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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

October 7, 2005

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This transcript has not been reviewed, corrected and edited and it may contain inaccuracies.

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

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526th MEETING

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FRIDAY,

OCTOBER 7, 2005

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ROCKVILLE, MARYLAND

The committee met at the Nuclear
Regulatory Commission, Two White Flint North,
Room T2B3, 11545 Rockville Pike, at 8:30 a.m., William
J. Shack, Vice Chairman, presiding.

COMMITTEE MEMBERS:

- WILLIAM J. SHACK, Vice Chairman
- GEORGE E. APOSTOLAKIS, Member
- MARIO V. BONACA, Member
- RICHARD S. DENNING, Member
- THOMAS S. KRESS, Member
- DANA A. POWERS, Member
- VICTOR H. RANSOM, Member
- JOHN D. SIEBER, Member-at-Large

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ALSO PRESENT:

SAM DURAI SWAMY, Designated Federal Official

ASHOK C. THADANI, Deputy Executive Director

JENNY M. GALLO, Staff

MICHAEL L. SCOTT, Staff

ERIC THORNSBURY, Staff

I-N-D-E-X

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AGENDA ITEM

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

(8:33 a.m.)

VICE CHAIRMAN SHACK: The meeting will now come to order. This is the second day of the 526th meeting of the Advisory Committee on Reactor Safeguards.

During today's meeting the committee will consider the following: licensee responses to the bulletin on emergency preparedness and response action for security-based events, NRC staff's responses to the ACRS letter on the proposed Revision 4 to Regulatory Guide 1.82 entitled "Water Sources for Long-Term Recirculation Cooling Following a Loss of Coolant Accident," format and content of the NRC Safety Research Program report to the Commission, future ACRS activities, and report of the Planning and Procedures Subcommittee, reconciliation of ACRS comments and recommendations, subcommittee reports, and preparation of ACRS reports.

A portion of this meeting may be closed to discuss safeguards and security information. This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act. Mr. Sam Duraiswamy is the Designed Federal Official for the initial portion of the meeting.

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1 We have received no written comments from
2 members of the public. We have received a request
3 from a representative of the State of Vermont for an
4 opportunity to make oral statements regarding
5 Regulatory Guide 1.82.

6 A transcript of portions of the meeting is
7 being kept, and it is requested that the speakers use
8 one of the microphones, identify themselves, and speak
9 with sufficient clarity and volume so they can be
10 readily heard.

11 And our first topic this morning is
12 licensee responses to the bulletin on emergency
13 preparedness, and Mario is going to be leading us
14 through that.

15 MEMBER BONACA: Yes, thank you. Good
16 morning. During the 523rd meeting of the ACRS, which
17 was on June 1st through 3rd of this year, the
18 committee considered a bulletin -- a proposed bulletin
19 on emergency preparedness and response actions for
20 security-based events.

21 At that time, we decided not to comment on
22 that. We decided that we would wait for responses to
23 come in and hear a presentation regarding those
24 responses. And the presentation is here now, I
25 believe the bulletin has been issued, responses have

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1 been gathered and classified.

2 Most of the responses have to do -- or the
3 bulletin, too -- with the inclusion of security-
4 related terminology and nomenclature into the
5 emergency action levels. And essentially this falls
6 on the part of the licensee to request for
7 notifications and things of that kind.

8 So now that we have the information, we
9 have -- we are happy to have Mr. Weiss here to give us
10 an overview of the responses we gathered from the
11 licensees.

12 Mr. Weiss?

13 MR. WEISS: Yes. Good morning. Before we
14 begin, Nader Mamish, the Director of the Emergency
15 Preparedness Directorate, has a few opening remarks.

16 MR. MAMISH: Thank you. Good morning,
17 everyone. We're pleased to have the opportunity to
18 brief the ACRS today.

19 We'll be providing you with a brief
20 summary, an overall summary of the responses, followed
21 by specifics regarding the five areas that were
22 addressed in the bulletin and the path forward for the
23 staff. We'll be happy to take any questions at the
24 end.

25 And I apologize, I do have to leave at

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1 9:30 for prior commitments. But the staff will be
2 here to address any issues that you may have.

3 Thank you.

4 MEMBER BONACA: Now, just a question
5 regarding the -- the meeting is being held in an
6 unclassified -- at an unclassified level. Should
7 there be a need for classified information, is this
8 the location where we can have it, if we --

9 MR. THORNSBURY: Yes. As long -- I don't
10 think it would go up to a full classified. But if
11 it's sensitive or even up to safeguards, we'll hold
12 those questions to the end, and then we can dismiss
13 any members of the public to ask or answer any
14 sensitive questions.

15 MEMBER BONACA: So you will give us
16 guidance when --

17 MR. THORNSBURY: Yes. Once they're done
18 with their formal presentation, if there's anything
19 that needs to be, then we can close it. Otherwise,
20 you know, I'm sure Eric will mention it, but the
21 bulletin is public, and most of their discussion is at
22 a public level.

23 MEMBER BONACA: Okay. Very good.

24 MR. WEISS: Before I begin, let me
25 introduce Mr. Gregory Casto, who is a senior member of

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1 the emergency preparedness staff. He was responsible
2 for reviewing the details of the bulletin responses
3 and was instrumental in writing it, and he's here to
4 help us answer certain questions in detail.

5 In general, when we answer your questions,
6 we're going to be speaking in generalities. If we get
7 to a discussion on a specific licensee, that's when I
8 would ask that we consider closing the meeting.

9 Following the events of September 11,
10 2001, the staff evaluated the emergency preparedness
11 planning basis, issued orders with compensatory
12 measures for nuclear security and safety, and observed
13 licensee performance during security-based EP drills
14 and exercises, and security force-on-force exercise
15 evaluations.

16 Additionally, the staff reviewed current
17 public radiological protective action guidance. The
18 staff also discussed security-based EP issues with
19 numerous stakeholders, including licensees, state,
20 local, and federal government officials.

21 Licensees have reviewed and improved their
22 programs in response to: 1) orders issued on February
23 25, 2002; secondly, information provided in regulatory
24 issue summary, RIS 2000-415; thirdly, lessons learned
25 from force-on-force exercises; and, lastly,

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1 information provided in regional outreach meetings and
2 other forums.

3 Although many licensees have improved
4 their programs, additional security-based EP actions
5 may be necessary. Consequently, on July 18, 2005, the
6 staff issued Bulletin 2000-502 titled "Emergency
7 Preparedness and Response Actions for Security-Based
8 Events."

9 Licensees were required to respond within
10 30 days. The staff requested answers to questions in
11 five specific areas regarding security-based emergency
12 preparedness. First, emergency classification levels
13 and emergency action levels; second, prompt
14 notification of security events to the NRC; third,
15 licensee onsite protective actions for plant
16 personnel; fourth, emergency response organization
17 staff augmentation practices; and, fifth, security-
18 based event inclusion in the emergency preparedness
19 drill and exercise program.

20 Information in this bulletin does not
21 indicate that additional or earlier radiological
22 protective actions are required to ensure dose
23 avoidance, but this bulletin recognizes that a
24 security-based event may not progress in the same way
25 as events for which licensees and offsite response

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1 organizations typically plan and train.

2 All licensees responded to the bulletin
3 within the 30-day timeframe. All licensees provided
4 answers consistent to the information in the bulletin
5 with few exceptions in the area of staff
6 augmentation/enhancements, which we'll discuss later.

7 As we go through each of the areas, I'll
8 provide additional details. No single licensee had
9 all of the provisions discussed in the bulletin in
10 place, but many licensees had implemented some
11 enhancements to various levels. Licensees responded
12 that they plan to implement all of the enhancements
13 discussed in the bulletin, with a few minor exceptions
14 and some general conditions that I will discuss
15 shortly.

16 Additionally, NEI, the Nuclear Energy
17 Institute, has issued a white paper to the industry,
18 which contains similar information to that information
19 provided in the bulletin. The industry, through the
20 NEI emergency preparedness and security working group,
21 agreed to adopt the enhancements in the white paper
22 and are in the process of making changes to their
23 program.

24 The bulletin discussed slight changes to
25 the definition of emergency classification levels,

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1 ECLs, which included reference to security-related
2 events. In addition, specific security-based
3 emergency action levels, or EALs, provided more
4 details to assist the licensee in classifying certain
5 security-based events.

6 In general, the changes included
7 additional classification criteria, which takes
8 advantage of available preoccurrence information such
9 as taking control of a commercial airliner and heading
10 it towards a plant site. The changes also generally
11 escalate the classification level -- one level higher
12 than the EALs currently in place at nuclear
13 powerplants.

14 So an event that currently would be
15 classified as an alert may be classified as a site
16 area emergency in the new EALs.

17 Reasons for the appropriateness to
18 escalate classifications for security events include
19 the following: first, taking advantage of advance
20 warning from enhanced federal agency threat assessment
21 processes such as NORAD; second, providing
22 anticipatory notification to state and local response
23 organization of events which could have eventual
24 public action considerations; and, third,
25 demonstrating actions which will maintain public

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1 confidence by keeping onsite and offsite emergency
2 response organizations in front of public actions,
3 possibly taken in response to perceived threats from
4 information delivered by the media.

