
22 systems that have low safety significant trains  
23 supporting them?

24 MR. NAKOSKI: I'll let South Texas field  
25 that question. Pull the mike to you, Glen.

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1 MR. SCHINZEL: Do you want to address  
2 that, Ralph?

3 MR. CHACKAL: Yes. We can have -- this is  
4 Ralph Chackal with South Texas. We can have a medium  
5 or high safety significant system function with a  
6 level of redundancy. And diversity provided by the  
7 components allows us to rank some of those components  
8 as low.

9 MEMBER BONACA: So how do you guarantee  
10 that the -- the lower level of confidence, then, for  
11 high safety significant systems? You see, I'm taking  
12 exception with the statement there. It says, "The  
13 functional capability of low safety significant  
14 systems would be maintained, although at the lower  
15 level of confidence."

16 Now, if I have four trains of a high  
17 safety significant system, and for those now I  
18 maintain the functional capability at the lower level  
19 than for high safety significant. Then, the overall  
20 safety significant system -- I believe the functional  
21 capability of that is at the lower level of  
22 confidence. That's the outcome of that, right?

23 CHAIRMAN APOSTOLAKIS: But isn't that the  
24 whole idea of using the PRA, that it's built into all  
25 of these importance measures, so you don't have

1 redundancy and all that. You will get a low Fossil-  
2 Vesely and a low raw -- I mean, all of these questions  
3 are built into the calculation. You don't have to  
4 revisit them afterwards.

5 MEMBER BONACA: You're talking  
6 calculation. I'm talking about the programs that you  
7 are applying to each individual train, okay, that  
8 you're saying will provide a lower level of confidence  
9 on each individual train. That's what I read there.

10 MR. SCHINZEL: This is Glen Schinzel from  
11 South Texas. Just a little clarification. On the  
12 safety significant systems, generally there will be a  
13 certain number of components. Maybe it will be the  
14 pump. It will be the main valves. It will still be  
15 safety significant, either high or medium. But within  
16 that train there may be a lot of auxiliary components;  
17 you'll fall into a lower classification.

18 So those vent valves, drain valves,  
19 instrumentation, we may be able to treat those with a  
20 lower level of assurance. But for the pump, for the  
21 main valves, those will still fall within the full  
22 treatment requirements.

23 MEMBER BONACA: Okay. I understand what  
24 you are saying. Again, however, I think it's a bit  
25 obscure how you apply the rule that you showed us



1 before in the presentation. That is, that the number  
2 of redundancies on trains may justify a lower level of  
3 significance for individual train than the system they  
4 support. I still have some --

5 CHAIRMAN APOSTOLAKIS: It seems to me that  
6 the words "lower level of confidence" are unfortunate.  
7 Really, I'm not sure it's a lower level. It is a  
8 lower level, but it may be lower by 10 to the minutes  
9 whatever -- n. It's not that, you know, you are  
10 reducing the confidence of --

11 MEMBER BONACA: Here we're questioning,  
12 then, and we're discussing the effectiveness of the QA  
13 program. I cannot give you estimates of probability  
14 or confidence based on judgment. I'm only saying that  
15 if we do believe that implementation of a quality  
16 assurance program or certain components provides for  
17 a higher level of confidence, I don't know.

18 MR. SCHINZEL: This is Glen Schinzel from  
19 South Texas again. We essentially begin with our base  
20 level of confidence, if you will, to be what's  
21 currently required by the regulations. So that gives  
22 us a degree of assurance that these components,  
23 through various testing, through qualifications, will  
24 perform their functions.

25 And what we're saying for -- through the

1 categorization process and recognition of low safety  
2 significant/non-risk significant components, these  
3 components don't have to have the same level of  
4 assurance.

5 MEMBER BONACA: So let me ask just one  
6 question. Will the quality, or, let's say, the  
7 confidence in the overall system be maintained?

8 MR. SCHINZEL: Yes, it would. You know,  
9 we intend on using commercial-type practices. Our  
10 balance of plant is running extremely well. We have  
11 a very high level of reliability, and we fully expect  
12 these low safety significant/non-risk significant  
13 components to fully function.

14 MEMBER BONACA: I understand. Fully  
15 function.

16 CHAIRMAN APOSTOLAKIS: When you say "low  
17 safety significant," I remember the four categories.  
18 Which ones are these, risks three and four?

19 MR. SCHINZEL: These are Box 3. It would  
20 be --

21 CHAIRMAN APOSTOLAKIS: Box 3 only?

22 MR. SCHINZEL: -- Box 3. yes.

23 CHAIRMAN APOSTOLAKIS: Four is what?

24 MR. SCHINZEL: Box 4 is non-safety-  
25 related.

1 CHAIRMAN APOSTOLAKIS: We don't care about  
2 that.

3 MR. SCHINZEL: That's correct.

4 CHAIRMAN APOSTOLAKIS: From what you just  
5 told us.

6 MR. SCHINZEL: That's correct.

7 CHAIRMAN APOSTOLAKIS: So it's Box 3,  
8 which is low Fossil-Vesely, low raw, but they are  
9 safety-related.

10 MR. SCHINZEL: That's correct. That is  
11 correct.

12 CHAIRMAN APOSTOLAKIS: So that's where the  
13 battle is, Box 3.

14 MR. SCHINZEL: That's correct.

15 CHAIRMAN APOSTOLAKIS: Any questions about  
16 Box 2? Any issues on Box 2?

17 MR. NAKOSKI: We have found that their  
18 description in the FSAR of the treatment that they  
19 would apply to non-safety-related, high safety  
20 significant, or medium safety significant, which is  
21 the Option 2, Box 2 category, to be acceptable,  
22 because they will -- they have described a process  
23 that would target enhanced treatment.

24 CHAIRMAN APOSTOLAKIS: Oh, that's the  
25 target.

1 MR. NAKOSKI: That's correct.

2 CHAIRMAN APOSTOLAKIS: Okay. So 3 is the  
3 commercial treatment. Now, when you did the  
4 sensitivity analysis where you increased the failure  
5 rates by 10, did you do it to the components in Box 3?

6 MR. MOLDENHAUER: This is Alan Moldenhauer  
7 from South Texas. When we did the sensitivity study  
8 where we increased the failure rates by a factor of  
9 10, we only applied it to Box 3 and Box 4.

10 CHAIRMAN APOSTOLAKIS: So it was both  
11 boxes.

12 MR. MOLDENHAUER: Yes, both boxes.

13 MR. NAKOSKI: This is John Nakoski. Just  
14 to clarify -- to the extent that they were modeled in  
15 the PRA, right?

16 MR. MOLDENHAUER: That's correct.

17 CHAIRMAN APOSTOLAKIS: Well, and there is  
18 a reason why they are not, if they are not. Let's not  
19 forget that.

20 MR. MOLDENHAUER: Right.

21 CHAIRMAN APOSTOLAKIS: If you leave it at  
22 that --

23 MEMBER BONACA: I'm raising this issue --  
24 I raised it before -- because I think it has generic  
25 implications to whatever is going to happen in the

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1 future with this. And I still have some conceptual  
2 concern about the inconsistency between a system which  
3 is in Box 1 and supported by components that are in  
4 Box 3. That's all.

5 MR. NAKOSKI: This is John Nakoski with  
6 the NRC. I think where the staff is at is that the  
7 categorization process will identify components, or  
8 could identify components, in an HSS system that are  
9 not significant to the capability of the system to  
10 fulfill a high safety significant function.

11 I think we acknowledge that that can  
12 happen, and we would expect it to happen. And we  
13 would expect that the treatment on those could be  
14 reduced.

15 MR. STROSNIDER: This is Jack Strosnider.  
16 I'd just add, I guess, the -- I think this discussion  
17 is good because we need to look at an integrated view  
18 of the program. However, in the context of today's  
19 discussion where we talk about the reduced level or  
20 lower level of confidence, we're really focusing on  
21 the treatment programs.

22 The expectation, as is pointed out here,  
23 is that the design basis and the functionality will be  
24 maintained. But the challenge we have is to figure  
25 out what relaxation from the current requirements can

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1 be granted and still maintain that functionality but  
2 define that as a lower level confidence.

3 You said something interesting earlier  
4 when you talk about a QA program or one of these  
5 programs where -- how do you measure or quantify a  
6 reduction in confidence. And that's a very difficult  
7 thing, because a lot of it is judgment. And that's  
8 part of the challenge that we have in reaching  
9 agreement on what the appropriate level is here.

10 CHAIRMAN APOSTOLAKIS: Now, South Texas  
11 also identified something like 600 non-safety-related  
12 components that actually were risk significant in some  
13 sense. You have moved them up to some category where  
14 some extra treatment would be required for those?

15 MR. NAKOSKI: This is John Nakoski. The  
16 Risk 2 box or the HSS/MSS non-safety-related we would  
17 expect South Texas -- and as described in their FSAR,  
18 we would expect that they would implement targeted or  
19 enhanced treatment to the attributes or  
20 characteristics of the SSC that would cause it to be  
21 high or medium safety significant.

22 CHAIRMAN APOSTOLAKIS: Yes. I didn't  
23 expect you to object to that, obviously.

24 MR. NAKOSKI: Well, I think it's stronger  
25 than that. I think it's we expect that that -- that's

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1 an expectation that the staff has.

2 CHAIRMAN APOSTOLAKIS: Right. But you  
3 didn't know before they came to you that some of the  
4 non-safety-related SSCs, in fact, were of high  
5 significant. Right? You didn't know that?

6 MR. NAKOSKI: Not the specifics. But I  
7 would -- systems like maybe aux feedwater that maybe  
8 aren't safety-related or some other parts of main --  
9 we understand the significance of those and are --

10 CHAIRMAN APOSTOLAKIS: No. It's not a  
11 matter of you not understanding. My point is this:  
12 that if we look at the whole project or the whole  
13 system as we are about, you know, to do, the fact that  
14 the methodology that was used identified those SSCs  
15 and moved them up to Box 2 in fact should add to our  
16 level of confidence that the overall final result  
17 would be pretty good.

18 MEMBER SIEBER: It's better than it  
19 otherwise would have been.

20 CHAIRMAN APOSTOLAKIS: Yes. If we focus  
21 only on 3 -- and, again, I don't like the words "lower  
22 level of confidence," but let's say we accept them for  
23 a moment. I mean, you know, it tells me that the  
24 methodology has some merit, that it's not only  
25 something that tries to make the life of the utility

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1 easier. In some sense, it went the other way.

2 MEMBER BONACA: I'm not at all arguing  
3 that. I'm suggesting there is an inconsistency in the  
4 process. And it is important at the site, because if  
5 you have a system with four trains, typically the  
6 expectation of the operators, etcetera, has always  
7 been that you treat it in a special way, because you  
8 have four trains not because you have four trains now  
9 you can treat them individually less importantly.

10 Therefore, trains, because it supports an  
11 extremely important system, you have that message.  
12 Now we are saying, well, but there are four of those.  
13 Therefore, each one of them has less importance. And  
14 it may make sense in a probabilistic sense. I'm only  
15 trying to understand what it does, the message that it  
16 conveys, first.

17 And, second, the inconsistency between a  
18 high level system, high safety significant -- however,  
19 the elements are less safety significant -- because  
20 each one of them is redundant to the other one. It's  
21 just -- it's a personal concern I have with that, and  
22 I wanted to --

23 MR. STROSNIDER: I don't know if this  
24 helps at all to answer your question, but I guess I  
25 would point out that the proposal from the licensee is

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1 that these low safety significant components will  
2 maintain their functionality. And also, the input we  
3 get from the PRA Branch was, yes, you want to maintain  
4 the functionality of these.

5 And then, that's what we're looking at as  
6 one of the goals of the treatment to be applied. So  
7 to whatever extent that influences your concern there,  
8 the idea is that the functionality and design basis  
9 would be maintained, and you might require a lower  
10 level of treatment to do that. But it would still  
11 function.

12 MR. SCHINZEL: This is Glen Schinzel,  
13 South Texas. Maybe to help put your mind at ease a  
14 little bit, as we go through the categorization  
15 process, we do begin with system functions. And we  
16 look at the functions to determine how significant  
17 those functions are. And then we start mapping those  
18 functions against components.

19 Now, if we have a high safety significant  
20 function, the component initially is going to be  
21 categorized high safety significant. Only unless  
22 there is -- if we feel that there is multiple trains,  
23 diversity in satisfying that function, we may be able  
24 to downgrade that component to a medium  
25 categorization.

1                   Generally, it's not going to fall more  
2                   than one level. If it goes from a high to a medium,  
3                   it's still viewed as safety significant, and it will  
4                   still receive all of the special treatment  
5                   requirements.

6                   MR. CHACKAL: We should also clarify that  
7                   the vast majority of components remain at the risk of  
8                   the system function that they serve. It's the  
9                   exception rather than the rule that a component's risk  
10                  is lowered. And, really, to clarity it further, as  
11                  far as redundancy and diversity, really, we don't --  
12                  we don't go across that much across trains.

13                 CHAIRMAN APOSTOLAKIS: Would that be  
14                 consistent with your finding that only about six  
15                 percent of the safety-related components are really of  
16                 high risk significance? How can that be consistent  
17                 with what you just said? I'm missing something.

18                 MR. CHACKAL: Well, because not all system  
19                 functions, obviously, are high risk. There's a high,  
20                 medium, low and not risk significant. Most of the  
21                 functions are not -- system functions are not high  
22                 risk. I don't know what the exact percentage is  
23                 between medium and high.

24                 But when you count up the total number of  
25                 components, percentage-wise the major components --

1 pumps and major valves, etcetera -- constitute a  
2 relatively small percentage of the overall population  
3 because in that population you have a tremendous  
4 number of vents and drain valves, instruments, things  
5 of that nature.

6 CHAIRMAN APOSTOLAKIS: I think the concern  
7 that Dr. Bonaca has raised has to be looked at in the  
8 context of the fact that there is no evidence that I  
9 know of that tells us that if we apply those special  
10 treatment requirements the failure rates are  
11 different. I think that's a very significant  
12 observation here.