5 MEMBER POWERS: Let me -- maybe I misread
6 things when I read it, but I got the impression that
7 a general emergency was declared when the site had
8 been taken over.

9 MR. WEISS: Yes, when you lose control.

10 MEMBER POWERS: And it struck me that that
11 was -- was too late. Which -- I mean, I agree with
12 you. Everything else seemed to be a little earlier.
13 But that general emergency seemed to be later than I
14 would have thought. I would have thought that general
15 emergency would be when a site takeover was imminent.

16 MR. CASTO: All right. The way the
17 classifications currently lead you to the path, to
18 general emergency, your statement in part is correct,
19 is takeover of the plant control room. But it's also
20 takeover of other vital areas.

21 MEMBER POWERS: Right, right.

22 MR. CASTO: So that the control room still
23 may, in effect, have some control over the plant, but
24 certain safety equipment and systems may have already
25 been lost due to the adversary activity. So it's not

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1 quite a complete takeover of the plant when you're in
2 a general emergency, but in some cases --

3 MEMBER POWERS: Well, be that as it may,
4 didn't it strike you as a -- a little late. I mean,
5 shouldn't you -- shouldn't -- when these things are
6 happening -- imminence of these things be sufficient
7 to declare a general emergency?

8 MR. CASTO: Well, I think we can agree
9 with the general thesis that things need to happen
10 sooner when they're evolving like this. But under the
11 current scheme, you don't declare a general emergency
12 just because you lost the control room. It's because
13 you've lost control of the plant. You know, that
14 would include loss of the remote shutdown panel.

15 The general emergency wasn't changed as a
16 result of the bulletin. Everything else was moved up
17 one notice.

18 MEMBER POWERS: Yes. But, I mean, see,
19 that's -- and I agree that everything else looks like
20 it has moved up a little bit, except this general
21 emergency. And it just struck me -- I mean, that's
22 what I marked all in red when I got to that part.

23 MR. CASTO: In the bulletin, we -- I guess
24 we discussed the general characteristics of that a
25 little bit, and what -- based on our review of the

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1 emergency planning basis that was done prior to the
2 issue of the bulletin, and what we discussed in the
3 bulletin, is the consequences of the event still occur
4 in the same progression that they always do. In other
5 words, getting into a core melt sequence, starting to
6 lose your fission product barriers due to initially
7 loss of the fuel cladding barrier because of fuel
8 heatup and all of that.

9 That progresses the way that currently our
10 emergency planning basis looks at that. So when we
11 reviewed that, we felt that specific for the general
12 emergency, because those events continue to occur in
13 the same process and along the same timeframe that the
14 general emergency classification, it wasn't warranted
15 to step that up -- say, for instance, an earlier
16 adversarial progression where they may be inside the
17 power block. We didn't feel that was appropriate.
18 Maybe that helps answer your question.

19 MEMBER DENNING: Is the reason for the
20 difference in logic here -- I mean, I agree with Dana.
21 I mean, that concern -- but is the difference in logic
22 -- I tend to think of one of the things of general
23 emergency is that it also triggers a response, an
24 external military response to add protection -- you
25 know, to recapture the plant.

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1 And, obviously, if that's going to be
2 effective, it has to happen very early. If its only
3 objective is to -- is to alert the public for
4 evacuation purposes, then the progression is probably,
5 you know, the same -- that is, you know, perhaps they
6 have time, then, to -- is that the difference in
7 logic?

8 MR. CASTO: I think, generally speaking,
9 that's a good way to put it. Because the actions --
10 the security-based actions or the mitigation of threat
11 actions are going to progress down a separate path.
12 They're not based on classification.

13 Upon awareness, early notification starts
14 to those local law enforcement agencies and those
15 other organizations to start addressing the threat.

16 MEMBER BONACA: But right now the -- I
17 mean, before security events, the general emergency,
18 as you were pointing out, had a very specific
19 limitation, which means you had lost two barriers
20 typically. I mean, that's when the Director of
21 Operations at the site will make a decision. You have
22 lost two barriers and your imminent loss of the third
23 barrier. Okay?

24 So you are on the verge of releases, and
25 so I can understand now the logic -- the plant -- even

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1 if that hasn't happened, if you lose control of the
2 plant, you may get into a situation and you are --
3 that's how you are going that way on --

4 MR. WEISS: Yes. The EAL scheme was
5 conceived of as a mechanism to protect the public from
6 a radiological release, which is certainly still in
7 play in a terrorist event. But I think you have to
8 balance that against other considerations.

9 There may not be a need to evacuate people
10 for every terrorist event. No doubt that a terrorist
11 attack would be an event of national significance, and
12 that comes into play in another scheme. But what
13 we're looking at here is the response of the plant and
14 their recommendation to the offsite response
15 organizations to implement protective actions.

16 It may be counterproductive, for example,
17 to immediately jump to a general emergency -- evacuate
18 Harrisburg -- when it turns out that the plane never
19 gets near the plant. It was only a threat.

20 MEMBER POWERS: But that's not the issue
21 we're confronting here. When you're in a general
22 emergency, something has already happened. There is
23 no escape from something already happening. I mean,
24 any level on general emergency is going to be --
25 something has already happened.

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1 MR. CASTO: I think in some cases that is
2 true, but, again, going back to the accident and the
3 consequence progression, when a general emergency by
4 the current classifications is declared, there is
5 still damage to occur before -- for instance, you're
6 in a fuel melt sequence. There is still time to issue
7 protective actions to the public or to local
8 government officials who then, in turn, determine what
9 protective actions to implement.

10 So there is some time built into the
11 emergency planning basis currently for general
12 emergency that -- that we're relying on.

13 MEMBER POWERS: Well, I think I agree with
14 that, but I think that's my point as well. By the
15 time you have this -- this takeover, you were
16 essentially guaranteed something is -- there's not
17 going to be a mitigated response capability if you
18 wait until takeover has occurred, because I can put
19 the plant in a configuration to -- that would lead to
20 core meltdown in a very short period of time.

21 MR. CASTO: And I think that's still
22 within the planning basis.

23 MEMBER BONACA: Yes. But the point I'm
24 making is that that's really what -- at the site
25 currently, the general emergency means you have lost

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1 two barriers, and you are in -- you are on the verge
2 of losing a third. That's why you declare a general
3 emergency, which means shelter, evacuate, move, so
4 it's the ultimate action that you can take.

5 You almost are relinquishing the control
6 of -- to the standard authorities to remove the
7 people, to shelter, to evacuate.

8 So now, in this case, in fact, we may not
9 have any of those things happened yet. But since you
10 have lost control of the site, then it's a
11 conservative way to say, okay, we declare the general
12 emergency anyway, because it may very well happen that
13 we could lose -- you know, they may -- may do this,
14 may make it happen anyway.

15 So I really don't view -- I think I view
16 it pretty coherent with what is being done today at
17 the sites.

18 MR. MAMISH: I think you've hit it right
19 on the nail. I think you have to think about whether
20 terrorists in the power block or within the control
21 area -- on a controlled area, you know, which is
22 lesser than, you know, vital area, whether that really
23 means loss of two fission barriers and imminent
24 release.

25 And you have to balance that with, you

1 know, unnecessarily -- you know, taking certain
2 actions to evacuate the public, and so forth, and
3 balance it with the definition of -- of general
4 emergency.

5 MEMBER BONACA: Well, if you have lost
6 control, I mean, you better assume that they are
7 likely to try, as a minimum, to have failed all three
8 barriers and have releases. I mean, that's the intent
9 of those. So --

10 MR. MAMISH: Well, the expectation would
11 be that the conditional probability of an early
12 release would be much higher. A conditional
13 probability of an early release I would think would be
14 much higher. The timeframe could be much shorter if
15 -- if your objective of -- of emergency response is
16 evacuation ahead of an advancing plume. I would have
17 an expectation that conditionally it would be -- the
18 timeframes may be short, and the conditional
19 probability of -- of --

20 MEMBER BONACA: Well, why short? I mean,
21 core --

22 MR. MAMISH: I don't think we want to --

23 MEMBER BONACA: You have lost two
24 barriers, and you're on the verge of losing the third
25 one, so already in the current state of emergency, as

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1 a classification, as an EAL, you have an impending
2 release, I mean, because you -- you are already there.

3 So I don't understand why the attack --
4 takeover of the site where no barrier has been failed
5 yet is likely to have an early release. I don't
6 understand.

7 MEMBER DENNING: I think we ought to save
8 this discussion.

9 MEMBER BONACA: Yes.

10 MEMBER DENNING: We could talk more about
11 the planning basis after this if -- if that would
12 help.

13 MR. WEISS: Shall I go on? As you see
14 from the slide, all licensees plan to make changes in
15 their classification levels and EALs over the next
16 half-year. These changes, if revised consistent with
17 the bulletin information, can be performed without NRC
18 approval using the 10 CFR 50.54(q) criteria.

19 Licensees currently have provisions in
20 place to implement prompt notification to local law
21 enforcement agencies, LLEAs, per 10 CFR 73.55, which
22 requires a constantly-manned center capable of
23 promptly calling LLEAs and requesting assistance. 10
24 CFR 73.71 requires licensees to notify the NRC
25 immediately of specific security-related events,

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1 including hostile acts.

2 Likewise, a licensee is required to notify
3 the NRC immediately following state and local
4 emergency management notification of emergency plan
5 classified events per 10 CFR 50.72. In both cases,
6 the definition of "immediate" is within one hour.

7 In the staff's opinion, and validated by
8 the Commission SRM to the SECY 05-010, notification of
9 a security event to the NRC should be much sooner than
10 an hour. Prompt notification of NRC is particularly
11 important during a security event to support
12 subsequent notifications made by the NRC to other
13 licensees regarding a potential security threat and to
14 inform other federal agencies in accordance with a
15 national response plan.

16 MEMBER APOSTOLAKIS: Who is in charge in
17 these cases? Who decides these things? Somebody must
18 be in charge.

19 MR. WEISS: Are you referring to the
20 national response plan?

21 MEMBER APOSTOLAKIS: No. I'm referring to
22 the events you just described. You know, the licensee
23 will notify, you said, the local authorities?

24 MR. WEISS: Yes.

25 MEMBER APOSTOLAKIS: And then, the NRC?

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1 MR. WEISS: Well, we have a backup slide
2 that will help illustrate some of these points. But,
3 in summary, there is a notification made by the
4 licensee's alarm station --

5 MEMBER APOSTOLAKIS: Well, if it's backup,
6 can we see it now? I mean, is there any --

7 MR. WEISS: Yes. Can you --

8 MEMBER APOSTOLAKIS: There is no backup
9 presentation.

10 MR. WEISS: Okay. You can see -- you can
11 see the situation on the top before the bulletin and
12 the situation after the bulletin on the bottom. The
13 alarm station -- that the licensee would notify the
14 local law enforcement agencies immediately. That's
15 the first notification that would be made under any
16 circumstance.

17 And what I was speaking of just before the
18 question involved other notifications. There's a
19 requirement that those of us in emergency preparedness
20 are very familiar with that -- it's 10 CFR 50.72 that
21 requires licensees to notify us after they have
22 notified the emergency response organizations. That
23 call comes over the ENS to us per 50.72, but that --
24 that could be an hour later.

25 And as a result of the bulletin, we have

1 inserted a -- what we call an immediate or abbreviated
2 notification early on, so that we get an early
3 warning.

4 There was a delicate balancing act here.
5 That 50.72 notification is the classic notification I
6 think most of you are familiar with that would occur
7 in a radiological event. It involves a lot of
8 detailed information -- you know, wind speed,
9 direction, stability factor, status of safety systems,
10 and it's a fairly lengthy notification.

11 It's the kinds of things that an emergency
12 response organization needs to know in order to make
13 an informed decision about a protective action
14 decision.

15 MEMBER APOSTOLAKIS: Good.

16 MR. WEISS: But that's time-consuming, and
17 we needed to know right away, because the modus
18 operandi of a terrorist is to conduct a coordinated
19 attack.

20 We also have this large federal family,
21 part of the national response plan, the HSOC and
22 others, that need to know right away if the -- the NRC
23 needs to get that information to the Federal
24 Government right away. It needs to get it to other
25 licensees right away.

1 And for that reason, the bulletin asks for
2 this abbreviated notification. It wouldn't interfere
3 with the operation of the plant, wouldn't involve this
4 time-consuming 50.72 notification, but at the same
5 time doesn't eliminate it either. That 50.72
6 notification would be made in the same timeframe as it
7 always has, for the same reasons.

8 MEMBER APOSTOLAKIS: The question, really,
9 in my mind is: who makes the decisions and for how
10 long? Is it the plant people that make the decisions
11 throughout -- after the notification. In other words,
12 I mean, you have notified --

13 MEMBER BONACA: Director of Emergency
14 Operations at the site.

15 MEMBER APOSTOLAKIS: All this stuff, yes.

16 MEMBER BONACA: All these things.

17 MEMBER APOSTOLAKIS: Who decides these?

18 MEMBER POWERS: There is one person that
19 possibly would be in charge, and that's the plant
20 people.

21 MEMBER APOSTOLAKIS: And that's the --

22 MEMBER BONACA: The plant people.

23 MEMBER APOSTOLAKIS: -- the plant people
24 are in charge throughout the event?

25 MR. MAMISH: Yes.

1 MEMBER APOSTOLAKIS: Even if there is a
2 national response? Are you guys sure about that?

3 MR. MAMISH: I would say once an incident
4 of national significance -- it's been determined that
5 the event constitutes an incidence of national
6 significance, I would think that the Department of
7 Homeland Security would be in charge.

8 MEMBER POWERS: No, they would not be in
9 charge of this plant.

10 MR. MAMISH: In charge of the response.

11 MEMBER POWERS: Oh, that's fine. But here
12 we're talking about the plant.

13 MR. MAMISH: Oh, absolutely. The licensee
14 is in charge of the safety of the plant.

15 MEMBER POWERS: Always.

16 MR. MAMISH: Always. But --

17 MEMBER BONACA: And he has a
18 responsibility for communicating releases and all of
19 the information that the people, in fact --

20 MEMBER APOSTOLAKIS: Is this
21 decisionmaking process coordinated in some way? I
22 mean, do you have some people -- it's very strictly --
23 in fact, I mean, it's very strictly according to these
24 tables that they have, the emergency action levels,
25 what kind of level are you declaring, etcetera.

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1 In fact, I mean, they are tested, okay,
2 and they are rated for performance, and that's a very
3 important and challenging issue for the site. But
4 they have to handle that.

5 But the only question I have here is:
6 now, isn't it true, however, that in a security event
7 one may not be able to provide you with 50.72
8 notification, insofar as a lot of information there?

9 MR. WEISS: There's a lot of information
10 there, but it occurs -- the transmission of that
11 information occurs later.

12 MEMBER APOSTOLAKIS: Yes.

13 MR. WEISS: Yes. And the abbreviated
14 notification -- the yellow box down here is -- is
15 before the 50.72 notification.

16 MEMBER BONACA: I understand --

17 MR. CASTO: This is still required within
18 the law.

19 MEMBER BONACA: I understand it is
20 required. That's why I had the question. What I mean
21 is that, today, if you have an accident at the plant,
22 okay, the licensee has high confidence that he can put
23 together a list of parameters for you and communicate
24 them, and so on and so forth.

25 If you have, you know, a plant takeover

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1 you are not going to have that communication very
2 likely within an hour. I mean, I --

3 MR. CASTO: I think there are some
4 scenarios we can go over, especially with some of the
5 other elements in the bulletin that help address that.

6 MEMBER BONACA: Okay.

7 MR. CASTO: But as far as the proposed and
8 what's being implemented right now, this is the new
9 scheme -- the LLEA notification still required right
10 away, typically done by security people in their
11 command center at the site. Immediately following
12 that, or in concurrence with this out of the control
13 room, is that very abbreviated notification
14 requirement.

15 The event classification still required,
16 the notification of offsite response organization
17 still required within 15 minutes of classification,
18 the NRC notification of the emergency event still
19 required per 50.72 within an hour after
20 classification.

21 MR. WEISS: I might point out that --

22 MEMBER BONACA: In the current situation,
23 you have also the 10 CFR 73.71. What's that?

24 MR. CASTO: Correct. This -- the new
25 notification --

1 MEMBER BONACA: Oh, I see. I see, okay.

2 MR. CASTO: -- is satisfying the 73.71.

3 MEMBER BONACA: Okay. The notice up here.
4 It is just moved. All right.

5 MR. WEISS: I might point out that we
6 didn't come to this entirely independently. The ACRS
7 has a letter on record back in late 2003 recommending
8 this. Rulemaking is being considered to change the
9 regulation 73.71 notification time to 15 minutes.

10 In the meantime, the bulletin provided
11 information to licensees to consider making changes to
12 their program to notify NRC within 15 minutes of
13 occurrence of a security event.

14 Some licensees have already changed their
15 procedures to notify the NRC with a prompt,
16 accelerated notification. Other licensees plan to
17 change procedures to adhere to a goal of NRC
18 notification within approximately 15 minutes from
19 initiation of a security event.

20 Additional information or details could be
21 provided in the 50.72 notification for emergency
22 classification, which remains unchanged. The 50.72
23 notification is required after the state and local
24 emergency response classification -- excuse me, after
25 the state and local emergency classification

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1 notification and within one hour following
2 classification of the event.

3 Onsite protective actions are intended to
4 maximize site personnel safety during emergency
5 conditions. An alert or higher emergency declaration
6 is generally accompanied by procedurally described
7 actions for site assembly, accountability measures,
8 site evacuation, activation of emergency response
9 facilities, and other actions.

10 Although these actions are appropriate for
11 some emergencies, they may be counterproductive when
12 an attack is imminent or an attack is in process.
13 Licensees have made onsite protective action changes
14 through modification of page announcements and
15 emergency response organization augmentation
16 instructions, but certain security-based scenarios
17 could challenge the effectiveness of current
18 practices.

19 Information in the bulletin discussed more
20 specific actions which could be employed by licensees
21 to provide a higher level of protection for onsite
22 employees. Included were items such as specifically
23 designating assembly locations away from possible
24 targeted equipment, developing strategies for quickly
25 alerting and moving employees, and developing methods

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1 to promptly account for site personnel following a
2 security event.