13 It's not that, you know, we are applying  
14 -- we are less confident, and we do less things. No.  
15 We are moving from one state to another, and there is  
16 really no evidence, at least that I know of. It's a  
17 presumption on our part that all of these things  
18 really improve the failure rates. This gentleman said  
19 earlier that in the balance of plants they haven't  
20 seen any problems. Of course, you haven't had any  
21 severe accidents.

22 MEMBER BONACA: I could supplement that  
23 comment to say that, then, that puts into question at  
24 all the value of the quality assurance program. I  
25 mean --

1 CHAIRMAN APOSTOLAKIS: And you think  
2 that's going to hurt my feelings?

3 MEMBER BONACA: No. Maybe not. But I  
4 think it has to be a coherent -- let me just express  
5 my concern again -- express about the generic  
6 implication of this assumption. Here we are looking  
7 at it as an assumption made, and the staff has a means  
8 of verifying that and checking that -- I'm concerned  
9 about the generic implications.

10 For something of this nature, there had to  
11 be a position to establish that says we will look at  
12 something and -- and something that gives more  
13 comfort, that there isn't here a downgrading of the  
14 actual effectiveness of a system by default, just  
15 because of the implementation of this.

16 CHAIRMAN APOSTOLAKIS: And what I'm saying  
17 is that this degradation is the maximum in whatever  
18 scale you want. I mean, that's an important  
19 observation. It's small.

20 MEMBER BONACA: Let me just make --

21 CHAIRMAN APOSTOLAKIS: It's small. I  
22 mean, I can't quantify it, but I think it's small.

23 MEMBER BONACA: So now you have an RPS  
24 with four trains. You could possibly conclude that  
25 since there are four of those each one of the trains

1 is not any more as safety significant as the RPS is.  
2 So you could say, well, then, we don't have to have  
3 anymore the testing of this or the checking of that or  
4 the verification or the quality of certain components.  
5 You could say that.

6 For electrical components, I mean, we know  
7 there is a dependency on quality of components and the  
8 reliability of their systems. So I don't want to  
9 belabor it. I think I expressed my thoughts and my  
10 view, and I think that there has to be some --  
11 certainly on a generic basis, when this approach is  
12 being used on a larger scale, there had to be a way to  
13 address this issue.

14 MR. SCHINZEL: And, again, just to say one  
15 more time -- as we did the categorization process, we  
16 had safety significant functions. Every system that  
17 was necessary or every component that was necessary to  
18 satisfy that function received a high safety  
19 significant categorization initially.

20 And only unless we saw specific  
21 justification on why it should be lowered, it was left  
22 high safety significant. And so just because there  
23 are three trains or four trains, the exception is that  
24 there would be some lowering. The rule is that those  
25 components remain high safety significant.

1 CHAIRMAN APOSTOLAKIS: Do you think two  
2 hours will be enough?

3 (Laughter.)

4 MR. NAKOSKI: Yes.

5 CHAIRMAN APOSTOLAKIS: Can we move on?

6 MR. NAKOSKI: Yes, I think we should --  
7 this is John Nakoski. I agree, we should move on.

8 I'd just like to emphasize what the staff  
9 finding -- the direction that the staff finding is  
10 heading in. And it's really we're focusing on that  
11 treatment processes have the necessary elements, that  
12 if South Texas effectively implements these elements  
13 they can conclude that they have confidence the SSCs  
14 will be capable of performing their safety-related  
15 functions.

16 CHAIRMAN APOSTOLAKIS: Again, I mean, for  
17 the big picture, it seems to me the fact that there  
18 will be a monitoring program is of extreme importance,  
19 is it not?

20 MR. STROSNIDER: And, actually, I was  
21 going to address that on the next viewgraph with  
22 regard to the performance-based aspects of the  
23 program. But I could talk about it now.

24 CHAIRMAN APOSTOLAKIS: Why don't we do it?

25 MR. NAKOSKI: We can go to the next slide.

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1 MR. STROSNIDER: Actually, before you do  
2 that, leave this one up here with the finding, because  
3 I think -- as John pointed out, the finding that the  
4 staff is working toward at this point is focused on a  
5 very high level in terms of the elements of the  
6 program and the idea that those elements will be  
7 sufficient for the licensee to maintain functionality  
8 of the components, without getting into how to do  
9 that. Okay? Some high level elements and guidance.

10 In my mind, to understand that it's  
11 probably easier -- or it's helpful to say what the  
12 finding is that we're not making. All right? We're  
13 not making a finding that anyone who picks up the  
14 program as defined in the FSAR and implements that  
15 program step by step will necessarily get  
16 functionality or maintain the design basis when  
17 they're completed.

18 It's very high level. It's the elements.  
19 These are ways that you can accomplish that. But  
20 there's a large degree of reliance on engineering  
21 judgment of the licensee who is implementing it, and  
22 it's squarely in their court, which it always has  
23 been. All right? And I want to point that out.

24 It's always been the licensee's  
25 responsibility to implement their programs, but we say

1 that on here to emphasize the point that the staff is  
2 not going to make a finding that anybody could pick  
3 this up and implement it and get those results.

4 That's a change in the finding that we  
5 were working toward when we first started this. Okay?  
6 Where, you know, we were looking at attributes at a  
7 lower level. All right? In terms of, as I say, the  
8 point that somebody could pick it up and follow it and  
9 accomplish this.

10 Now, our basis for doing that is the  
11 finding that the PRA and categorization process, that  
12 the components that are identified as low safety  
13 significant, contribute small amount to risk. Right?  
14 And so this is the reduced competence that we're  
15 talking about in terms of treatment, that the staff  
16 doesn't need to know the hows. Okay?

17 But, nonetheless, there has to be some  
18 outcomes established and some elements to make sure  
19 you can get there.

20 Now, in the ideal world --

21 MEMBER SHACK: Before you move that, Jack,  
22 let me -- I'm trying to read that last sentence and  
23 make sense out of it. If I take the "whether" out,  
24 should I read this as the staff's finding regarding  
25 treatment is that the licensee's treatment processes



1 include the necessary elements, if effectively  
2 implemented?

3 MR. STROSNIDER: The finding we want to  
4 make is that it does include the necessary elements.

5 CHAIRMAN APOSTOLAKIS: Okay. And you're  
6 not ready to make that yet?

7 MR. STROSNIDER: Well, actually -- I think  
8 actually we have concluded that the elements are  
9 there, and we're talking about what level of guidance  
10 might be appropriate within those elements. And this  
11 is where we get into issues of --

12 MEMBER SHACK: So the "whether" is a yes.

13 CHAIRMAN APOSTOLAKIS: It's a yes.

14 MEMBER WALLIS: It's not really a finding.  
15 It's a criterion for --

16 CHAIRMAN APOSTOLAKIS: It's a criterion.  
17 It's not a finding.

18 MEMBER SHACK: Well, I think he's got a  
19 criterion up there, and they actually have a finding.  
20 I think that the --

21 CHAIRMAN APOSTOLAKIS: To guarantee  
22 functionality.

23 MEMBER SHACK: Well, I think the criterion  
24 is whether the treatment will include the necessary  
25 elements, if implemented, to assure this. And the

1 finding seems to be yes, it does. So as soon as we  
2 tweak the commitment --

3 MR. NAKOSKI: Yes.

4 CHAIRMAN APOSTOLAKIS: I really think that  
5 sentence, "although at a lower level of confidence,"  
6 is misleading. I understand what you are trying to  
7 say, but I think it's misleading. It's out of  
8 context.

9 MR. NAKOSKI: This is John Nakoski. I  
10 think our intent is with sufficient confidence.

11 CHAIRMAN APOSTOLAKIS: Would be  
12 maintained.

13 MR. NAKOSKI: But it's --

14 CHAIRMAN APOSTOLAKIS: Why didn't you just  
15 stop after "design basis conditions"? The function  
16 capability will be maintained.

17 MEMBER SHACK: Although with a lower level  
18 of special treatment.

19 CHAIRMAN APOSTOLAKIS: So what? It will  
20 be maintained.

21 MEMBER SHACK: It's an absolutely correct  
22 statement.

23 CHAIRMAN APOSTOLAKIS: Well, this is not  
24 absolutely correct. What you just said may be  
25 absolutely correct.

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1 MEMBER SHACK: There's little doubt that  
2 if I have less treatment I have a lower level of  
3 confidence. Now, it may be only epsilon lower, but --

4 CHAIRMAN APOSTOLAKIS: It's a matter of --

5 MR. STROSNIDER: It may not be necessary  
6 to support the finding, but I think, you know, the  
7 reason we've had it in there going back to the early  
8 SECYS is so that it's clear to people that this is a  
9 lesser level of treatment, and that what goes with  
10 that lesser level of treatment is some reduction in  
11 confidence.

12 If I can move on to the next part of this  
13 -- and, Dr. Apostolakis --

14 CHAIRMAN APOSTOLAKIS: What you really  
15 mean is a level of treatment --

16 MEMBER POWERS: Let me understand just a  
17 little bit of -- why is it you think it's misleading,  
18 George?

19 CHAIRMAN APOSTOLAKIS: Because I don't  
20 think that the level of confidence is high enough  
21 anyway. The lowering of it is really minuscule. So,  
22 you know, to emphasize that I'm going to -- at the  
23 lower level, I think you are sending the wrong  
24 message.

25 You have, then, to sit down and explain to

1 people what you mean by that. It's not an accurate  
2 statement. I mean, lower can be epsilon, strictly  
3 speaking, is correct. But are you really conveying  
4 the reality by saying that?

5 MR. STROSNIDER: Yes. There's a lower  
6 level of confidence associated with this program in  
7 the staff's mind than there is with the special  
8 treatment programs as exist in the current  
9 regulations.

10 MEMBER BONACA: If that level of treatment  
11 doesn't make a difference, why are we here doing this?

12 MR. STROSNIDER: Right.

13 MEMBER BONACA: If level of treatment  
14 doesn't make any difference, why are we here doing  
15 this? I mean, just -- let's just --

16 MR. STROSNIDER: Let me say something that  
17 might help shed a little light on this discussion,  
18 too, with regard to the performance-based aspects.  
19 And you pointed out the importance of a monitoring  
20 program.

21 So we indicate the finding that we want to  
22 get to is that the licensee has the elements, and the  
23 licensee is going to maintain design basis and  
24 functionality. If we look at the sort of guidance  
25 that's provided in Reg. Guide 1.174 for risk-informed

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1 activities, and if we look at the move toward  
2 performance-based activities, in the ideal world what  
3 we'd have, then, is some sort of feedback loop to say,  
4 yes, in fact, these things are being accomplished.  
5 All right. That would be a truly performance-based  
6 approach.

7 And one of the points we wanted to make  
8 with regard to performance-based is that the degree to  
9 which the treatment process is performance-based  
10 varies. And let me give a few examples. And let me  
11 start off with perhaps the easiest -- maybe some of  
12 the easiest examples which are environmental  
13 qualification and seismic qualification.

14 And you mentioned the fact that there's a  
15 lot of testing, there's a lot of data with regard to  
16 the secondary side of the plant, and its reliability.  
17 That's all true. But you have to remember that the  
18 purpose of these special treatment rules is to  
19 determine whether these components and systems will  
20 function during a seismic event in a harsh  
21 environment.

22 All right. So unless you're performing  
23 tests where you're shaking the plant at a couple  
24 tenths of a g, or you filled the space with radiation  
25 and steam, you're not really getting data back as to

1       whether the seismic functionality and the  
2       environmental functionality is maintained or not. All  
3       right. And that's an important point to make.

4               Now, it shouldn't be a surprise, because  
5       under the existing special treatment rules you don't  
6       get that information either. All right? But the work  
7       that went into the rules was to provide some level of  
8       confidence that without having that feedback, you  
9       know, you do the testing, you do whatever you need to  
10      do to maintain this, such that if an accident occurs  
11      the equipment will respond as designed. All right.

12             But, so -- and it wasn't there in the  
13      original special treatment requirements, and it's not  
14      there in this program either, although I have to point  
15      out, yes, if you're doing surveillance under normal  
16      operating conditions, for example, and the component  
17      fails, that probably does tell you something about  
18      what it might do under a more challenging environment.  
19      So, yes, you're getting some feedback. But you really  
20      don't get feedback on those two cases as to whether it  
21      will perform its function or not based on the sort of  
22      surveillance testing that's done.

23             Now, on another case, though, if you look  
24      at in-service testing, this is an area where, in fact,  
25      you can provide some element of performance base. If

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1 you do testing and you look at the characteristics of  
2 the valve function, you don't test it under design  
3 basis conditions necessarily, but you can get  
4 information -- this has been developed over the last  
5 10 to 15 years -- that will give you some idea that --  
6 or confidence that, yes, it will function under the  
7 design basis.

8 So you can do some of that in this  
9 program. All right? And, you know, the staff has  
10 maintained that -- some level of that targeted  
11 grouping of components, less frequent than you might  
12 normally do, etcetera. But you can build in some  
13 performance-based aspect, and we think that you should  
14 where that opportunity exists.

15 So I think the point here is is that you  
16 need to recognize that from a performance-based and  
17 from the monitoring that you get, there is some  
18 limitations, and in some areas some fairly significant  
19 limitations, with regard to showing that you're  
20 maintaining functionality. So you have to have some  
21 level of confidence, albeit lower, but some level of  
22 confidence in the program that's being presented.

23 So I think --

24 CHAIRMAN APOSTOLAKIS: I think that's a  
25 very valid point, what you just said. It's very

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1 valid.

2 But I -- to take it a little further,  
3 though, and I think that will address a little bit Dr.  
4 Bonaca's concern, I think the focus really should be  
5 on the impact of the relaxation of the treatment  
6 requirements, the impact on the possible dependent  
7 failure of these redundant elements. Because, yes, it  
8 should make a difference whether I have two trains or  
9 three trains or four trains. I mean, that's why I go  
10 through the expense, right?