3 All licensees responded that they would
4 incorporate the information in the bulletin to improve
5 their onsite protective action methodologies. Many
6 licensees stated that they would consider development
7 of a tool which could be used to aid the decisionmaker
8 in rapidly deciding on and implementing an onsite
9 protective action.

10 The emergency response organization is
11 expected to be staged in a manner that supports rapid
12 response to limit or mitigate site damage or the
13 potential for an offsite radiological release. Some
14 licensees have chosen not to activate elements of the
15 emergency response organization during a security-
16 based event until a site is secured.

17 It is prudent to fully activate emergency
18 response organization members for off-normal hour
19 events to promptly staff alternate facilities. This
20 will minimize delay in overall site response.

21 During normal working hours, licensees
22 should consider deployment of an onsite emergency
23 response organization personnel to an alternate
24 facility near the site.

25 MEMBER DENNING: I'm sorry. Could you

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1 stop just a second? Because some things that you said
2 were a little too quick for me to fully understand.
3 It sounded like some of the sites were deciding not to
4 -- I'm not even sure exactly what it was, but it was
5 -- I don't know if you can go back about five or six
6 sentences in what you were reading.

7 MR. WEISS: Some licensees have chosen not
8 to activate elements of emergency response
9 organizations during a security-based event until the
10 site is secured?

11 MEMBER DENNING: Yes. Now, are you saying
12 that that's an acceptable position?

13 MR. WEISS: Yes.

14 MR. CASTO: That was the current situation
15 prior to the issue of the information in this
16 bulletin. And what licensees are in the process of
17 changing is addressing that area. In the bulletin --
18 the information in the bulletin stated that it's
19 prudent to staff up your emergency response
20 organization at an alternate facility, and that's what
21 licensees are in the process of implementing at this
22 time.

23 MR. WEISS: And, again, I'd point out this
24 is not something the staff came to entirely
25 independently. The ACRS had a letter in the summer of

1 2004 that made this very point -- made the point that
2 the emergency response organization staff was key to
3 making the plant safe following the attack, to recover
4 the plant.

5 During normal working hours, we -- we ask
6 that licensees consider deployment of an onsite
7 emergency response organization personnel to an
8 alternate facility. Is it appropriate? It is
9 appropriate for such alternative facilities to have
10 equipment to support emergency response functions.

11 Many licensees have completed action in
12 this area to various degrees. The bulletin
13 information is serving to provide standardization
14 among the industry, and most licensees are working
15 toward that end. The staff did contact some licensees
16 to clarify their responses and ensure that there was
17 a clear understanding of the provisions in place or
18 planned.

19 We are discussing currently with some
20 licensees the difference between their plans and the
21 rest of the industry. In recent discussion, the
22 licensees understanding -- understand the differences
23 in their response and are in the process of reviewing
24 additional enhancements.

25 Based on the outcome of those discussions,

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1 we will report the results to the Commission and any
2 recommendations for additional regulatory actions.

3 MEMBER DENNING: Now, do you have any
4 guidance that says that you should or shouldn't have
5 an alternative location, or something like that? I
6 mean, I -- where control would be taken over? It
7 sounded like there are different -- different ways
8 that the utilities would address that.

9 MR. CASTO: Right. And we -- we discuss
10 this in the bulletin. One of the provisions in the
11 2002 orders addressed emergency response personnel
12 activating alternate facilities. In this bulletin, we
13 provided additional information to promote consistency
14 throughout the industry as far as what that order
15 could be looked at to mean.

16 And all licensees -- and if you see up
17 here, we're down to basically one licensee that we're
18 in discussion with. And they're working toward the
19 enhancements consistent with the bulletin, too, but
20 it's -- I think it's safe to say that all licensees
21 are now consistently activating their emergency
22 response organizations to report to an alternate
23 facility. If that answers your question.

24 MEMBER DENNING: Yes.

25 MR. CASTO: Okay.

1 MR. WEISS: In Bulletin 05-02, the NRC
2 requested information on whether the industry intended
3 to integrate security-based scenarios into the routine
4 nuclear powerplant drill and exercise programs.

5 The Nuclear Energy Institute convened a
6 working group in late 2004. The group has made
7 considerable progress in organizing the implementation
8 of a security-based drill and exercise program.
9 Industry, with staff oversight, is currently working
10 on integration and demonstration of emergency response
11 to terrorist events, including preparation and conduct
12 of integrated drills, exercising ERO's response to a
13 range of terrorist events.

14 The staff expects the licensees to enhance
15 key skills through the drilling on the response to
16 security events. To briefly describe the program
17 involvement -- improvement schedule, first and in
18 progress at this time, a series of pilot tabletop
19 drills are being conducted to better understand the
20 differences between the current and enhanced drill
21 scenarios, and onsite and offsite emergency responder
22 interfaces. This phase lasts through March 2006.

23 Secondly, the NRC-observed drills will be
24 conducted at every plant site over a three-year
25 period, from 2006 to 2009. And, thirdly, the

1 security-based scenarios will become part of the
2 regular six-year cycle for licensee emergency plan
3 major element demonstration with an NRC exercise
4 evaluated and performed during the six-year cycle.

5 MEMBER DENNING: Are these exercises
6 performed within the scope of a design basis threat,
7 or, as we do in accident analysis, do they go beyond
8 design basis?

9 MR. CASTO: They could go beyond. Typical
10 right now with emergency preparedness scenarios, they
11 go to extreme ends and various levels of hypothetical
12 occurrence. And it's to test the organizations, and
13 that's what we would continue to do with this program.

14 MEMBER SIEBER: I think that you tried to
15 design the exercise so that you test all of the
16 classifications, which automatically takes you outside
17 the design basis.

18 MR. WEISS: Plus, there are a number of
19 complicated factors that one wouldn't ordinarily see
20 in a non-security-based event. There will be
21 casualties, large areas of the plant that are no
22 longer there. You can contemplate larger fires, and
23 so forth and so on, explosions that wouldn't otherwise
24 occur.

25 And so there will also be issues of site

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1 access, getting the responders onsite, so forth and so
2 on. And we've had -- I guess I should go back to the
3 script, but as I -- as I am about to explain, we've
4 learned a lot already, and we're learning more.

5 A successful tabletop drill was, in fact,
6 conducted at Diablo Canyon this past July, and another
7 tabletop is scheduled in November for the Duane Arnold
8 plant. The Diablo Canyon drill was effective at
9 identifying lessons learned, and the staff expects
10 that future exercises will be beneficial in
11 identifying both site-specific and generic issues.

12 The next phase is to perform the NRC-
13 observed non-evaluated pilot drills at all sites
14 within three years. The staff notes that the first
15 such drill is scheduled for March 1st at Calloway.
16 The staff intends to observe these drills to ensure
17 that the pilot drill program results in appropriate
18 changes to routine drill and exercise scenarios.

19 Response to Bulletin 05-02 indicates that
20 most licensees desire DHS endorsement of the program
21 before they will commit to implementing it. This also
22 will mean revision of the FEMA exercise manual
23 guidance used by offsite program evaluators to inspect
24 state, local, tribal program objectives.

25 The staff is currently working with DHS to

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1 develop exercise objectives, and will address the
2 response differences from the traditional radiological
3 event drills, and is working to obtain DHS endorsement
4 prior to program implementation.

5 The staff actions will be ongoing for
6 several years to come. Some of the milestones
7 include: 1) issue a Commission paper providing the
8 results of licensee responses and recommend regulatory
9 actions. This SECY is in concurrence process at this
10 time. Two, continue dialogue with licensees that do
11 not have provisions in place or planned consistent
12 with the bulletin and the rest of the industry.

13 The staff is engaging those licensees, as
14 is NEI, to consider a more consistent alignment with
15 their counterparts. At this point, we feel that the
16 outlying licensees will further enhance provisions.
17 But if we do not feel that we have alignment, then we
18 are prepared to recommend further regulatory actions
19 to the Commission to address specific licensee
20 scenarios.

21 Thirdly, further reports provided to the
22 Commission on the progress of activities, including
23 alignment of licensees with the information in the
24 bulletin, and progress with DHS/FEMA regarding
25 improvements to the drill and exercise program

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1 guidance.

2 At this time, we feel we've come a long
3 way in a short time to initiate the prompt enhancement
4 of security-related emergency preparedness issues.
5 Our coordinated activities with the industry, through
6 NEI, and our work with DHS/FEMA, appear to be paying
7 off in the form of a continuing improvement and
8 consistently-implemented program.

9 We plan to continue to drive the industry
10 and DHS/FEMA toward meeting the high level of
11 emergency preparedness that we should all expect to
12 ensure the public health and safety.

13 That concludes my formal presentation.

14 MEMBER BONACA: I had a question. You
15 referenced a couple of memos that were -- or letters
16 that we wrote on this issue. And now this bulletin,
17 and the responses to it, document the, you know,
18 inclusion of emergency -- of the security issue to the
19 emergency action levels, and then the communications,
20 and so on and so forth. And that's quite responsive.

21 But, you know, in part clearly we were
22 concerned also about the ability of the sites to stage
23 -- to be able to cope with events or situations which
24 really are not right now considered, or were not
25 considered by the sites -- for example, fire engulfing

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1 certain areas and making other areas inaccessible, and
2 things of that kind.

3 So I imagine that below this level of
4 notification there are also actions being taken by the
5 sites to deal with these issues. If I remember, it
6 was a guidance letter that you were developing and
7 issuing to the sites to deal with these issues.

8 MR. WEISS: Yes. I might point out that
9 we're not all of NRC -- the security folks are doing
10 a lot. Clay Johnson from DNS is with us today. He's
11 in the back of the room, and perhaps he can speak to
12 some of the issues that are being addressed by the
13 Division of Nuclear Safety within NSIR.

14 The organization that I represent, the
15 Emergency Preparedness Directorate, tends to focus on
16 emergency preparedness as opposed to security. There
17 are some issues that tend to cross boundaries. You
18 alluded to one, which is fire.

19 You know, the Division of Nuclear Safety
20 issued an advisory regarding jet fuel fire. I think
21 that's what you're referring to. That's a much larger
22 fire, a different type of fire, than what you would
23 typically expect. What we're attempting to focus on
24 is the integration of the emergency response
25 organizations and EP, in general, with -- with what's

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1 going on in the security side of the house.

2 I don't intend to address all of that. I
3 think Clay and others would -- could better address
4 that.

5 But one way to look at it, one way that
6 I've spoken to the issue a number of times is that
7 you're familiar, I think, with force-on-force
8 exercises, and the fact that there is an EP component
9 to that. And the force-on-force exercises have a high
10 degree of fidelity regarding what would happen from a
11 security aspect.

12 EP is only about five percent of that
13 exercise. It's a tabletop portion. What we've
14 contemplated here in our drill and exercise program is
15 sort of the mirror image of that. It has a security
16 component to it, but it's a small part. It sort of
17 poses to the emergency response organizations the
18 climate or the atmosphere that they have to deal with
19 that they haven't had to deal with in the past.

20 And now you've got -- well, the force on
21 force was like 95 percent security, 5 percent EP. Now
22 what we've got is something that's 5 percent security,
23 95 percent EP. And together they complement one
24 another, and -- and it -- this has a number of
25 advantages.

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1 I'm sure it has occurred to the committee
2 that so much of what goes on in the security area must
3 remain out of the public view and can't be
4 communicated explicitly for fear of revealing
5 information to a terrorist organization about the
6 vulnerabilities of a plant.

7 But, conversely, you want to be able to
8 exercise the fire department, the offsite security
9 people, that may not have clearances, and get the
10 staff -- the plant staff, specifically the EP folks,
11 to work with them to iron out all of the details that
12 -- that otherwise they wouldn't have a chance to
13 exercise.

14 So this isn't the whole answer, but I use
15 this example to show you how what DNS does is
16 complemented by what the Emergency Preparedness
17 Directorate does. And we're working towards a common
18 goal, which is an integrated response that deals both
19 with the security and emergency preparedness.

20 MR. MAMISH: What I would add to that is,
21 as Eric articulated, we're going to be engaging the
22 industry on a continuous basis with this drills and
23 exercise program. I would anticipate there's going to
24 be many, many lessons learned that will come out, you
25 know, as a result of the drills and exercise program.

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Some will be site-specific. Some will be generic -- that will have generic implications. And we'll be in continuous dialogue with the industry to communicate those generic-type lessons learned to them, so that we continue to improve the emergency preparedness programs throughout the nation.

MEMBER BONACA: Now, I know there has been some debate between the industry and the Commission regarding -- how do they call it -- available resources versus added resources. I mean, licensees have taken a position that they are not going to invest beyond whatever equipment they have onsite for some staging, and so on and so forth. Could you comment on that?

I understand the Commission has taken an interpretation that if it is a reasonable cost, consideration should be given to those. And most of all, I'm asking that question in the context of, you know, there may be some equipment that you need to deal with large fire, on the site, for example, and, you know, would that be considered, if it is a necessity there, that it's a reasonable cost to invest in it? And is there an issue there with the licensees?

1 MR. WEISS: Well, I'm at least passingly
2 familiar with what you're referring to, but I believe
3 it was in response -- the issue arose in response to
4 an advisory that was issued by Division of Nuclear
5 Safety and wasn't organizationally under our control.

6 I'm not really accustomed to doing this,
7 but I must say that the industry, from an emergency
8 preparedness point of view, has been very responsive.
9 I think this program for -- the drill and exercise
10 program has been -- has been nothing short of
11 outstanding. It's been implemented rapidly, and it
12 has been very responsive.

13 So from an EP point of view, I think we're
14 -- we're making great progress. I think the security
15 folks have had the advantage of being a little bit out
16 in front of us on a number of these issues, and now
17 we're playing catchup, but we're -- we're doing great
18 things right now, I think.

19 MEMBER BONACA: Okay.

20 MEMBER DENNING: I was wondering, can we
21 have a brief discussion in a closed forum at this
22 point? I'd like to explore a little bit the interplay
23 between security and EP, and I don't think we ought to
24 do that openly.

25 MEMBER BONACA: Well, we have a

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1 subcommittee meeting scheduled for the first week in
2 December, I believe, which also some of the issues
3 from the security standpoint --

4 MR. THORNSBURY: Yes. That will get more
5 to the security side of it.

6 MEMBER BONACA: Right. But we have the
7 time and the location here to discuss those issues.

8 MR. THORNSBURY: Yes. I think if we want
9 to get to Dr. Denning's questions, I think, yes, now
10 would probably be a good time to close it for the next
11 20 or 30 minutes.

12 MEMBER POWERS: The argument is made that
13 it parallels emergency -- declaration of a general
14 emergency for accidents, because the -- the contention
15 is made we do it for accidents when we've lost two
16 barriers, and you are in imminent loss of three.

17 It seems to me that parallelism will not
18 break down here, because you have a deliberate ability
19 to wipe out the effectiveness of your most
20 conservative barriers.

21 MEMBER DENNING: Why don't we close the
22 discussion. I think it's important -- I think it's a
23 really important discussion, but I don't see any
24 reason why we don't go closed on it. Is there any
25 reason you want to keep it open?

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1 MEMBER POWERS: I mean, I didn't -- I
2 couldn't give less of a damn.

3 MR. THORNSBURY: Yes. I think to get to
4 the answer to Dr. Powers' question, I think gets into
5 the same questions Dr. Denning was asking, which will
6 get into the timing issues and things like that.

7 So, okay, why don't we ask any members of
8 the public, and even NRC I guess without the need to
9 know, should probably step out.

10 (Whereupon, the proceedings in the
11 foregoing matter went off the record at
12 9:26 a.m. and went back on the record at
13 10:17 a.m.)

14 VICE CHAIRMAN SHACK: I'd like to come
15 back into session.

16 Our next topic is staff response to the
17 ACRS letter on the proposed Revision 4 to Reg.
18 Guide 1.82 on water sources for long-term
19 recirculation cooling following a loss of coolant
20 accident.

21 And Vic is going to lead us through this
22 discussion.

23 MEMBER RANSOM: Right. At the last
24 meeting, the 525th meeting, we took up the Revision 2
25 to Reg. Guide 1.82, and recommended that it not be

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1 issued for public comment, and also recommended that
2 containment overpressure credit to ensure sufficient
3 NPSH for emergency core cooling and heat removal
4 system pump should only be selectively granted. And
5 that was pretty much consistent with the position the
6 ACRS had taken in the past.

7 And so Brian, I think, has some discussion
8 for us on response to that.

9 MR. SHERON: Yes, thank you. I'm Brian
10 Sheron. I'm the Associate Director for Project
11 Licensing and Technical Analysis in NRR. I wanted to
12 take this opportunity to discuss with the committee
13 our approach for, you know, how we would like to
14 proceed on this issue generically.

15 This is an issue that came about sometime
16 ago, and I -- I'm sorry, let me just skip, because you
17 just -- I'm kind of repeating what was in the letter.
18 I think Vic just described that.

19 First of all, the no-practical-alternative
20 criterion that I think was mentioned was developed
21 during the resolution of the BWR sump issue back in
22 the mid-1990s. And at that point, basically what you
23 had is as-built plants. The sump issue was raised.
24 Licensees had to take certain corrective actions. And
25 when they did the analyses, recognized that in order

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1 to meet NPSH requirements with the analysis models
2 they were using at the time, did in fact have to take
3 some credit for the overpressure.

4 I would probably like to characterize it
5 as that when we -- when we granted the selective use
6 of overpressure, namely, you know, I think we used
7 terms like we would only use it to the minimum extent
8 practicable, or whatever.

9 And, you know, I mean, some plants, for
10 example, would calculate they maybe had nine pounds of
11 overpressure, and, you know, we said, "Well, you only
12 need six, so we'll only grant you six." And I'll be
13 quite honest, from a regulatory standpoint, that
14 really didn't make a lot of sense to me, and I wasn't
15 involved back at the time.

16 But, you know, first off, as regulators,
17 you know, our job is to determine either the plant is
18 safe or it's not, from the standpoint of saying we
19 should only grant it when there is no practical
20 alternative.

21 You know, I don't really think that's
22 preferred regulatory approach for something. I mean,
23 if it's needed for safety, we should require it.
24 That's been the Commission's approach. I think if you
25 read the backfit rule, and the like, if it's needed

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1 for adequate protection, if it's needed for
2 compliance, then cost is not an issue.