11 But it's really the -- the dependent  
12 failure that I should worry about, and whether I can  
13 see that in an accident condition -- you know, all of  
14 them failing -- before I have some warning signals  
15 through tests or inspections, and so on.

16 And are you focusing on that, the  
17 possibility of a common cause failure? It is one  
18 thing to talk in the abstract about lowering our level  
19 of confidence and quite another to make it specific  
20 and say, yes, they have three trains. But if you  
21 don't do this, all three might fail. Now, then, you  
22 have a very strong argument.

23 MR. STROSNIDER: We've had some  
24 discussions --

25 CHAIRMAN APOSTOLAKIS: Yes. And that



1 relates to my question earlier regarding the  
2 sensitivity study. I really want to understand it a  
3 little better what you did there. If you have two  
4 components, two trains, and you say the common cause  
5 failure -- let's say, in the beta factor model -- is  
6 beta times Q -- Q is the failure probability of one  
7 train -- you increased Q by 10, did you do anything to  
8 beta? Did you ever change that?

9 MR. MOLDENHAUER: No, we didn't make any  
10 changes to the beta.

11 CHAIRMAN APOSTOLAKIS: But wouldn't the  
12 relaxation of special treatment requirements affect  
13 the value of the beta?

14 MR. STROSNIDER: Let me comment on that,  
15 if I could, because we've had discussions with the PRA  
16 Branch. And we're trying to make the treatment fit  
17 the categorization process. And I think, you know, as  
18 I understand it, these different parameters you can  
19 characterize in terms of the intersystem common mode  
20 or intrasystem common --

21 CHAIRMAN APOSTOLAKIS: It's the  
22 conditional probability of failure of the second  
23 train, given the first one has failed. It's very  
24 simple to think of it that way.

25 MR. STROSNIDER: Right.

1 CHAIRMAN APOSTOLAKIS: Okay. Is that  
2 conditional probability changing as a result of the  
3 relaxation?

4 MR. STROSNIDER: Well, the input that we  
5 get from the PRA folks when we talk to them is, you  
6 need to maintain functionality. All right.  
7 Otherwise, it could impact the resulting risk.

8 A couple of comments on the sensitivity  
9 study, and South Texas might want to expand on this.  
10 But I think one of the issues that comes up in our  
11 mind is you talked about the factor of 10. I've heard  
12 reference to, well, that represents a factor of three  
13 on the distribution of failure frequency, etcetera.

14 I at least put the question out, is that  
15 the right question to ask? Because I think what we  
16 really are interested in is when you change the  
17 treatment, does that statistical distribution change?  
18 Does its mean change? And you're not working any  
19 longer with the same distribution.

20 So to say you're going to three sigma on  
21 a distribution that's contingent upon the existing  
22 special treatment rules, all right, that factor of 10  
23 may not be as significant as it sounds. If you ask  
24 yourself the question, could this treatment result in  
25 the mean value of a valve change failure from  $10^{-3}$  to

1 10<sup>-2</sup>, then you might have a different perspective on  
2 it.

3 And the other thing that came up is  
4 exactly I think the issue that you just raised with  
5 regard to when you do the sensitivity study, is it  
6 looking just within a system, or is it looking across  
7 systems? My understanding is that it does not really  
8 look across systems in terms of if you have similar  
9 and you change treatment form.

10 Now, how that's addressed in the  
11 categorization I'm not certain. But the bottom line  
12 of all that, that the engineering staff, the input  
13 we're getting from the risk assessment reviewers is  
14 that you do need to maintain functionality because of  
15 those issues.

16 CHAIRMAN APOSTOLAKIS: Well, functionality  
17 I understand that you do have to do that. But, you  
18 know, I think, at least in my mind, the most important  
19 argument in favor of the categorization that the  
20 licensee has done is a sensitivity study. Fossil-  
21 Vesely and all of that, you know, we can argue  
22 forever.

23 But if they say, look, an angel came down  
24 and told us that these components are not safety  
25 significant. We're going to raise their failure rate,

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1 and we'll show you that delta CDF and delta LERF is  
2 negligible. According to 1.174, that should be  
3 enough. I don't care how they came up with a set of  
4 components, right? Delta CDF and delta LERF is  
5 acceptable.

6 So I'm willing to forget about Fossil-  
7 Vesely and the criteria and all of that. I mean, the  
8 sensitivity study they did is the key. So we really  
9 have to scrutinize it.

10 MR. STROSNIDER: And you have to have  
11 confidence that you've increased by the right amount  
12 --

13 CHAIRMAN APOSTOLAKIS: By the right  
14 amount, that we did the right thing across systems,  
15 the common cause failures, and so on. So it seems to  
16 me that's a very important thing that the licensee  
17 did, and we really have to understand what that means.

18 Now, increasing the mean value of a  
19 distribution by a factor of 10 is incredible, because  
20 that means the whole thing is shifting up, you know,  
21 en masse. So that doesn't really bother me when it  
22 comes to individual components, but it's not beta that  
23 bothers me, especially since they have higher  
24 redundancy, so the -- the beta, gamma, you know, the  
25 Greek stuff.

1 Do you touch those when you relax the  
2 requirements? Is beta now, instead of .1, maybe .8 or  
3 .9? Is gamma something else? And given the  
4 limitations of the multiple Greek letter model, it  
5 deals only with similar components in one system, not  
6 across systems.

7 MR. STROSNIDER: And I think this is where  
8 you get into -- yes, and this is where you get into  
9 the challenge of understanding the program that's  
10 being proposed, no longer the special treatment  
11 program, but this program and how does it influence  
12 that analysis.

13 CHAIRMAN APOSTOLAKIS: Exactly.

14 MR. STROSNIDER: And that's a tough  
15 challenge, because as you point out, and as I think  
16 we'd agree, when you start off with special treatment  
17 rules, and you say, what level of confidence does that  
18 provide, and how much do you reduce it when you go to  
19 this new program, that's a difficult thing to get to,  
20 because as I said you really don't have performance  
21 data to calibrate that.

22 CHAIRMAN APOSTOLAKIS: Yes.

23 MR. STROSNIDER: I'd like to come back to  
24 just one final comment on this. I think we agree with  
25 your observations here, but in terms of the big

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1 picture -- and it was pointed out that this has  
2 implications how we move forward in risk-informing  
3 regulation.

4 I want to reemphasize the point that the  
5 approach we're taking here is that staff is not going  
6 into a level of detail with regard to this treatment  
7 program, because of the low risk significance of these  
8 components, to say, yes, if you do it just like this  
9 you're going to get -- you know, you're going to get  
10 functionality and you're going to get the -- maintain  
11 the design basis. Right?

12 We're saying that it's just the right  
13 elements in a program, that if a licensee does it  
14 properly you'll get that. In our mind, that's a  
15 reduced level of confidence because we're not going to  
16 that level of review. All right? And that's  
17 important when we look to going forward in the big  
18 picture.

19 What level of scrutiny is necessary?  
20 We've concluded that we can use this approach.

21 CHAIRMAN APOSTOLAKIS: And this will  
22 guarantee functionality, if the program is in place,  
23 is that what you're saying?

24 MR. STROSNIDER: That's why I wanted to go  
25 back over this.

1 MR. NAKOSKI: If I could say -- this is  
2 John Nakoski. I'd like to characterize it a little  
3 differently. Historically, the staff -- the NRC staff  
4 -- has shared a certain amount of responsibility with  
5 the licensee for the ability of their treatment  
6 programs to provide confidence that those components  
7 would be functional, would be capable of performing  
8 their safety-related functions. Because we would have  
9 gone out and reviewed the details of how they would be  
10 implementing those programs, we would be looking at  
11 the effectiveness of the implementation of those  
12 programs.

13 Where we are after the exemption, what  
14 this finding says is, we are no longer sharing the  
15 responsibility with the licensee for assuring that  
16 these components will function. We've recognized or  
17 acknowledged that for this class of component, these  
18 LSS, low safety significant, and non-risk significant  
19 components, the burden of providing confidence of  
20 functionality rests with the licensee.

21 We need to look at the elements of those  
22 treatment processes and make a decision as to whether  
23 or not if the licensee effectively implements them,  
24 they could conclude that the components would remain  
25 functional. The burden is on them. They are

1 responsible for concluding --

2 CHAIRMAN APOSTOLAKIS: Let me understand  
3 this. This is the only thing you are willing to grant  
4 them? I'm not --

5 MR. NAKOSKI: We are not going to say that  
6 their programs will assure functionality.

7 MR. STROSNIDER: Let me answer. This is  
8 a lot -- this is a lot to grant them, because it  
9 provides them the flexibility of how they want to do  
10 this. What we're looking for in the FSAR are some  
11 high-level expected outcomes, and there is some high-  
12 level guidance. But how they actually accomplish that  
13 is up to them, and we're not going into that level of  
14 detail. We're trying to grant as much flexibility and  
15 latitude as we can.

16 CHAIRMAN APOSTOLAKIS: So for Risk 3  
17 components, they will decide what the appropriate --  
18 I mean, they will have the element, but then how it's  
19 implemented they will decide how to do that.

20 MR. NAKOSKI: Yes, sir.

21 MR. STROSNIDER: Yes.

22 CHAIRMAN APOSTOLAKIS: So you're not going  
23 to decide now that for environmental qualification,  
24 for example, you do this and this and that. They will  
25 decide.

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1 MR. NAKOSKI: That's correct.

2 CHAIRMAN APOSTOLAKIS: You will just have  
3 an element there, environmental qualification.

4 MR. NAKOSKI: It would be in applying the  
5 treatment you maintain the environmental design,  
6 environmental conditions. Let me -- the capability of  
7 the component, the function under the design  
8 environmental conditions.

9 MR. STROSNIDER: We would expect some  
10 high-level guidance, as John just said, to maintain  
11 the design basis through the expected life of the  
12 component to capture those kind of things. Right.  
13 And that's some of the discussion we're having with  
14 South Texas now in terms of what level should that be  
15 at.

16 But as I say, as we move forward, we take  
17 this approach. We really are saying the staff is not  
18 going into any real level of detail with regard to how  
19 these programs are implemented, and the other thing  
20 that -- the reason I wanted to talk about the  
21 performance-based aspect of this is that you also have  
22 to recognize that the feedback you get when this  
23 program is implemented is limited depending upon the  
24 area you're talking about.

25 All right. But the basis for it is that

1 the PRA and categorization process provides confidence  
2 that these are truly low-risk components, and that you  
3 don't need that additional level of --

4 CHAIRMAN APOSTOLAKIS: Jack, you are not,  
5 then, distinguishing between a program that applies to  
6 Risk 1 or Risk 2 or 3. They decide that.

7 MR. STROSNIDER: No.

8 CHAIRMAN APOSTOLAKIS: See, I'm confused.  
9 Is it clear to everybody else?

10 MR. NAKOSKI: This -- our finding in this  
11 area, if we could go to the previous slide -- that's  
12 not it. It's that one. Right there. Yes, right.  
13 This finding really is for LSS, low safety significant  
14 and non-risk significant.

15 CHAIRMAN APOSTOLAKIS: Three. Risk 3.

16 MR. NAKOSKI: That's correct. Risk 3  
17 components.

18 CHAIRMAN APOSTOLAKIS: So for the others  
19 you are still --

20 MR. NAKOSKI: For the other ones, those  
21 are still -- for Risk 1 components, they are still  
22 subject to all the requirements and they are --

23 CHAIRMAN APOSTOLAKIS: Using your words of  
24 a few minutes ago, you still share responsibility with  
25 the licensee.

1 MR. NAKOSKI: That's correct.

2 CHAIRMAN APOSTOLAKIS: Okay.

3 MEMBER SIEBER: Let me ask a question to  
4 help clarify some of this for myself. Let's say we  
5 have a component that's low safety significance, but  
6 it's a Q component and it's -- environmental  
7 qualification is required. And sometime during the  
8 life of the plant this component, the physical  
9 component, wears out or dies, and then you have to go  
10 and replace it.

11 The big expense for replacing it is to buy  
12 a -- a like component that satisfies the original  
13 design specification, do the EQ test, and meet the 18  
14 criteria in Appendix B. That adds cost about 10 times  
15 what the -- a non-Q component.

16 From this, I take it that all of that will  
17 still be required because that's part of the design  
18 basis of the plant regardless of its risk  
19 significance. Is that correct or not?

20 MR. NAKOSKI: No, I -- I would  
21 characterize it that when they go to procure a  
22 replacement component, they need to look at the design  
23 requirements for that component. What are the  
24 conditions, environmental conditions that it would  
25 need to function under? They identified five methods

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1 by which they would be able to procure a replacement  
2 component.

3 For example, they could go to a vendor  
4 catalog. If the vendor catalog provided sufficient  
5 detail on the capability of that component to operate  
6 under harsh environmental conditions, that could be  
7 sufficient for them to conclude that it would be  
8 capable of performing the safety-related function.

9 They would not be required to apply the  
10 Appendix B provisions. They would not be required to  
11 test the component. They would not be required to do  
12 an engineering evaluation that says -- or analysis  
13 that says, "This component can function."

14 MR. SCHINZEL: This is Glen Schinzel. Let  
15 me carry your example a little bit further with some  
16 specifics. If that EQ component -- let's say it was  
17 designed to withstand 250 degrees and 100 percent  
18 humidity.

19 MEMBER SIEBER: And a bunch of radiation  
20 and -- okay.

21 MR. SCHINZEL: Well, let's stop with the  
22 first two.

23 MEMBER SIEBER: All right.

24 (Laughter.)

25 MR. SCHINZEL: If we -- if that component

1 failed and we originally had a safety-related EQ-  
2 qualified component installed, we're saying if that is  
3 low safety significant we could, based on the  
4 temperature requirements and the humidity requirements  
5 for the equipment qualification, we could buy a  
6 commercial component that satisfies those  
7 environmental requirements and have confidence that  
8 when that component is installed it will perform and  
9 satisfy the designed functional requirements.