3 And so from the standpoint of saying, you
4 know, I should only grant it when there's no practical
5 alternative, I think what we really need to do is --
6 is to rethink, you know, how we approach this.

7 And, you know, I wanted to point out that
8 we have approved numerous requests from both BWRs and
9 PWRs in the past for containment accident pressure
10 credit. I think a lot of the approvals were perhaps
11 not even consistent with the most recent guidance in
12 the ACRS letter, in the sense that, for example,
13 overpressure credit was given for large drys, which,
14 you know, don't have an inerted containment, and the
15 like.

16 MEMBER POWERS: It seems to me that at
17 least in one of those instances that I can distinctly
18 remember where we went along with overpressure it was
19 done because the staff insisted that there was this
20 revision -- revised Reg. Guide that would make this
21 all clear to us.

22 MR. SHERON: Okay. And there still will
23 be one, I hope.

24 (Laughter.)

25 But I think the recent power uprates that

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1 we have been dealing with, and I guess the one that's
2 in front of us right now for Vermont Yankee, have
3 prompted us to reexamine the issue. And what we want
4 to do -- what I've asked the staff to do is we need to
5 develop a consistent regulatory approach for allowing
6 credit.

7 In other words, you know -- you know, if
8 a plant comes in and says, "Well, I really only need
9 three pounds, but I have nine." And we say, "Okay.
10 Well, you only need three, so we'll give you credit
11 for three," whereas the sister plant comes in or
12 something and says, "I need credit for six," and we
13 go, "Well, you've got nine, but we'll only give you
14 six." I mean, that's not really a consistent I think
15 defensible regulatory approach.

16 We've got 25 plants right now that credit
17 some amount of containment accident pressure to meet
18 NPSH requirements, and, therefore, the long-term
19 cooling requirements of 50.46. You know, in an ACRS
20 letter back in '77, you agreed that containment
21 accident pressure credit should consider a broad range
22 of accident sequences, such as typically found in a
23 PRA.

24 These three BWRs -- Dresden, Quad, and
25 Duane Arnold -- and, I'm sorry, four -- and Brunswick

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1 -- had extended power uprates and credited containment
2 accident pressure. I think Quad actually used up to
3 nine pounds, and all received favorable ACRS letters.

4 And what we'd like to -- what we're
5 proposing here is basically to better quantify a risk-
6 informed approach. I have -- I was not at the
7 previous ACRS meetings, the subcommittee or the full
8 committees and the like, so I'm not sure to what
9 extent the staff conveyed the intent that, you know,
10 we did look at this in a risk-informed approach.

11 There is a RIS that's out on the street,
12 you may remember, and I think it was backed up by some
13 Commission papers, which all emanated out of Calloway
14 some time ago. I think it was around 2000.

15 Calloway had come in with electro-
16 sleeving, and we had determined that the electro-
17 sleeving met all of the deterministic regulations, but
18 under a severe accident condition this material
19 basically melted at a much lower temperature than any
20 other repair material, so it would essentially lead to
21 the steam generators. Any cracks that were repaired
22 would now become direct path to the environment.

23 And so the conclusion was is that while
24 this electro-sleeving met all of the Commission's
25 rules and regulations, the deterministic ones and the

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1 like, the ASME Code, and so forth, when we looked at
2 it from a risk standpoint it -- it raised questions
3 about whether there was undue risk, which led to us
4 thinking about, you know, when the staff makes a
5 finding of adequate protection, there are two criteria
6 that have to be met.

7 One is the presumption that, you know, if
8 you meet the Commission's rules and regulations, there
9 is adequate protection. But the second piece of it is
10 no undue risk. And typically we don't focus as much
11 on that, because the thought is is that if you
12 demonstrate you meet the Commission's rules and
13 regulations, you have demonstrated adequate
14 protection.

15 But notwithstanding that, we always have
16 to keep in mind that we have to look at the risk
17 aspect. And so from the standpoint of how to give
18 credit for overpressure, we believe that we should
19 take a risk-informed approach to determining whether
20 or not credit for overpressure is acceptable or not
21 from a regulatory standpoint, because this will also,
22 you know, it'll meet that same type of criteria,
23 namely that you've met the Commission's rules and
24 regulations and you've demonstrated no undue risk.

25 Now, how do you do that? Well, our

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1 proposal is is that we believe that if you can
2 demonstrate you meet the five key principles of Reg.
3 Guide 1.174, for risk-informed license amendments,
4 which is what basically, for example, a power uprate
5 is, that that would be an appropriate way to go
6 forward.

7 Just a refresher, the five key principles
8 from 1.174. As I just said, one is you -- obviously,
9 you continue to meet the Commission's rules and
10 regulations. Whatever the proposal is it needs to be
11 consistent with the Commission's defense-in-depth
12 philosophy.

13 MEMBER POWERS: What do you see that
14 philosophy being?

15 MR. SHERON: I'm sorry?

16 MEMBER POWERS: What do you see the
17 Commission's -- the current Commission's defense-in-
18 depth philosophy to be?

19 MR. SHERON: Well, I mean, I would
20 describe it as that, you know, there needs to be, for
21 example, possibly multiple barriers, or there has to
22 be sufficient margins available. I have always sort
23 of personally interpreted it as that, you know, I'm
24 not putting all my eggs in one basket from the
25 standpoint of reliance on any one component or system

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1 that keeps me from disaster.

2 MEMBER POWERS: In the recent years, your
3 staff has come forward to us and said, gee, they
4 interpreted it more in terms of a balance between
5 accident prevention and accident mitigation.

6 MR. SHERON: That's also part of defense-
7 in-depth.

8 MEMBER POWERS: Trying to get away from
9 the concept of barriers, and especially geometric
10 barriers or physical barriers. There does look to me
11 to be different spins on what you called defense-in-
12 depth.

13 MR. SHERON: No. I think it's a
14 combination, actually. Obviously, you don't want to
15 put all of your eggs in the prevention basket, because
16 if that fails you don't want to have a disaster. So,
17 yes, there should be some -- some emphasis on
18 mitigation. All right?

19 I mean, the whole defense-in-depth was
20 predicated on first coming up with a very highly
21 reliable design. Okay? High quality. In other
22 words, the intent was prevent failures from occurring
23 in the first place.

24 The second level of defense-in-depth was
25 recognize that even though you do everything you can

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1 to prevent the failures, they can still occur. And,
2 therefore, you prevent -- you design in ways to
3 mitigate those, and that's why we have protection
4 systems.

5 Okay. And the third level is to protect
6 against unforeseen events by putting in additional
7 margin, which is why we have large containments, which
8 is why we have -- you know, we add buffering agents,
9 for example, to containment sprays and so forth.

10 MEMBER POWERS: Do we put them in the
11 sprays anymore?

12 MR. SHERON: What?

13 MEMBER POWERS: Do we put them in the
14 sprays anymore?

15 MR. SHERON: Sodium hydroxide, yes.

16 MEMBER POWERS: Well, I thought we took
17 sodium hydroxide out.

18 MR. SHERON: No, no, we don't. Not yet.
19 We're -- we'll probably be down to you on that one
20 soon, but --

21 MEMBER POWERS: Probably ought to. It's
22 a waste of time.

23 MR. SHERON: And then, as I said, the
24 other part of defense-in-depth, in my mind, is also
25 making sure that you're not relying on any one system

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1 or component between you and, you know, a very serious
2 accident. You want to make sure you have margin in
3 there.

4 Again, maintain sufficient safety margins.
5 Again, you shouldn't be designing things right up to
6 the ragged edge. You need to show that any increases
7 in core damage frequency or risk or offsite release,
8 for example, should be small and consistent with the
9 Commission's safety goal policy statement -- namely,
10 that whatever you are proposing to change you need to
11 demonstrate from a risk standpoint that it's
12 acceptable.

13 And then, the impact of your proposed
14 change should be monitored using performance
15 measurement strategies.

16 MEMBER SIEBER: Yes. Before you leave the
17 five principles, it seems to me that what impresses me
18 the most is the concept of defense-in-depth and the
19 barriers. And I personally think that one barrier
20 should not be dependent on the integrity of another
21 barrier.

22 For example, the barriers are the fuel
23 clad RCS piping and then the containment. In order to
24 protect the fuel clad from oxidation, or what have
25 you, you have mitigating systems which go all the way

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1 down to recirculation, where you recirculate
2 containment sump water into the plant.

3 In order -- if you take credit for
4 containment overpressure for the pump to have
5 sufficient NPSH, that means the containment integrity
6 must be maintained. If you lose that third barrier
7 somehow or other, then you can't recirculate water to
8 the core. And if you can't recirculate water to the
9 core, the conditions are set up so that you lose
10 another barrier. That makes two -- one barrier
11 dependent on the integrity of another one.

12 MR. SHERON: Right.

13 MEMBER SIEBER: And to me, that -- that
14 sort of rubs against the concept of maintaining
15 barriers that are independent from one another.

16 MR. SHERON: Yes. But -- and I'm going to
17 address that in a couple of slides here.

18 MEMBER SIEBER: Okay.

19 MEMBER POWERS: But it also seems to run
20 contrary to the concept of margin as well, because
21 you're designing a pump right up to the ragged edge
22 here, and that seems to run contrary there to the
23 second one on sufficient safety margins.