10 We don't need it to be safety-related, and  
11 we don't need it to be qualified.

12 MEMBER SIEBER: On the other hand, when  
13 you go to the vendor's catalog, what you read in there  
14 is a vendor's claim. That somehow or other should be  
15 substantiated by some kind of a test that the vendor  
16 did on a prototype, for example.

17 Most of the vendor catalogs that I've seen  
18 don't give you that kind of detail. They'll say it's  
19 explosion-proof and has a NEMA housing and this kind  
20 of thing, and it's up to the eye of the beholder to  
21 imagine the degree to which it can withstand a harsh  
22 environment.

23 MR. SCHINZEL: Well, again, we would  
24 expect that we would go to reliable vendors that we  
25 have confidence in. And, again, we'll take a look at

1 the component upon receipt. And if it doesn't appear  
2 to be of the quality that we would expect to satisfy  
3 those requirements, we would look for a different type  
4 of component.

5 But as far as requiring a test from the  
6 vendor to validate or to qualify that this component,  
7 beyond a shadow of a doubt, will satisfy these  
8 requirements, we don't feel we need that for the LSS  
9 or the NRS components.

10 MEMBER SIEBER: The harsh environment  
11 qualification is part of the design basis of the  
12 plant, right? For various components.

13 MR. STROSNIDER: Well, a couple of  
14 comments on this example. I think it's a good one.  
15 With regard to the procurement -- and there's five  
16 other approaches that are listed in these programs  
17 that could be used. But with regard to procurement as  
18 an example, what the staff has suggested is that if  
19 the vendor provides a statement that this satisfies  
20 the design conditions that you've put in your purchase  
21 spec, that's acceptable. All right?

22 So, you know, without saying, "Well, the  
23 vendor has to have test records, or the licensee has  
24 to have test records," if you put this in the purchase  
25 spec and the vendor comes back and says, "Yes, this

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1 satisfies your spec," we've said that that looks  
2 acceptable to us.

3 To back up and look at this thing from a  
4 bigger picture -- EQ just, again, as an example --  
5 when you look at the EQ rule, there's 10 different  
6 things that you have to deal with in there. And they  
7 talk about -- it talks about things like radiation,  
8 humidity, submergence.

9 MR. NAKOSKI: We're going to get to this  
10 later.

11 MR. STROSNIDER: Oh. This is going to be  
12 covered later. So maybe we ought to just move on.

13 Except let me just summarize this. We  
14 went through those, and we tried to identify which  
15 ones were design basis and said, "Well, you're going  
16 to maintain the design basis, and seven of those 10  
17 fit into that category." However, with regard to  
18 documentation and margins, there's room for  
19 relaxation, and that's what we can talk about. But I  
20 guess John has actually got that --

21 MEMBER SIEBER: I have one -- one  
22 corollary question. If you buy an item commercial  
23 grade, even though it matches your spec and you wrote  
24 the spec properly, which is a difficult job, does that  
25 relieve the vendor of the obligation under Part 21?

1 MR. NAKOSKI: Included within the scope of  
2 the exemption request is relief.

3 MEMBER SIEBER: Relief.

4 MR. NAKOSKI: So, no, it --

5 MEMBER SIEBER: So that would occur in  
6 category 3 components.

7 MR. NAKOSKI: That's correct.

8 MEMBER SIEBER: No more Part 21.

9 MR. NAKOSKI: That's correct.

10 MEMBER SIEBER: So the staff, through the  
11 equivalent of AEOD, what used to be AEOD, would not  
12 have a way to know if there is some defective  
13 component out there in the industry floating around,  
14 nor would other utilities or -- right?

15 MR. STROSNIDER: Only if that same  
16 component had a problem in a safety-related Box 1  
17 application.

18 MEMBER SIEBER: Caused an event, right.

19 MR. STROSNIDER: Because those would still  
20 be reportable, but, you're right, it reduces the  
21 population of that component from which you might get  
22 information.

23 MEMBER SIEBER: We have covered two out of  
24 11 slides in just one hour, so we should finish  
25 sometime around midnight.



1 MR. NAKOSKI: Okay. Well, let's see if we  
2 can do better than that.

3 MEMBER SIEBER: All right.

4 MR. NAKOSKI: And if we could, I'd like to  
5 go to the first slide, that's slide number 6, that  
6 talks about some of the open items that we have.

7 Okay. Open Item 4.1 -- and we talked  
8 about this earlier -- treatment for the high safety  
9 significant, medium safety significant components,  
10 we've reached agreement in principle on what level of  
11 detail needs to be in the FSAR. South Texas just  
12 needs to finalize that in the final submittal.

13 We are pretty much comfortable that  
14 they're going to target the treatment to the reason  
15 that these components are HSS or -- and -- let me say  
16 and continue to apply the current special treatment  
17 requirements to the extent they apply to both safety-  
18 related and non-safety-related.

19 MEMBER LEITCH: So this basically  
20 represents no change, then, right? This is --

21 MR. NAKOSKI: Well, the change is enhanced  
22 treatment.

23 MEMBER SHACK: For the Risk 2 component.

24 MR. NAKOSKI: For the Risk 2 components,  
25 and actually for elements of the Risk 1 components

1 that are beyond design basis, if they should take  
2 credit for those.

3 MEMBER LEITCH: Okay.

4 CHAIRMAN APOSTOLAKIS: So this is  
5 categories one and --

6 MR. NAKOSKI: One and two. That's  
7 correct. If I can move on to Open Item 4.2 --

8 CHAIRMAN APOSTOLAKIS: The notation is so  
9 confusing.

10 MR. NAKOSKI: Well, I'm trying to be  
11 consistent with South Texas' vernacular here.

12 Open Item 4.2 -- we are still working with  
13 South Texas to resolve some of the level of detail in  
14 here. There's two sections that are underlined under  
15 the first check mark, procurement process, inspection  
16 test and surveillance process.

17 I think we still need to work with South  
18 Texas to come to an agreement in principle on what the  
19 words in the FSAR should be. And at this time, I'd  
20 like to let South Texas give some of their thoughts on  
21 where they see we're at with that.

22 MR. SCHINZEL: Okay. Glen Schinzel, South  
23 Texas. Again, from the standpoint of the FSAR, the  
24 FSAR right now is including about 14 pages of  
25 additional detail that's going to be included. That's

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1 to address some of the whats, but we also consider  
2 that it's still including a number of the hows to  
3 detail a bit on the methodology that does need to be  
4 pursued.

5 With the procurement process, you know,  
6 what we anticipate is that we're going to use a  
7 program very similar to our commercial grade program,  
8 and that follows the guidelines of SECY-98-300 with  
9 the intent for Option 2. As we started into our  
10 exemption submittal and some of the follow-on  
11 questions and RAIs, the staff was looking at trying to  
12 make a finding based on functionality. That did  
13 require South Texas to submit an extensive amount of  
14 detail in order to ensure that the staff was satisfied  
15 with our processes and approaches.

16 As the staff is now moving to thinking  
17 toward just wanting to understand the whats and not  
18 the hows, a lot of that detail that was originally  
19 provided has remained. So we're still looking, like  
20 John says, specifically in the areas of the  
21 procurement process, inspection, testing, it does  
22 include some of the maintenance and the management and  
23 oversight processes, identifying what we consider to  
24 be an appropriate amount of detail to be included in  
25 the FSAR. We do feel that 14 pages is a bit much

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1 right now.

2 MR. NAKOSKI: Well, to a certain extent,  
3 I feel I have to clarify. There are a lot -- a lot of  
4 those 14 pages go into the description of the  
5 categorization process. The categorization process is  
6 the cornerstone for the staff to move forward with  
7 granting the exemption.

8 I think there are probably four or five  
9 pages in the FSAR section that discuss the elements of  
10 the treatment process. So just to be very clear on  
11 what is provided in those 14 pages, it's important  
12 that you recognize the bulk of that relates to the  
13 categorization.

14 Okay. Are we ready to move on to the next  
15 slide?

16 One of the areas that we had an open item  
17 in that's kind of related to treatment is the Open  
18 Item 7.1 that dealt with the quality assurance  
19 exemptions that South Texas had looked for. They've  
20 agreed that they should submit an update to the  
21 Quality Assurance Program. We've looked at that and  
22 have concluded that it's acceptable, and we'll note  
23 that in our safety evaluation. And that closes this  
24 open item.

25 Open Item 8.1, that's the open item that

1 asks South Texas, why do you need the exemption to  
2 50.49? They've told us why they need the exemption.  
3 We accepted that. But in doing so, it opened  
4 questions in our mind about the elements of the  
5 treatment process that need to be described in the  
6 FSAR related to environmental design conditions.

7 We see that in 50.49 there are seven what  
8 we consider design requirements -- temperature and  
9 pressure, humidity, chemical effects, radiation,  
10 aging, submergence, and synergistic effects. We see  
11 those as design requirements that need to be  
12 considered when procuring or maintaining or  
13 implementing the treatment processes that need to be  
14 maintained.

15 We see that in the rule we can grant  
16 relief documentation. 50.49 is fairly prescriptive on  
17 the documentation that's required for these low-risk  
18 components, Box 3 or Risk 3 components. We agree that  
19 you don't need to meet the prescriptive requirements  
20 of documentation in 50.49.

21 We agree from these low-risk or Risk 3  
22 components there can be a relaxation of the margins  
23 when you do the testing or when you do -- well,  
24 basically, it applies to testing.

25 And then, thirdly, the methods by which

1 you can provide confidence that these components will  
2 be able to perform their functions under design basis  
3 conditions. 50.49 relies very heavily on testing and  
4 test data. We are trying to allow methods other than  
5 that to procure essentially -- primarily in the area  
6 of procurement, to allow them to procure replacement  
7 components without the need to do testing.

8 This is an area where the staff still  
9 needs to come to internal consensus on what we would  
10 expect the element of the treatment would do, what it  
11 would accomplish. And we are not yet at a point where  
12 we can fully discuss with South Texas where we are  
13 with that.

14 If I can, I'd like to move on to 10.1 and  
15 10.2, or if South Texas has some comments they would  
16 like to make.

17 Okay. Open Items 10.1 and 10.2, just  
18 briefly, it deals with repair and replacement and ISI  
19 requirements. South Texas has proposed the treatment  
20 for that, proposed a response for that. There is one  
21 area that they've proposed that we still need to  
22 assess and that they are going to be providing us  
23 additional insights on, and that's one of their  
24 alternatives -- they proposed three.

25 One of their alternatives for

1 repair/replacement would allow them to -- I'll  
2 shorthand it -- mix and match requirements from  
3 various codes. And we're working with them to bring  
4 that issue to closure.

5 If I can, I'd like to go on to the next  
6 slide.

7 One of the open items we identified  
8 related to the need for an exemption to IEEE 279 as  
9 imposed through 10 CFR 50.55(a)(h). They provided an  
10 adequate reason why they needed the exemption. We  
11 recognize it's an independent regulation that imposes  
12 qualification and quality requirements. In the draft  
13 SE, we accepted the quality provisions that they've  
14 described in their processes. What remained was the  
15 qualification provisions.

16 That's really embedded in the resolution  
17 of Open Items 8.1 and 18.1, which deal with  
18 environmental qualification under 50.49 and seismic  
19 qualification under 10 CFR Part 100, Appendix A. When  
20 we close those two open items, that will close this  
21 open item.

22 Another treatment item was, what was the  
23 scope of the exemption they were seeking from the  
24 maintenance rule? And they provided clarification in  
25 their submittal that they aren't seeking an exemption

1 to 50.65(a)(4), and that's acceptable to the staff.

2 Open Item 18.1 on the seismic  
3 qualification exemption -- they have -- again, the  
4 open item is, why did South Texas need the exemption?  
5 They've explained that to us. We accept their  
6 explanation, and, again, resolution of the treatment  
7 issues is necessary to establish the elements in the  
8 FSAR so that we can bring this item to closure.

9 We see the requirement -- the design  
10 requirement that needs to be retained is that these  
11 SSCs are designed for the earthquake motion described  
12 in their design basis, which is the seismic inputs and  
13 design load combinations. But the methods for  
14 confirming the capability, we think if they're  
15 consistent with the elements of the treatment process  
16 that's sufficient.

17 Again, primarily, this relates to the area  
18 of procurement. They procure a replacement component.  
19 They need to make -- consistent with the description  
20 of the elements in their treatment process  
21 effectively, that should provide us confidence that  
22 the -- should allow them to conclude they have  
23 confidence that these components will remain  
24 functional.

25 Is there anything you wanted to add at



1 this point?

2 MR. SCHINZEL: Not at this point.

3 MR. NAKOSKI: Okay. Just for  
4 completeness, there were a couple of open items that  
5 weren't necessarily treatment or categorization. I  
6 thought at this point it would be good to go over  
7 those, just to let you know what the status of those  
8 are. And that's the two confirmatory items.

9 The first one was areas of inconsistency  
10 in their South Texas submittal that we identified in  
11 our draft safety evaluation. South Texas has provided  
12 us with their resolution to these open items, and our  
13 plan is to discuss that resolution in our final safety  
14 evaluation and allow -- and we would consider this  
15 item closed.

16 The other confirmatory item is within the  
17 scope of the 50.59 exemption that South Texas  
18 requested, they asked the staff to allow them to  
19 remove all of the commitments to these -- this Risk 3  
20 group of components. And our response back to them  
21 was, "There's a process that exists that the industry  
22 put forth, and that the NRC has endorsed in NEI 99-04.  
23 We would ask that you would follow that guidance."

24 And the reason we asked them to do that is  
25 there -- to give such a blanket exemption to 50.59 we

1 didn't think was prudent. There could be changes to  
2 treatment that are beyond the scope of the exemptions  
3 that they requested, and we needed to have a clear  
4 understanding of what that scope was before we could  
5 grant it. And we recognize that there is a process  
6 out there that would allow them to change commitments.