24 MEMBER SIEBER: Well, I don't -- I don't
25 think the initial designs were such that you lacked

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1 margin, and the designer didn't contemplate having to
2 have -- need overpressure for NPS -- adequate NPSH at
3 the -- at the day he put his pencil to paper.

4 The circumstances that have evolved since
5 then, for example --

6 MEMBER POWERS: Yes. Usually, it's a
7 power uprate.

8 MEMBER SIEBER: -- power uprates, sump
9 clogging, and what have you, that says the head loss
10 through various levels of debris require me to get
11 more NPSH from someplace. And the only place I can
12 get it from is to take credit for containment
13 pressure.

14 So that sort of happened by happenstance.
15 The question is, then, you know, if you're dealing
16 with a problem like sump debris, and you've done
17 everything you can to mitigate that, and you can't fix
18 the pump so that it will pump better or more with the
19 NPSH that's available to it, what do you allow?

20 If somebody wants a power uprate, you know, do
21 you say, okay, I'll just give you more credit, and,
22 therefore, you have a greater capability to keep the
23 core cool under accident conditions.

24 MR. SHERON: Yes, I mean, I do want to --
25 you know, I mean, we have granted overpressure credit

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1 to 25 plants.

2 MEMBER SIEBER: Right. For one reason or
3 another.

4 MR. SHERON: Right. And what I'm trying
5 to do here is to say, you know, I think we need to
6 come up with a more consistent basis upon which we
7 will grant that overpressure protection, at least in
8 the future. Okay? And that's really the whole
9 premise of what I'm driving at here.

10 So if you -- and I think I'll try to
11 address some of the issues that you've raised, because
12 we've raised those ourselves.

13 MEMBER RANSOM: One that's kind of
14 disturbing is when there are practical alternatives or
15 -- and whether or not these have been considered, such
16 as in extended power uprates, to the granting of
17 credit.

18 MR. SHERON: Yes. And, really, the whole
19 question comes up to is a practical alternative. In
20 other words, this gets into the question of, you know,
21 well, what's practical and what's not? And that's
22 like, you know, beauty is in the eyes of the beholder.

23 What's practical for you or me may be not
24 practical in the eyes of a licensee or something,
25 because of the cost and the like. It may not be

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1 practical in the eyes of people that live near the
2 plant. Okay?

3 So, I mean, I don't like to get into that
4 debate. That's --

5 MEMBER RANSOM: Because like power uprate,
6 it's an option that is a benefit to the licensee. But
7 it may not be necessary.

8 MR. SHERON: Right. But I'm -- again, I'm
9 trying to divorce myself from that question of, how
10 much money should I spend, or something, to make the
11 plant safer, you might say. All right? As opposed
12 to, "I need to define when the plant is safe enough to
13 meet regulatory requirements." Okay? And if that
14 requires the licensee, for example, to make an
15 alternative -- to put -- you know, for example, put in
16 different pumps or something, then so be it.

17 And if they don't want to spend the money
18 because it doesn't make sense to them, then they don't
19 get the power uprate. But I -- I don't like getting
20 into this debate on what's practical and what's not,
21 because it's -- it's something that's just -- you
22 know, you -- everyone has a different opinion, and you
23 really can't come up with any definitive criteria.

24 What we're proposing is we're going to
25 revise 1.82. We've already started to do that. Okay?

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1 To clearly describe the elements of a risk-informed
2 approach for crediting containment accident pressure.
3 And these are some ideas that I've put down.

4 I mean, obviously, we could debate these,
5 but for defense-in-depth licensee should probably
6 show, under realistic conditions, that credit is
7 either not needed or maybe only needed for a
8 relatively short time. The more I --

9 MEMBER POWERS: I guess that addresses
10 defense-in-depth.

11 MR. SHERON: I'm sorry?

12 MEMBER POWERS: I guess I don't quite
13 understand why that addresses defense-in-depth.

14 MR. SHERON: Well, because if this whole
15 thing is an artificiality of a very conservative
16 analysis method, which I think it is, quite honestly,
17 my understanding is a lot of this is --

18 MEMBER POWERS: Very often it is.

19 MR. SHERON: Yes, and the like. And as a
20 matter of fact, you'll see we intend to engage the BWR
21 owner's group fairly soon about reducing some of what
22 I would call maybe unnecessary conservatisms in their
23 analysis models.

24 MEMBER POWERS: It seems to me that --
25 that showing that it's not necessary based on

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1 realistic calculations is kind of a going-in to this
2 list that you've got here.

3 MR. SHERON: I'm sorry? Is --

4 MEMBER POWERS: Is kind of a going-in
5 criterion for this list. What you've said up there,
6 "Licensees show that realistic credit is either not
7 needed or only needed for a relatively short time," a
8 few minutes -- 11 minutes sticks in my mind as one
9 that -- where an applicant came in, made a really nice
10 argument that said, "It is only because of the
11 artificiality of the calculation that I need it."
12 And, in fact, even in that artificial realm, I only
13 need it for 11 minutes.

14 MR. SHERON: Right.

15 MEMBER POWERS: And, you know, it's very
16 persuasive. This was several years ago that this was
17 done. It was a nice piece of work that he came in,
18 made that argument.

19 It seems to me that argument gets you
20 into, okay, we're going to consider this. I don't
21 think it addresses the issue of defense-in-depth,
22 though.

23 MR. SHERON: Well, I mean, this -- you
24 know --

25 MEMBER APOSTOLAKIS: There is a related

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1 thing that confuses me. The risk-informed approach of
2 Regulatory Guide 1.174 applies to changes in the
3 licensing basis, which in this case I would guess is
4 the power uprate. But I think that Brian is trying to
5 apply this to an individual element of the analysis.

6 I mean, when you say licensee must submit
7 PRA results demonstrating they meet the numerical risk
8 acceptance guidelines, what does that mean now in
9 terms of this particular containment overpressure
10 issue? I mean, are you -- is the licensee going to
11 demonstrate that you meet the risk guidelines for the
12 power uprate?

13 MR. SHERON: Yes.

14 MEMBER APOSTOLAKIS: The whole thing, not
15 just this particular --

16 MEMBER DENNING: The pressure credit, or
17 is it affect associated with just the pressure --

18 MEMBER APOSTOLAKIS: See, that's the
19 confusing thing. Are you applying the risk-informed
20 approach to the pressure credit or to the power
21 uprate?

22 MR. SHERON: In this case, it's just the
23 pressure credit.

24 MEMBER APOSTOLAKIS: And that's a very
25 novel application.

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1 MEMBER DENNING: Well, I mean, the risk --
2 but recognize it's one thing to say that it's a small
3 thing for -- for the power uprate. But then, when you
4 parse it down into little pieces of it like, well,
5 here's the pressure credit piece of it, then you would
6 think maybe I ought to be more restrictive in my
7 1.174.

8 I mean, it's different from the normal
9 application, and I think that the -- you know, so the
10 answer is different as to whether you apply it to the
11 total power uprate with all of the --

12 MEMBER APOSTOLAKIS: That's why I am
13 confused.

14 MEMBER DENNING: -- versus some little
15 piece of it, which is --

16 MEMBER APOSTOLAKIS: So I don't know what
17 Brian is trying to do.

18 MR. SHERON: Well, in reality, though, I
19 mean, if you think about it, if -- you know, if you're
20 trying to argue that the risk increase, okay, because
21 of overpressure, all right, in reality if they don't
22 need the overpressure, and you do a realistic risk
23 assessment, a realistic analysis would say, "I don't
24 need the overpressure condition. My pumps will not
25 cavitate under these conditions." You know,

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1 essentially I haven't changed the risk.

2 MEMBER DENNING: Actually, you know -- I'm
3 sorry. Go ahead, George.

4 MEMBER APOSTOLAKIS: In the small risk
5 increase, do you envision the licensee doing an
6 analysis with the credit and without, and comparing
7 the risks? Is that really what we're talking about?
8 What is the delta CDF in this case? With and without,
9 or is it a power uprate, the big picture?

10 MR. SHERON: It basically is, what is --
11 what is the risk from a loss of coolant accident,
12 okay, under these uprated conditions?

13 MEMBER APOSTOLAKIS: Right.

14 MR. SHERON: Okay? Now, if the risk
15 assessment, which is a realistic analysis, okay, says
16 that, you know, under power uprate conditions, okay,
17 do I get -- what is the likelihood I will get pump
18 cavitation, and then pump failure, let's say?

19 All right. Well, then, you bring into
20 account, for example, what is the likelihood that I
21 lose containment overpressure? An operator opens a
22 valve or something, okay, and I don't get the
23 overpressure. And so the containment pressure
24 disappears. Does the pump cavitate? Okay.

25 From a risk standpoint, that would be the

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1 question is, okay, now, if the probability of an
2 operator, for example, opening and losing containment
3 is some number, and it produces a core melt, then I
4 have to take that into consideration and say, "What
5 did that increase because I -- I required that
6 overpressure?"