7           The final open item that still was out  
8 there that didn't deal with either treatment or  
9 categorization was, how do you control changes to the  
10 processes upon which the staff will base its  
11 exemption, because this is kind of a unique situation  
12 where an exemption is based -- but we're approving  
13 processes as the basis for granting the exemption.  
14 It's not something we would do normally. So how do  
15 you make sure that the basis for the exemption remains  
16 valid?

17           The first thing is we need to have a  
18 licensing basis description of these processes.  
19 That's provided in the FSAR section. Second, is if  
20 they are going to change that process, they can't  
21 really reduce the -- either the effectiveness provided  
22 in the categorization process or the assurance in the  
23 treatment process that these components will remain --  
24 these Risk 3 components now primarily will remain  
25 capable of performing their function, and that they

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1 need to continue to do some sort of assessment,  
2 evaluation, and oversight.

3 So, really, we're not looking for allowing  
4 them to reduce the effectiveness or assurance provided  
5 those. They make enhancements that, again, relies on  
6 their judgment to determine. Even when they do make  
7 changes that don't reduce, we'd like to know about it.

8 And, finally, if they do make a change  
9 that reduces it, before they implement it it has to be  
10 approved because, in essence, it changes the basis  
11 upon which we granted the exemption.

12 And South Texas and the staff have come to  
13 consensus on -- or agreement in principle on the  
14 language in the FSAR, and we're working with  
15 finalizing the specific wording on the change control  
16 process to be incorporated in the FSAR. And also,  
17 that will be used as a condition of the exemptions  
18 that are granted.

19 With that, that's all I had to discuss on  
20 the treatment open items for South Texas, and I'll  
21 turn the floor over to South Texas and let them  
22 proceed with their presentation.

23 MR. HEAD: Are there any questions before  
24 we start?

25 MEMBER LEITCH: I just had one question.

1 I'm looking at the minutes of a mid-February meeting  
2 that occurred. And in those minutes it -- these are  
3 NRC minutes, but it attributes to South Texas the  
4 statement that South Texas believes the NRC staff  
5 positions on assurances of functionality for LSS and  
6 NRS safety-related SSCs has paralyzed the effort.

7 I guess my question is, I think we heard  
8 presented here a -- what seemed to be a fairly  
9 manageable list of open items well on their way to  
10 resolution. Has there been that much progress since  
11 the February meeting, or is this still a fair  
12 characterization? I mean, this makes it sound like  
13 you're miles apart, and I --

14 MR. NAKOSKI: I'll share my perspective on  
15 that. I think that NRC has moved substantially  
16 towards allowing South Texas to implement their  
17 commercial treatment practices. I will say, the  
18 fundamental change that occurred is that the staff is  
19 relying on South Texas' engineering judgment to  
20 effectively implement the elements of this treatment  
21 process that they've described.

22 We are no longer asking them how they are  
23 going to implement these programs. Maybe there is  
24 some disagreement that in some instances South Texas  
25 may think we are, but I think we are trying to stay

1 at, what is the outcome that we expect from the  
2 elements of these treatment processes? So I think we  
3 have moved.

4 MEMBER LEITCH: And that kind of changes  
5 since the mid-February timeframe.

6 MR. NAKOSKI: That's correct.

7 MR. HEAD: This is Scott Head. Our  
8 presentation I think will speak to that question.

9 MEMBER LEITCH: Okay.

10 MR. HEAD: We would agree there's been  
11 movement, and we -- so we applaud the effort that the  
12 staff is continuing to see here. But, like I say, our  
13 presentation will give our perspective based on what  
14 we're seeing right now.

15 MEMBER LEITCH: Okay. I'll defer that  
16 until I hear your presentation.

17 MR. SCHINZEL: Okay. Again, I'm Glen  
18 Schinzel from South Texas. As far as the treatment  
19 status, just a few bullets of overview. With SECY-98-  
20 300, that was really the initiating document that  
21 allowed South Texas to start pursuing a risk-informed  
22 initiative with the LSS and NRS components.

23 And, really, from a SECY-98-300  
24 standpoint, the approach was for the LSS/NRS  
25 components that commercial practices would be

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1 sufficient and appropriate for the treatment for these  
2 components. As we've gone through a couple of years  
3 of working with the staff on resolving this, initially  
4 the staff was working toward making a finding based on  
5 functionality.

6 And, again, that required an extensive  
7 amount of detail that South Texas provide, and the  
8 staff recently, since the February meeting, has made  
9 some movement in trying to focus more on the whats,  
10 rather than getting into the details of the how. And  
11 so we do see that as a positive step. But like John  
12 did mention, there is some disagreement on the level  
13 of what constitutes a what and what constitutes a how.

14 Now, you hear of wolves in sheep's  
15 clothing. We think that there are some hows in what  
16 clothing.

17 (Laughter.)

18 So we're still trying to work through  
19 those details, and that is, you know, some of the  
20 detail that's currently in the 14 pages of the FSAR  
21 that we feel is going a little bit beyond what it  
22 needs to right now with the new approach.

23 Based on the current status, we do have  
24 several concerns. In the area of seismic, it was  
25 mentioned that that's an area that we're still working

1 with the staff on, and there are some issues here that  
2 we need to work through. We don't see immediately a  
3 real clear pathway for success for implementation.

4 One of the design inputs for safety-  
5 related, seismically-qualified components is that the  
6 component has to satisfy five OBES -- operational  
7 bases earthquakes -- followed by one SSE. And for us  
8 to go out and try to commercially procure and be able  
9 to demonstrate that this one component is, in essence,  
10 going to satisfy five OBES and five SSEs, essentially,  
11 there is not a clear pathway on us ever being able to  
12 do that unless we have an extremely detailed analysis  
13 or we physically go out and test the component.

14 So as far as the benefit to be seen with  
15 seismic, right now we don't see a large benefit that  
16 we'll be able to implement and receive.

17 In the area of equipment qualification,  
18 John has already covered this in some detail. And it  
19 is an issue that is still with the staff. The staff  
20 is still internally discussing that, and we're  
21 anticipating some additional discussion on this short  
22 term.

23 For the areas where the regulations  
24 currently require for safety-related components some  
25 type of testing -- this is whether it's in-service

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1 testing type testing and maybe inspections. One of  
2 the feedbacks that we're getting from the staff is,  
3 again, if it's removed from the regulations, if the  
4 exemption is granted, the expectation is that there is  
5 still some type of testing, inspection, surveillance  
6 program that would be retained on these components.

7 We agree that from the standpoint of a  
8 commercial application that we want to ensure the  
9 functionality of these components. The disagreement  
10 really is, does this need to be bound in our FSAR as  
11 an obligation that testing, surveillance, inspection,  
12 will be occurring? And we feel that the answer there  
13 is no, we don't need to have that detail in the FSAR.

14 With the detail in the current FSAR, you  
15 know, I mentioned that there are 14 pages. Five of  
16 those pages are dealing with categorization and the  
17 details there. The others are dealing with treatment.  
18 And based on the meetings yesterday and the day before  
19 with the staff, there still is some additional detail  
20 that we are looking at needing to add into the FSAR to  
21 satisfy some of the staff's needs. So, again, we feel  
22 that that's going beyond what is necessary.

23 Some of the specific areas with the  
24 procurement area -- we've talked to this a little bit,  
25 but we do get into the FSAR talking through five



1 methodologies of how we can go through -- and I'll  
2 emphasize the how we can go through and do the  
3 procurement.

4 It also covers the documentation, the  
5 handling requirements. The maintenance process gets  
6 into discussions of the design life, considerations  
7 for corrective/preventative/predicative maintenance.  
8 The management and oversight process gets into the  
9 qualification/training/certification of personnel, how  
10 you'll handle measuring and testing equipment.

11 So, again, we see that as some details  
12 that are getting into still the hows as opposed to an  
13 expectation that the design functional requirements  
14 will be satisfied, and commercial practices will pick  
15 up, and those same good commercial practices that are  
16 present today that are working effectively for us on  
17 the balance of plant side will still be used.

18 South Texas has seen progress in the  
19 staff's approach. We haven't seen as significant  
20 progression as what we would have liked to have seen.  
21 We would have liked to have been at a point where we  
22 could have considered all of the open items by this  
23 time. But, again, we do have some items that are  
24 still open, and we'll continue to work with the staff  
25 on these.

1           The actual timing for the exemption --  
2       John mentioned that there was a target schedule.  
3       Again, that schedule is somewhat fluid and in doubt  
4       right now as to exactly when the exemption will get  
5       granted. So that's still a concern to South Texas.

6           And, again, just to have the committee  
7       understand that South Texas is a prototype pilot.  
8       There are others in the industry that are watching the  
9       South Texas effort very closely. And I know that  
10      there is some apprehension among some of the industry  
11      players on whether this is an appropriate process to  
12      step into. And so the future of Option 2 is -- is  
13      somewhat in question right now.

14           So that details my comments, and I'll  
15      address any questions.

16           MEMBER SIEBER: Does anyone have any  
17      questions?

18           MEMBER POWERS: One I just can't resist  
19      asking. Why should I be concerned about the future of  
20      Option 2?

21           MR. SCHINZEL: Well, from a South Texas  
22      perspective --

23           MEMBER POWERS: Put that aside. You said  
24      some of the industry were looking at this with  
25      trepidation about going into it. I guess I would look

1 at, with trepidation, going into it as well.

2 MR. SCHINZEL: Well, with -- one of the  
3 efforts that the Commission is looking at pursuing is  
4 risk-informed regulations or a risk-informed approach.  
5 Option 2 is a very important cog in moving forward  
6 with the risk-informed applications.

7 If there are no other players other than  
8 South Texas who are willing to embark upon an Option  
9 2 program, the Commission's goals of moving forward  
10 with the risk-informed approach could be at risk.

11 MR. STROSNIDER: This is Jack Strosnider.  
12 I just want to point out that from NRC's perspective  
13 risk-informed regulation does leverage our four  
14 outcome goals. We talk about maintaining safety,  
15 efficiency, and effectiveness, reducing unnecessary  
16 burden, and public confidence. And we focus on the  
17 high safety significant areas -- maintain safety,  
18 pointed out some -- some components might get  
19 additional treatment or different treatment under this  
20 than they were before.

21 So risk-informed regulation, Option 2 and  
22 Option 3, they go toward those goals. I think --  
23 nobody said it would necessarily be easy, though. We  
24 need to make sure that we do it technically correct,  
25 so that we really come out on target with those goals.

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1 But it is part of our policy and part of what we're  
2 working to implement.

3 CHAIRMAN APOSTOLAKIS: If the  
4 categorization process were perfect, would we have all  
5 this debate regarding treatment? If you were really  
6 convinced that these things were of low safety  
7 significance, Category 3, why would you -- would you  
8 still care that much about the treatment?

9 MR. NAKOSKI: This is John Nakoski. Under  
10 the conditions that were established for Option 2, we  
11 need to have some or sufficient confidence these  
12 components will remain functional. They will be able  
13 to do their job.

14 CHAIRMAN APOSTOLAKIS: Is that question  
15 addressed in the PRA, like the seismic example that  
16 Jack mentioned earlier? When you did the sensitivity  
17 study and the importance measures, you included  
18 seismic events?

19 MR. MOLDENHAUER: Yes, we included all the  
20 external events in that. And we went and did another  
21 -- a further sensitivity study at the behest of the  
22 NRC to look at just seismic -- if we had a seismic  
23 event, would that change any of the categorization.  
24 And we found no changes in categorization for just  
25 seismic events.

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1 CHAIRMAN APOSTOLAKIS: Is it the  
2 credibility of the seismic analysis, then, that is in  
3 doubt in your mind?

4 MR. STROSNIDER: Well, I think -- and I  
5 don't know if any of the staff has been involved  
6 directly in that and maybe can comment on the seismic  
7 PRA sensitivity study. But I think one of the  
8 challenges you always have when you go into these  
9 sensitivity studies we discussed earlier is, what's  
10 the starting point for the inputs to the PRA in terms  
11 of what's the conditional probability of failure given  
12 a seismic event, and how much does it change when you  
13 change the treatment?

14 And I'm not -- that's a difficult thing to  
15 get a handle on. So, you know, the approach when we  
16 talked about the treatment process here is focused  
17 more on what elements and what things do you need to  
18 consider in order to maintain that functionality. And  
19 it's perhaps a more qualitative approach than what you  
20 see in a PRA.

21 But I think with all the sensitivity  
22 studies, as I mentioned earlier, there is always  
23 difficulty I think in establishing the input  
24 distributions for these hypothetical design basis  
25 situations, which, you know, there is really no

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1 empirical data out there, other than perhaps what you  
2 get -- when you actually go out and you do seismic  
3 qualification tests and when you do environmental  
4 qualification tests under the existing treatment  
5 rules, you do see, you know, some of the components  
6 fail. So you can get some insights from that, and it  
7 can help you to say what's important in terms of the  
8 treatment process.

9 MR. NAKOSKI: The other thing I'd like to  
10 add is even when you do the sensitivity studies you  
11 don't assume that these components fail. You expect  
12 that these components are going to be able to do their  
13 function with some reduced availability. So it's not  
14 -- it's expected that these components will be able to  
15 do their function. Whether that's an assumption going  
16 into it or an expectation, we could argue the words.  
17 But the bottom line is we expect that these components  
18 will be able to do their function.

19 So how -- what gives you confidence that  
20 these components will be able to do their function?  
21 Some method for assessing that, and we call that  
22 treatment, special treatment under the current  
23 regulations, commercial treatment as for South Texas,  
24 we're trying -- we're working to get described in  
25 their FSAR.

1 CHAIRMAN APOSTOLAKIS: Well, that's true,  
2 then. If PRA does assume that functionality is there,  
3 then it takes it from there. There's a probability  
4 they will fail.

5 MR. NAKOSKI: That's correct.

6 CHAIRMAN APOSTOLAKIS: So you're saying  
7 that the fundamental assumption of the PRA, that the  
8 thing is capable, in fact, of carrying out this  
9 function -- comes into question under certain  
10 questions. And the thing that gives you confidence  
11 that this is true -- this will be through special  
12 treatment.

13 MR. NAKOSKI: Or some level -- method of  
14 treating.

15 MEMBER POWERS: Just an element of  
16 curiosity. When you do your seismic-only calculation,  
17 do you consider seismically-induced fires?

18 MR. MOLDENHAUER: No, we didn't include  
19 that.

20 MEMBER POWERS: But seismic events can  
21 induce fires.

22 MR. MOLDENHAUER: Yes. We do have a fire  
23 PRA, but we don't have any of the seismic-induced  
24 fires.

25 MEMBER SIEBER: Have you ever run your PRA

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1 model with the Risk 3 components failed, instead of  
2 just changing the failure rate?

3 CHAIRMAN APOSTOLAKIS: Well, I'm sure they  
4 will see an impact.

5 (Laughter.)

6 MEMBER SIEBER: I would think so. But it  
7 would be interesting to know what it is, and that  
8 tells you something about the validity of the Risk 3  
9 categorization.

10 MR. SCHINZEL: Well, I guess one  
11 clarification I want to bring up is, you know, having  
12 something seismically qualified and having something  
13 that's not seismically qualified doesn't necessarily  
14 mean that that component that's not seismically  
15 qualified is automatically going to fail in a seismic  
16 event.

17 MEMBER SIEBER: I understand that.

18 CHAIRMAN APOSTOLAKIS: We have evidence of  
19 that.

20 MR. SCHINZEL: Absolutely. There is  
21 evidence in California, in Japan, where there are non-  
22 qualified components that operate just fine, and they  
23 perform their function well when demanded. And there  
24 is evidence where there are some qualified components  
25 that, when demanded, will fail. So --



1 MEMBER SIEBER: So the answer to my  
2 question is no, you never run that kind of a study?

3 MR. SCHINZEL: Well, again, you're going  
4 to see an impact because you're guaranteeing failure  
5 of the majority of the components that are modeled in  
6 the PRA.

7 MEMBER SIEBER: That's right. And its  
8 only value is a value of curiosity, that it puts a  
9 bound and gives you some kind of assurance as to the  
10 --

11 MR. STROSNIDER: Part of the discussion  
12 we've had with the PRA reviewers -- it doesn't go that  
13 far to say fail them all at once, but I guess the  
14 categorization process has a raw value of two. Right?  
15 And there is at least the indication that if you pick  
16 the wrong combination of these low safety  
17 significance, you could exceed that.

18 I mean, that doesn't mean you have to fail  
19 all of them at once. So, and that's part of when we  
20 have these discussions, saying, "Well, yes, we really  
21 want these things to function because of that -- that  
22 consideration."

23 CHAIRMAN APOSTOLAKIS: It seems to me any  
24 sensitivity study that is being done should be done in  
25 the context of the decision we have to make.

1 MR. STROSNIDER: That's true.

2 CHAIRMAN APOSTOLAKIS: And I think this  
3 would be an extreme case, Jack. But even in what Dr.  
4 Powers said, the question is, okay, the PRA doesn't  
5 have fires induced by earthquakes. But the real  
6 question in front of us is, if we relax the treatment,  
7 is that going to be a more likely event? Are we doing  
8 anything now that's related to that issue, that if we  
9 relax it, then, my God, you know, next time you start  
10 shaking you are going to start seeing fires all over  
11 the place.

12 That's really the decision we are facing,  
13 and let's not forget that. I mean, otherwise, we can  
14 start talking about the limitations of the PRA in the  
15 abstract, and that will not take us very far. It's  
16 the decision that matters, and I think it's relevant  
17 to what Dr. Bonaca was saying earlier, what Dr. Powers  
18 said, and what Mr. Sieber just said.

19 We're not talking about wholesale change  
20 of the regulations, I don't think. No. That may be  
21 -- we are not talking about fundamental changes in --  
22 major changes in the failure rates, except I am  
23 willing to accept Jack's example with the earthquake.  
24 I mean, you really don't know that. You rely on  
25 Jack's -- the conditional probabilities of failure,

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1 and so on, is something that's largely a matter of  
2 judgment.

3 MR. STROSNIDER: And I think for  
4 environmental conditions, too. If you look at the  
5 testing, you know, under harsh environments you can  
6 get -- get interesting results.

7 CHAIRMAN APOSTOLAKIS: It's really -- I  
8 think the -- eventually, we're going to think -- be  
9 thinking about some rule or something to -- you know,  
10 for Option 2. This is just proof of concept.

11 MR. STROSNIDER: Yes. But I -- I mean, I  
12 -- in my mind, of course, we're learning experience as  
13 we go through this. And some of the -- if you'll look  
14 at the -- what's been characterized as the whats and  
15 expectations of what a program would accomplish, those  
16 sort of things, in my mind, at least would find their  
17 way into a rule at some point.

18 So, I mean, we --

19 CHAIRMAN APOSTOLAKIS: Now, there you  
20 would have to revisit the whole issue of  
21 categorization. You know, I --

22 MR. STROSNIDER: Well, they have to  
23 complement each other in the decision.

24 MEMBER SIEBER: Maybe I could expand on  
25 that question a little bit, because I've thought about

1 it. Let's say that South Texas and the staff reach  
2 agreement on everything, the exemptions are granted,  
3 and there is all of these other licensees sitting out  
4 there with their papers in hand to come in and ask for  
5 Option 2 exemption requests.

6 It may look something like South Texas'  
7 original request or as it has been modified, but  
8 perhaps the plants are different. Would you treat  
9 things like categorization differently because the  
10 risk profile of a plant was substantially different  
11 than South Texas?

12 MR. NAKOSKI: This is John Nakoski. I  
13 think we would have to look at the quality of the PRA  
14 or assess the capability of the PRA for the specific  
15 plant to support a robust categorization process.

16 For South Texas, I think we have looked at  
17 their PRA with sufficient detail to come to the  
18 conclusion that the PRA and the risk profile derived  
19 from that is sufficient to support moving forward with  
20 an exemption. For other plants, we would have to look  
21 at the PRA to some level to be able to conclude that  
22 it is sufficient to move forward in exemption space.  
23 And I think that's consistent with the guidance in  
24 Reg. Guide 1.174.

25 MEMBER KRESS: Yes, but that's really not

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1 the question. Of course you look at the quality of  
2 the PRA. You have to do that. But the question is,  
3 assuming you do that and you -- your assessment is  
4 that the PRA is of sufficiently good quality for this,  
5 but the PRA tells you that this particular plant has  
6 a risk status that's significantly worse than South  
7 Texas --

8 MR. STROSNIDER: This is --

9 MEMBER KRESS: -- now, are you going to  
10 treat the categorization process any differently?

11 MR. STROSNIDER: This is Jack Strosnider.  
12 I would be much more comfortable having some of our  
13 PRA staff answer that question, quite frankly. But  
14 the one comment I would make on it is that one thing  
15 we know is that we have to have confidence in that  
16 categorization process. That's a cornerstone of this  
17 whole approach.

18 And so I think it's a very valid question,  
19 and I think it's something we certainly would need to  
20 take into consideration. But I think we probably  
21 ought to have some of our PRA people --

22 CHAIRMAN APOSTOLAKIS: A related question  
23 is both Fossil-Vesely and raw deal with fractional  
24 changes of risk.

25 MEMBER KRESS: Yes, that's true. That's

1 the source of the --

2 CHAIRMAN APOSTOLAKIS: In South Texas,  
3 it's low because of the redundancy, and so on. They  
4 are nice people.

5 If you get another plant where the core  
6 damage frequency is  $A10^{-5}$ , you still go with the  
7 fractions. Fossil-Vesely still is .005.

8 MR. NAKOSKI: This is John Nakoski. I  
9 don't think we have the right people here to answer  
10 that question. I think it's a valid question.

11 CHAIRMAN APOSTOLAKIS: But we have it in  
12 the transcript.

13 MR. NAKOSKI: I'm sorry?

14 CHAIRMAN APOSTOLAKIS: We have a  
15 transcription, and these questions are being  
16 transcribed.

17 MR. NAKOSKI: And we appreciate the  
18 question, and I --

19 CHAIRMAN APOSTOLAKIS: But this is --  
20 these are the things that concern some members of the  
21 committee. And one step further, why should the  
22 agency have four cornerstones when it comes to the  
23 oversight process, but when it comes to these things  
24 it deals only with CDF and LERF? Why don't you guys  
25 care about initiating events in this case?

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1 In the oversight process, we do care about  
2 them, and we don't want to have too many of those.  
3 But then where we're talking about relaxing special  
4 treatment requirements, we just focus on CDF.

5 MR. NAKOSKI: Well --

6 MEMBER SIEBER: The problem with that,  
7 just to expand your question a little bit, is when you  
8 license the plant you licensed it to 50.34, which had  
9 some performance-based requirements in it, and  
10 Appendix A, which lays out another bunch of  
11 performance-based requirements -- 50.49. And if you  
12 lay all of those out, do they reflect themselves  
13 properly in using CDF and LERF as surrogates for all  
14 of these possibilities?

15 MR. STROSNIDER: Yes. I think those are  
16 all fair comments and questions. And I guess the one  
17 thing I just want to come back to, one of the  
18 objectives we had today, NRC staff, in terms of the  
19 treatment process here is to try to explain clearly  
20 what the approach is that we're taking.

21 MEMBER SIEBER: Right.

22 MR. STROSNIDER: And then what it does and  
23 what it doesn't, and there is -- you know, there's  
24 issues involved there that we have to be comfortable  
25 with as we move forward. So I hope that we've at

1 least laid that out, and I think that --

2 CHAIRMAN APOSTOLAKIS: I wonder whether in  
3 your deliberations regarding treatment you really used  
4 in the back of your mind the four cornerstones of the  
5 oversight process, not just the Fossil-Vesely and raw  
6 --

7 MR. STROSNIDER: Well, I think --

8 CHAIRMAN APOSTOLAKIS: You don't want to  
9 see any small LOCAs or --

10 MR. STROSNIDER: Sure. In general, this  
11 whole process -- yes. In general, I think we need to  
12 back up and look at the integrated program here. And,  
13 in fact, in our safety evaluation, we're looking at  
14 the Reg. Guide 1.174 sort of approach which says, you  
15 know, you need to take into account defense in depth  
16 and margins, and that sort of thing. So we haven't  
17 lost sight of those, certainly.

18 CHAIRMAN APOSTOLAKIS: So the question is  
19 whether part of the reason why there is this extended  
20 debate is that the categorization process uses one set  
21 of metrics, but then when you guys evaluate the  
22 treatment you use another set. I think that --

23 MR. STROSNIDER: I think there's a real  
24 challenge if you try to correlate the two in some  
25 quantitative way.

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1 CHAIRMAN APOSTOLAKIS: I mean, and I think  
2 the oversight process has made progress there, by  
3 identifying the four cornerstones and saying  
4 explicitly, "We do care about the frequency of  
5 initiating events." The agency does care. It's not  
6 just CDF and LERF.

7 MR. STROSNIDER: I agree with all that.  
8 But I do come back to stress again that when you talk  
9 about special treatment rules, that, you know, they  
10 were written largely to mitigate -- to deal with  
11 components, functions, and mitigating accidents, when  
12 you look at EQ and seismic. And, I mean, we've been  
13 over this several times now, but, you know, you don't  
14 get much data on that sort of thing.

15 MEMBER SIEBER: Another question is, you  
16 used an operating phase PRA as the basic structure of  
17 the risk analysis to support categorization. Have you  
18 looked at -- and you also discussed the fact that you  
19 used an IPEEE type analysis. Have you done shutdown  
20 PRAs or operating transient PRAs? Because that's part  
21 of the risk -- overall risk profile. And if you have  
22 or haven't, do you think that the -- the risk analysis  
23 by components would be different, depending on what  
24 phase of the operation you're in?

25 MR. MOLDENHAUER: From a PRA perspective,

1 we haven't included the shutdown PRA analysis or any  
2 transient analysis. However, from the deterministic  
3 process that we include into the risk ranking, we do  
4 ask those questions, and we are confident that we  
5 would get the same results if we look from a PRA  
6 perspective, because our operational answers match  
7 closely to the PRA results. So we would feel that  
8 from a shutdown and transient mode PRAs that we would  
9 also match closely.

10 MEMBER SIEBER: Okay. Now, did your  
11 expert panel have the opportunity to look at the PRA  
12 results at the same time as they did their own  
13 categorization, or was that some kind of a blind test  
14 that we could draw some confidence from?

15 MR. MOLDENHAUER: No. At the beginning of  
16 each of the sections, each of the systems that we went  
17 through to analyze, each member is responsible for  
18 bringing his perspective of that system to the working  
19 group. For example, Licensing brings licensing  
20 commitments to the working group.

21 Me, as the PRA expert, I bring the PRA  
22 stuff. I discuss the assumptions and the limitations  
23 that go into the PRA, and all the analysis that goes  
24 into the PRA, with the working groups before we start  
25 addressing any of the categorization processes.

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1 MEMBER SIEBER: So they are pretty much  
2 aware of what SSCs the PRA has identified as risk  
3 important before they make their independent decision.

4 CHAIRMAN APOSTOLAKIS: But the vast  
5 majority of SSCs, though, that were categorized were  
6 not even in the PRA.

7 MEMBER SIEBER: That's right.

8 CHAIRMAN APOSTOLAKIS: So the --

9 MEMBER KRESS: He's addressing those that  
10 overlapped.

11 CHAIRMAN APOSTOLAKIS: Sorry?

12 MEMBER KRESS: He's addressing those that  
13 overlapped as a validation of the process.

14 MEMBER SIEBER: Yes. But if they already  
15 knew what the PRA results were, then it's -- it  
16 doesn't validate anything other than it reinforces  
17 what it is they're saying.

18 MR. MOLDENHAUER: But they don't know the  
19 results. I don't give them the PRA results. We don't  
20 give them the risk ranking and the PRA results until  
21 we actually do the components. When we do the system  
22 functions and that, the working group doesn't have  
23 those results.

24 MEMBER SIEBER: Now, another question that  
25 sort of addresses Dr. Bonaca's question, let's say

1 that you had a component, and your plant is very  
2 robust because you have three trains of almost  
3 everything, which gives it a pretty good risk profile,  
4 in my opinion.

5 But if you had, for example, an  
6 intermediate head safety injection pump, and it was  
7 risk significant, you know, RSC-1, and it was  
8 supported by a raw water pump that cooled the  
9 lubricating oil, that raw water pump would also be an  
10 RSC-1. It would not -- even if you had three or four  
11 trains, it would not end up as a three?

12 MR. SCHINZEL: What we look at, again,  
13 would be the function that needs to be satisfied. If  
14 that function that the safety injection pump has to  
15 satisfy is high safety significant, and if the raw  
16 water pump that cools that system -- if its failure  
17 would cause loss of that safety injection function --

18 MEMBER SIEBER: Sooner or later it would.

19 MR. SCHINZEL: -- then it would also be  
20 classified as a safety significant type --

21 MEMBER SIEBER: Regardless of how many  
22 trains you had.

23 MR. SCHINZEL: Well, we would look to see,  
24 are there independent and diverse means of satisfying  
25 that cooling? And if there are, there may be a

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1 potential of, again, lowering that categorization down  
2 by one level.

3 MEMBER SIEBER: By one level. Okay.

4 MR. MOLDENHAUER: And just to add on to  
5 that, the PRA does include those dependencies in that.  
6 So if there isn't any cooling water for the safety  
7 injection pump, well, then, the safety injection pump  
8 wouldn't work.

9 MEMBER SIEBER: Yes. You actually don't  
10 have -- you have three trains, but the three trains  
11 are -- they are directly three trains. You know, you  
12 have a raw water pump that supports train A, and  
13 everything in it, including the diesel, right?

14 MR. MOLDENHAUER: Yes, for the most part.

15 MEMBER SIEBER: And you do have some  
16 cross-ties as I recall.

17 MR. MOLDENHAUER: Yes.

18 MEMBER SIEBER: But those cross-ties are  
19 manual, right, on things like cooling water? The  
20 operator has to do something?

21 MR. MOLDENHAUER: No. For the charging  
22 pumps, for example, the cross-tie data, there is  
23 nothing for the operators to do.

24 MEMBER SIEBER: Oh. Check valves, okay.

25 MR. MOLDENHAUER: Yes.

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1 MEMBER SIEBER: All right.

2 MEMBER BONACA: Thank you. Just to  
3 specify a little bit, my concern before was where  
4 there is multiple redundancies of a system. It was to  
5 do mostly with the level of testing that you do,  
6 etcetera, to that system if it is a lower category,  
7 the reason being that -- my thought process was you  
8 are vulnerable to common mode failures, because many  
9 of them are driven by maintenance practices.

10 The experience often times is that you do  
11 something to a pump, you put in some seal that is  
12 different from the previous one, or the seat is  
13 different, and then you discover through the testing  
14 that you have a problem with one. You go back and  
15 check the others, and you find a similar problem. It  
16 is -- this is a common experience there has been.

17 And that's why I was asking those  
18 questions. I wasn't looking only about the materials.  
19 I was thinking about the testing that you perform for  
20 the systems and trains, and that's why I raised the  
21 question.

22 MR. HEAD: And we recognize -- this is  
23 Scott Head. We recognize the limitations, especially  
24 with seismic and environmental aspects. But we do  
25 have what we believe is a robust feedback program that

1 involves the corrective action program and involves  
2 periodic assessments of the system health. It  
3 involves the system engineer, the people that are  
4 closest to the system, and we ask them specific  
5 questions. What has this process done to your system?

6 And right now we don't expect many answers  
7 of a positive nature, because we haven't -- it's  
8 mainly in a graded QA form, not with respect to what  
9 we're doing here. But that's a process that will  
10 continue throughout this, you know, that -- it goes  
11 with the exemption request, and so we expect that sort  
12 of feedback, and at least opportunities for common  
13 load issues like that to be identified and for us to  
14 take appropriate action.

15 We agree that in seismic and EQ areas they  
16 are probably never going to manifest themselves. But,  
17 I mean, if we have a vendor that ultimately ends up  
18 starting to provide us stuff that's not of appropriate  
19 quality, that process could reveal itself there also.

20 MR. SCHINZEL: And one additional depth of  
21 defense generally is we take trains out of service.  
22 You know, we'll perform the maintenance or the repair  
23 activity, replace something. We don't do that to all  
24 trains at once, at the same week. So there is a  
25 series of time between the time you implement --

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1 install a part on one train, before you install it on  
2 another train.

3 So if it is some time dependency on that  
4 failure, we would expect that feedback process to give  
5 us that insight.

6 MR. CHACKAL: This is Ralph Chackal. We  
7 should also mention that the maintenance rule trends  
8 failures at the system and function level. So if  
9 there was a failure of one or more components that  
10 failed a medium or high safety significant function,  
11 that would be required under our program to be  
12 identified, trended, and corrective action determined  
13 by the maintenance rule program.

14 MR. HEAD: I'd like to make one last point  
15 that it's a critical, I guess, safety aspect. Our  
16 ECCS trains are not headered or cross-connected.  
17 There is -- aux feedwater is ultimately cross-  
18 connected with operator action, with instrument error.

19 MEMBER SIEBER: Your auxiliary systems.

20 MR. HEAD: Yes, sir.

21 MEMBER SIEBER: Right.

22 CHAIRMAN APOSTOLAKIS: The issue of  
23 functionality that the staff raised is an interesting  
24 one. Using different words, are you concerned about  
25 design and construction errors?



1 Do these special treatment requirements  
2 give you higher confidence that the components will  
3 not have those that will manifest themselves in a very  
4 harsh environment that we're not going to see -- it's  
5 likely we'll never see? Is that really the issue  
6 here, design and construction errors, which PRA  
7 doesn't handle at all? It assumes that the component  
8 is capable of performing its function. Or am I using  
9 words that should not be mentioned here?

10 (Laughter.)

11 MR. STROSNIDER: I think the answer is  
12 yes. I'm not sure that it's the way I'd characterize  
13 it exactly. But if you take the situation where they  
14 would want to replace an existing component, the staff  
15 has an expectation that that replacement component  
16 would perform its function throughout its life in the  
17 plant.

18 And the programs of procurement and  
19 maintenance and surveilling and testing -- and I think  
20 there's eight elements in this program -- all of those  
21 elements contribute in some way to maintaining that  
22 functionality under design basis conditions. So that  
23 is the expectation.

24 CHAIRMAN APOSTOLAKIS: Which in different  
25 words is they reduce the probability that there is

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1 some flaw there that will not allow the component to  
2 function, which is a --

3 MR. STROSNIDER: Well, okay. But it's  
4 more than looking for -- for random or perhaps  
5 isolated fabrication defects. The situation when you  
6 go out to buy a commercial component -- a valve or a  
7 pump or something to replace the existing one -- yes,  
8 you can buy commercial products that have perhaps  
9 comparable materials, etcetera, to what's in the  
10 safety-related.

11 You can buy commercial products that will  
12 perform the normal operating basis that have plastic  
13 -- maybe that's an extreme example, but they may have  
14 different materials in them. All right?

15 So the point is when you go out to procure  
16 that sort of component, that you want to make sure  
17 that it's -- that you've laid out exactly what the  
18 design conditions are, that it's going to have  
19 perhaps, under an accident condition, to work in an  
20 environment where there's high radiation and  
21 temperature, and that the materials and the design  
22 would accommodate that.

23 CHAIRMAN APOSTOLAKIS: So it --

24 MR. STROSNIDER: But it's more than a  
25 random -- there's a defect here or there. It's a more

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1 general --

2 CHAIRMAN APOSTOLAKIS: I didn't say  
3 random. I said design.

4 MR. STROSNIDER: Okay.

5 CHAIRMAN APOSTOLAKIS: In other words, if  
6 you find after a strong earthquake that the wrong  
7 material had been used, then you would say it was a  
8 design error, wouldn't you?

9 MR. STROSNIDER: Well, I think, you know,  
10 for the seismic examples what might come more into  
11 play is the geometries involved, and perhaps materials  
12 in terms of masses, etcetera, when you get into  
13 dynamic sorts of analyses and whether the internals  
14 are going to operate under those sort of whatever the  
15 acceleration forces are.

16 And then, that's part of why -- well, you  
17 know, what we say is when you go to procure that or to  
18 "qualify" it internally, you need to consider all  
19 those inputs. A lot of times the vendor catalogs may  
20 say, well, you know, this is good up to some g level.  
21 Is that appropriate for the application, you know, or  
22 depending upon what the seismic consideration is at  
23 the plant, which I think happens to be low at South  
24 Texas.

25 But, so does that answer your question?

1 CHAIRMAN APOSTOLAKIS: Yes.

2 MR. SCHINZEL: And, Dr. Apostolakis, I'll  
3 point out that, you know, from the standpoint of our  
4 commercial program, we have the same expectations on  
5 the commercial side of the plant. Once we install  
6 something, we're going to post-maintenance test that,  
7 and we're going to validate that it's performing its  
8 function.

9 So, again, we have assurance that that  
10 component is doing what it's intended to do, and we  
11 expect that those same practices could be used on low  
12 safety significant and non-risk significant components  
13 and give the same degree of assurance.

14 MEMBER BONACA: We are asking questions,  
15 however, because on the secondary side of the plant  
16 everything runs. And if something doesn't work, it  
17 manifests itself. And most of the safety systems  
18 don't run; they sit there. And so the only way you  
19 are going to find out whether or not it will work,  
20 it's really often times an indirect kind of test, a  
21 verification, and you have to rely on those.

22 There is a difference there. You have to  
23 -- I just want to point out --

24 CHAIRMAN APOSTOLAKIS: What I'm trying to  
25 do is trying to understand or trying to translate the

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1 concerns that staff has into PRA language. And I  
2 think this comment earlier that you really are  
3 concerned about functionality -- that's a very  
4 important comment, because PRA assumes that the thing  
5 will start doing its job, and then there is a  
6 probability it will fail.

7 That's a very important point. That's why  
8 I raised the issue of design and construction errors.  
9 Now, is that really what you are talking about?

10 And a related question is, all of these --  
11 I mean, your sensitivity analysis was really done on  
12 a point estimate basis. You took the mean values and  
13 multiplied by 10, or something like that.

14 MR. MOLDENHAUER: Yes.

15 CHAIRMAN APOSTOLAKIS: You didn't look at  
16 the whole distribution. Right. And, I mean, the  
17 importance measures are also derived on the basis of  
18 point values, mean values of failure rates, and so on.  
19 And I wonder, when you go to those external events  
20 like earthquakes, where the uncertainties really  
21 become very large, where they're deriving importance  
22 -- the importance of the components using just the  
23 mean value is good enough.

24 You see, and the real engineer then  
25 worries about it from a different -- doesn't express

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1 it that way. But I think that has a lot to do with  
2 it, and the uncertainty, the spread of the  
3 distribution probably plays a role.

4 Jack, do we have anything else? I think  
5 we're running out of time now.

6 MR. STROSNIDER: Any questions? No?

7 MR. HEAD: A closing comment -- it might  
8 also answer a question. The effort that STP is  
9 expending on this -- and I'd say also that the Nuclear  
10 Regulatory Commission has been expending -- is  
11 extensive. We embarked upon that a couple of years  
12 ago because we felt like that there were two  
13 substantial benefits from this process.

14 One was we believed that by identifying  
15 the Risk 2 components that we would ultimately  
16 positively impact plant safety, or, as a minimum, be  
17 neutral between the tradeoff, between Risk 2 and Risk  
18 3. But we felt like the positive benefits we get from  
19 that, from being able to focus not only on the safety-  
20 related components but the non-safety-related  
21 components that were important from a risk  
22 perspective, was an overall important thing for the  
23 station and for the public health and safety.

24 Clearly, the second reason we embarked  
25 upon this extensive, expensive effort is we expected

1 some financial benefit. And that's a -- that's a  
2 driver for this -- you know, for our entire effort.  
3 We remain committed to pursue this because we believe  
4 the financial benefit is there. We know we're taking  
5 -- we are getting the advantage of the safety benefit.

6 And so the question -- the answer to the  
7 question about why pursue Option 2 is we -- there are  
8 other plants out there that that's probably the same  
9 case for. There are clearly some plants out there,  
10 maybe of a certain vintage or certain sophistication  
11 from a PRA standpoint, that the initial upfront cost  
12 just would not justify this process.

13 There are other plants that we believe --  
14 and they're out there we think, and they know they're  
15 there -- that this process would provide those  
16 benefits. So I'll use your seismic example. We've  
17 never at STP really used the seismic aspect of STP as  
18 important for this process because we want it to be  
19 able to be used across the industry, because we think  
20 that as part of risk-informing the regulations it's  
21 important for this -- not only for STP for this to  
22 succeed but for the industry.

23 And, as I say, we remain committed to  
24 pursuing this. We believe the benefits are tangible  
25 and meaningful, so we certainly appreciate the Nuclear

1 Regulatory Commission's continued involvement in this  
2 process.

3 CHAIRMAN APOSTOLAKIS: I got the  
4 impression that the staff was a little bit more  
5 optimistic than you that you will reach consensus  
6 soon. Is that the wrong impression? False impression?

7 MR. HEAD: I guess what I'm saying is I --  
8 clearly, there's an exemption request approval coming.  
9 We believe that there is one that's coming this  
10 summer. I think what we are wrestling with is, will  
11 the financial or the benefits that we can see in the  
12 commercial procurement area, will they manifest  
13 themselves?

14 Or will the expectations that we believe  
15 are there on the part of the staff -- can we fulfill  
16 them without actually building something -- you know,  
17 on one end you have commercial grade, and the other  
18 end you have safety-related. That if you end up  
19 spending too much money on this commercial grade  
20 component, at some point in time it makes no sense to  
21 pursue commercial grade, and you'll be left with  
22 basically a safety-related component, which is okay,  
23 but it's certainly not what we thought SECY-98-300  
24 would have said is the way we're going to end up.

25 So our perspective is that there is an



1 exemption request in here that is certainly  
2 approvable. Whether it's what we ultimately can use  
3 to the full benefit, as we expected, that's still  
4 where -- I think what we're still wrestling with. And  
5 there are some -- you know, between the maintenance  
6 rule and a number of other aspects in there, there is  
7 clearly some benefits we're getting, but it's -- there  
8 are certain areas we still need to work through.

9 CHAIRMAN APOSTOLAKIS: Okay.

10 MEMBER SIEBER: Any other comments?

11 MR. NAKOSKI: This is John Nakoski. I'd  
12 just like to thank the ACRS for the opportunity to  
13 provide you with our insights on the treatment.

14 MEMBER SIEBER: Thank you.

15 Mr. Chairman?

16 CHAIRMAN APOSTOLAKIS: When is your report  
17 coming to us, the safety evaluation report?

18 MR. NAKOSKI: To a large extent, it's  
19 being driven by when we can resolve the open items.  
20 I think if you look at the first slide, we would  
21 expect to provide the ACRS with the safety evaluation  
22 at about the same time that we provide it to the EDO,  
23 which is currently scheduled for early May.

24 CHAIRMAN APOSTOLAKIS: And then they will  
25 request a letter when?

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1 MR. NAKOSKI: Well --

2 CHAIRMAN APOSTOLAKIS: Not in May.

3 MR. NAKOSKI: -- for categorization, I was  
4 hoping we would have had a letter already, but --

5 CHAIRMAN APOSTOLAKIS: We were hoping,  
6 too.

7 MR. NAKOSKI: Okay.

8 CHAIRMAN APOSTOLAKIS: But hopes --

9 MR. NAKOSKI: We would -- we're planning  
10 to talk to the Commission in early June, and we would  
11 hope to have your insights around that time.

12 CHAIRMAN APOSTOLAKIS: Around that time.  
13 So we'll have roughly about a month.

14 MR. NAKOSKI: We're trying to give you  
15 that time, yes.

16 CHAIRMAN APOSTOLAKIS: That would be  
17 really helpful, because there is a lot of material  
18 here.

19 Well, thank you, gentlemen, very much. We  
20 appreciate your coming here and talking to us.

21 And we will recess until 10:55.

22 (Whereupon, at 10:38 a.m., the  
23 proceedings in the foregoing matter went  
24 off the record.)  
25

**CERTIFICATE**

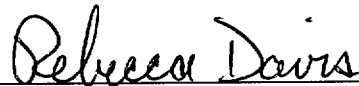
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Name of Proceeding: ACRS Full Committee Meeting

Docket Number: (Not Applicable)

Location: Rockville, Maryland

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Nuclear Regulatory Commission*

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# **SOUTH TEXAS PROJECT REQUESTED EXEMPTIONS FROM SPECIAL TREATMENT REQUIREMENTS**

## **ADVISORY COMMITTEE ON REACTOR SAFEGUARDS TREATMENT OPEN ITEMS**

***John A. Nakoski***  
*Senior Project Manager, STP Units 1 and 2*  
*Division of Licensing Project Management*  
*Office of Nuclear Reactor Regulation*

**April 6, 2001**

---

# **SOUTH TEXAS PROJECT RISK INFORMED EXEMPTION REQUEST**

## **TIMELINE**

- **7/13/99** *Exemption Request Submitted*
- **8/31-9/1/99** *Meeting on Exemption Requests*
- **10/5-6/99** *Meeting on Exemption Requests*
- **1/18/00** *Request for Additional Information Issued*
- **4/10-11/00** *Meeting on Categorization*
- **6/20-21/00** *Meeting on Treatment*
- **7/19/00** *Draft Review Guidelines Issued to STP*
- **7/24-25/00** *Meeting on Commercial Practices*
- **8/31/00** *Revised STP Exemption Request Submitted*
- **11/15/00** *Draft Safety Evaluation Issued*
- **12/7/00** *ACRS Briefing on Draft Safety Evaluation*
- **12/6 & 8/00** *Meeting on Draft SE Open Items*
- **1/24/01** *Response to Draft SE Open Items Submitted*
- **2/14-15/01** *Meeting on Open Item Resolution*
- **2/21/01** *ACRS Subcommittee Meeting on Categorization*
- **4/4-5/01** *Meeting on Open Item Resolution*
- **TBD** *Open Items from Draft SE resolved*
- **4/6/01** *ACRS Committee Meeting on Treatment*
- **5/1/01** *Preliminary Final Safety Evaluation Due to EDO*
- **5/10/01** *ACRS Committee Meeting on Safety Evaluation*
- **5/15/01** *Commission Paper Due to the Commission*
- **6/5/01** *Commission Briefing*
- **6/19/01** *Issue Final SE and Exemptions*

# STATUS OF STPNOC EXEMPTION REVIEW

## 16 Open Items and 2 Confirmatory Items (☛ treatment open items)

### ✓ 6 Closed

- Open Item 3.1 (Importance Measure Equations for Common Cause Failure)
- Open Item 3.2 (Fussell-Vesely Importance Measure Criteria)
- Open Item 3.3 (Qualification of Integrated Decisionmaking Panel Members)
- ☛ Open Item 7.1 (Revised QA Program Description)
- ☛ Open Item 13.1 (Scope of Maintenance Rule Exemption Request)
- Open Item 3.6 (Use of General Notes in Categorization Process)

### ✓ 6 Can Close Based on Agreement on FSAR Details

- ☛ Open Item 4.1 (FSAR Description of Treatment Processes for HSS/MSS SSCs)
- ☛ Open Item 4.2 (Detail in FSAR on Treatment Processes)
- ☛ Open Item 11.1 (Exemption from Qualification Requirements of IEEE 279) (partial closure, see OI 8.1)
- ☛ Confirmatory Item 4.1 (Areas of Inconsistency in Submittals)
- ☛ Confirmatory Item 4.2 (Follow NRC Endorsed NEI Guidelines on Controlling Commitments)
- ☛ Open Item 5.1 (Controlling Changes to the Exemption Implementation Processes)

### ✓ 2 Have Success Path for Resolution (Agreement in Principal & Licensee Response Required)

- Open Item 3.4 (Categorization Process Consideration of Containment Integrity)
- Open Item 3.5 (Categorization Process Application to Passive Pressure Boundary Function)

☛ Open Items 10.1 and 10.2 (Repair/Replacement and ISI of ASME Code Components) Require Agreement in Principal on Success Path & Revised Licensee Response

☛ Open Item 8.1 (Exemption from 10 CFR 50.49 Environmental Qualification Requirements) Requires further Internal Review

☛ Open Item 18.1 (Exemption from 10 CFR Part 100, Appendix A, Seismic Requirements) Requires further discussion with STPNOC

## **OVERVIEW OF TREATMENT PROCESSES STPNOC EXEMPTION REQUEST**

### **Approach for staff review of STPNOC's Treatment Processes:**

1. The design basis would not change.
2. The functional capability of low safety significant SSCs would be maintained for design basis conditions, although at a lower level of confidence than for high safety significant SSCs.
3. The FSAR would include a high level description of the program on treatment for low safety significant SSCs. The FSAR would describe what the program would be, but not how the program would be implemented. The FSAR is the licensing basis for exemptions.

**The staff's finding regarding treatment is whether the licensee's treatment processes include the necessary elements, if effectively implemented, for the licensee to conclude that it has confidence that LSS and NRS SSCs will be capable of performing safety-related functions under design basis conditions. This finding supports the staff's finding in categorization that there is no undue risk to public health and safety.**

## **PERFORMANCE BASED ASPECTS OF TREATMENT**

- ★ **Degree to which treatment processes are performance based varies**
- ★ **Environmental and Seismic Qualification are not Performance Based (under either existing or proposed treatment)**
- ★ **Areas such as Inservice Testing can be Performance Based**



## **TREATMENT OPEN ITEMS**

### **Open Item 4.1 - FSAR Description of Treatment Processes for HSS/MSS SSCs**

**Resolution:** Staff and STPNOC Agreement in Principal on wording in STP FSAR. STPNOC to finalize FSAR.

### **Open Item 4.2 Detail in FSAR on Treatment Processes**

**Resolution:** Staff to work with STPNOC to specify necessary Elements in the FSAR of commercial processes and practices at STP for use as the basis for STPNOC to conclude LSS and NRS SSCs will be capable of performing safety-related functions under design basis conditions.

- ✓ Design Control Process; Procurement Process; Installation Process; Maintenance Process; Inspection, Test and Surveillance Process; Corrective Action Program; Management and Oversight Process; and Configuration Control Process.
- ✓ Specific wording in the FSAR on these elements still being developed through cooperative effort between NRC and STPNOC.

[Open Items 8.1 and 18.1 Could Impact Procurement Wording.]

## **TREATMENT OPEN ITEMS** (con't)

### **Open Item 7.1 - Revised QA Program Description**

**Resolution:** STPNOC has submitted an acceptable revision to its Operating QA Program.

### **Open Item 8.1 - Exemption from 10 CFR 50.49 EQ Requirements**

**Resolution:** STPNOC has provided sufficient basis on why it requested exemption from 10 CFR 50.49. Resolution of Open Item 4.2 necessary to establish elements in FSAR for exemption from 10 CFR 50.49.

- ✓ Design Requirements - temperature and pressure, humidity, chemical effects, radiation, aging, submergence, and synergistic effects.
- ✓ Documentation, margins, and methods for confirming capability of LSS and NRS SSCs to remain functional under design basis environmental conditions to be implemented consistent with elements of treatment and oversight processes described in FSAR.
- ✓ Staff working internally to align on details needed in FSAR regarding procuring replacement SSCs considering environmental design basis conditions.

### **Open Items 10.1 and 10.2 - Repair/Replacement and ISI of ASME Code Components**

**Resolution:** Pending. Need revised licensee response following February 14 - 15, 2001, meeting.

## **TREATMENT OPEN ITEMS (con't)**

### **Open Item 11.1 - Exemption from Qualification Requirements of IEEE 279**

**Resolution:** Licensee provided adequate basis on why it requested exemption. Resolution of OI 8.1 and 18.1 provide basis for closing this item.

### **Open Item 13.1 - Scope of Maintenance Rule Exemption Request**

**Resolution:** Licensee clarified that it was not seeking an exemption from the requirements of 10 CFR 50.65(a)(4).

### **Open Item 18.1 - 10 CFR Part 100, Appendix A, Seismic Requirements**

**Resolution:** STPNOC has provided sufficient basis on why it requested exemption from Sections VI.(a)(1) & (2) from Appendix A to 10 CFR Part 100. Resolution of Open Item 4.2 necessary to establish elements in FSAR for exemption from 10 CFR Part 100.

- ✓ Requirement to retain - SSCs designed for earthquake motion, as described in the design bases, including seismic inputs and design load combinations.
- ✓ Methods for confirming capability of LSS and NRS SSCs to remain functional under design basis seismic conditions to be implemented consistent with elements of treatment and oversight processes described in FSAR.

## **REMAINING ITEMS**

### **Confirmatory Item 4.1 - Areas of Inconsistency in Submittals**

**Resolution:** Staff SE to provide findings on elements of treatment program that can maintain design basis and functionality if effectively implemented. STPNOC has provided resolution to the areas of inconsistency identified in the draft SE. The staff will discuss this resolution in the final SE.

### **Confirmatory Item 4.2 - NEI Guidelines on Controlling Commitments**

**Resolution:** STPNOC confirmed its commitment to adhere to the NRC endorsed NEI 99-04. Staff and STPNOC Agreement in Principal on FSAR Wording.

### **Open Item 5.1 - Controlling Changes to the Exemption Implementation Processes**

**Resolution:** Processes upon which the NRC will base its findings will be controlled by:

1. Require processes to be described in the STP FSAR.
2. Require STPNOC to implement a change control process seeking prior NRC approval of changes that would decrease the effectiveness of categorization in identifying HSS/MSS SSCs, reduce the assurance of SSC functionality, or decrease the effectiveness of the evaluations and assessments as described in the STP FSAR.
3. Require report within 60 days of changes made without prior approval.
4. Changes to the STP FSAR description that result in a decrease or reduction if effectiveness or assurance be submitted for prior approval.

**A South Texas Project Perspective on the  
Status of the Exemption Request**

Presentation to the ACRS

April 6, 2001

## **Treatment Status**

- **STP understood that non-safety significant SSCs would receive treatment equivalent to commercial components.**
- **Staff need for a finding based on functionality required significant treatment detail to be provided.**
- **STP understood that the NRC staff would now focus treatment insight on the “whats” and not on the “hows”**
- **Based on current status, concerns exist on NRC staff approach to treatment:**
  - **Seismic treatment does not have a clear pathway that successful implementation is possible.**

## Treatment Status

- Equipment Qualification treatment remains unresolved with the staff
  - Additional testing to replace “regulatory requirements” is being required
  - Significant details are still required in the proposed FSAR
  - Proposed FSAR includes extensive “hows” for treatment
    - Procurement Process
    - Maintenance Process
    - Management & Oversight Process
- 
- **STP has not evidenced significant change in the staff’s approach toward treatment.**

## **Treatment Status**

- **Timing for Exemption approval remains in doubt**
- **STP expects industry willingness to pursue Option 2 approach will be challenged.**