7 Where if, in reality, the plant says, "I
8 don't care if the operator fails open" -- I mean, yes,
9 it's going to have an offsite release or something,
10 but if I lose containment overpressure, for whatever
11 reason, in a realistic risk assessment I can
12 demonstrate that: a) the pumps are going to continue
13 to operate, they're not going to cavitate, and I've --
14 you know, the answer is I haven't changed the risk.

15 MEMBER APOSTOLAKIS: So, again, when I go
16 to delta CDF, I can calculate delta CDF taking credit,
17 right, and then by not taking credit. And you are
18 saying you have to somehow consider the probability
19 that the containment integrity will be maintained.

20 MR. SHERON: No. It's not a matter of
21 taking credit/not taking credit. It's saying is that
22 when I run a risk assessment, I'm -- what I'm trying
23 to do is understand is -- what is the risk of relying
24 on overpressure? All right. In a realistic scenario,
25 okay, risk assessment, so they -- you would say, "What

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1 is the likelihood that if I lose containment pressure,
2 the overpressure that I'm relying on here in this
3 conservative analysis, if I lost that in a risk --
4 from a risk assessment standpoint, what does that do
5 to core melt?" Okay?

6 And the assumption would be is that the
7 licensee would come in and say, "I haven't
8 significantly increased my core melt frequency if, for
9 whatever reason, I lost containment overpressure."
10 And the reason would be is because in real life, under
11 a realistic scenario, the operators would throttle
12 back the pumps fairly quick. They wouldn't need that
13 high containment pressure, the overpressure. And even
14 if they lost containment overpressure, you would not
15 predict that the core would go to melt.

16 Therefore, you would argue and say that,
17 therefore, the risk change is either negligible or
18 nothing.

19 MEMBER APOSTOLAKIS: So you are applying,
20 then, 1.174 to that particular issue.

21 MR. SHERON: Yes.

22 MEMBER APOSTOLAKIS: Not to the overall
23 power uprate.

24 MR. SHERON: No. Unless we see a need to
25 do that. Okay? If you remember, 2000-102, which is

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1 the RIS on this issue, said that if we believe that
2 the deterministic regulations alone are not
3 sufficient, then we can ask the licensee to submit
4 risk information.

5 Now, we don't have anything right now that
6 says we believe that the overall risk from a power
7 uprate, okay, is not understood enough that we need a
8 complete risk-informed submittal. But we have that
9 option.

10 VICE CHAIRMAN SHACK: Let me look at it
11 another way, Brian. Suppose I come in and I'm going
12 to do an EPU, and I need the credit in order to meet
13 my deterministic design basis calculation.

14 MR. SHERON: Right.

15 VICE CHAIRMAN SHACK: As I understand
16 this, what you're going to say is in those cases he
17 must also submit a risk-informed calculation that --
18 an EPU in that case must be a risk-informed -- EPUs
19 don't have to be risk-informed if the guy doesn't need
20 credit.

21 MR. SHERON: Right.

22 VICE CHAIRMAN SHACK: If he needs credit
23 to meet his design basis, then you're going to also
24 ask him to do a risk-informed application. Is that --

25 MR. SHERON: That's correct.

1 MEMBER DENNING: See, the problem that I
2 have is it gets into elements of PRA that aren't
3 handled very well. I would think that the typical
4 engineer that goes about doing your analysis says,
5 okay, now what's the probability I don't have the
6 containment pressure? You know, what's loss of
7 isolation failure?

8 Then, he does a realistic analysis, and he
9 says, okay, it didn't matter. Okay? And so he has no
10 change in risk. But the real problem as I see it is
11 a phenomenological uncertainty. That is, if you don't
12 have the pressure, there is some uncertainty as to
13 whether the pumps will go into cavitation, and, if
14 they go into cavitation, whether they'll survive that
15 cavitation.

16 So I think that's where the real element
17 of change in risk really is is this phenomenological
18 uncertainty. At least that's what --

19 MR. SHERON: But you have to marry that
20 with the other pieces of it. For example, if you lose
21 containment overpressure, which mostly likely will
22 occur because either something fails to open or an
23 operator opens something --

24 MEMBER DENNING: Right, right. And the
25 best estimate says --

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1 MR. SHERON: From a deterministic
2 standpoint, if you want to assume that as a single
3 failure, then from a deterministic standpoint you
4 would assume you would have both trains available,
5 which means you wouldn't need overpressure.

6 If -- and also, you would also say that in
7 a realistic scenario, okay, which we don't give credit
8 for now, okay, operators typically shortly after the
9 accident will throttle back the pumps.

10 MEMBER DENNING: In your little PRA
11 analysis you're going to take credit for that.

12 MR. SHERON: Well, yes, as opposed to when
13 a conservative deterministic analysis, licensees pile
14 on conservatism. For example, they sit there and they
15 say, "I'm going to let these pumps run out
16 completely." Okay? In other words, I'll assume
17 there's no throttling, even though in reality
18 operators would do that fairly quickly. Okay?

19 I'm going to let these pumps run out, all
20 right, and the like. And I'm going to -- and then,
21 I'm going to look and I'm going to say, "What kind of
22 net positive suction head do I need under those
23 conditions?" And, yes, I need overpressure. And
24 that's --

25 MEMBER APOSTOLAKIS: Has anybody done

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1 this?

2 MR. SHERON: When you say "done this," do
3 you mean --

4 MEMBER APOSTOLAKIS: This kind of analysis
5 with the uncertainty.

6 MR. SHERON: I've got to -- I don't know
7 whether Marty or, you know --

8 MEMBER DENNING: Let me complete the point
9 I was --

10 MR. RUBIN: Do you mean a detailed risk
11 calculation? Do you mean thermal hydraulics? Well,
12 we in-house have done the scoping calculation that we
13 presented at the last meeting. For a plant-specific
14 detailed risk calculation, DOI has been asked, and
15 they have voluntarily agreed to do a detailed
16 calculation, look at all of the failure modes Brian
17 has indicated of loss of containment integrity. And
18 so we're going to get a plant-specific impact calc.

19 MEMBER APOSTOLAKIS: And they will do a
20 rigorous uncertainty analysis.

21 MEMBER DENNING: That was the point that
22 -- well, I was saying -- now, Brian has a slightly
23 different version, but I was seeing the heart of the
24 issue as being if the pumps go into cavitation, you
25 know, they -- will they deliver the water, and this

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1 kind of stuff.

2 And that type of assessment -- so that
3 there is some probability that the best estimate is
4 not -- I mean, our best engineering judgment, we
5 believe they are going to survive. But there is some
6 probability they won't survive due to this
7 phenomenological uncertainty, and that's what people
8 don't do a good job of analyzing in PRA.

9 MEMBER APOSTOLAKIS: And that's why I'm
10 asking whether there will --

11 MR. RUBIN: Yes. And would they consider
12 that and --

13 MEMBER APOSTOLAKIS: Would they do that?

14 MR. RUBIN: -- and my feeling is, you
15 know, I doubt they really would.

16 MEMBER APOSTOLAKIS: This gentleman wants
17 to --

18 MR. LOBEL: This is Richard Lobel from
19 NRR. Let me just comment not on the risk part but on
20 the realistic analysis. Licensees have submitted
21 sensitivity studies and studies that have shown that
22 with just reducing one or several of the conservative
23 assumptions that go into the analysis they can show
24 that containment pressure isn't necessary.

25 For example, there is always an assumption

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1 of the worst single failure. If you don't have that
2 worst single failure, that alone may mean that you
3 don't need credit for containment pressure.

4 The other thing that I talked to the
5 committee about before that I think it's important to
6 keep in mind is that not only are you saying that
7 these assumptions are conservative for these various
8 things, but they're all acting simultaneously. You
9 have the worst single failure at the worst time that
10 all the phenomena are in the most adverse direction,
11 that everything is at its -- everything that's tech
12 spec'd is at its tech spec limit. All those kinds of
13 things are considered.

14 For some plants, they may operate close to
15 a tech spec limit. For other plants, they may be very
16 far away, say, from a service water temperature limit.
17 Some plants never get close, within 10 degrees of
18 their service water temperature. But we assume -- or
19 they assume that all these things are occurring, and
20 that they're occurring simultaneously.

21 So there have been analyses that have been
22 done, not in all cases complete analyses and not in
23 all cases Appendix B type analyses, but with methods
24 that the licensees are very capable of using that show
25 that it doesn't take a whole lot for the BWRs to get

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1 to the point where they don't need this credit.

2 So you don't have to go to a completely
3 realistic calculation. You can go to a calculation
4 where you've just relaxed some conservatisms, or you
5 -- I think what you could show also is that if you
6 just treated the conservatisms in a different way, say
7 a statistical manner instead of just adding each
8 bounding conservatism onto the analysis, that you
9 probably wouldn't need this credit, too.

10 So in a way, we put ourselves in this --
11 and the industry has put themselves into this box.

12 VICE CHAIRMAN SHACK: But you've built
13 that route into the Reg. Guide now. He's got to -- if
14 he does the realistic calculation and he computes the
15 uncertainties --

16 MR. LOBEL: Right.

17 VICE CHAIRMAN SHACK: -- he's got a way
18 out. So, I mean, he can do that one, whether -- even
19 if he included all of the restrictions that we
20 recommended in our letter, he still has that out,
21 because he then no longer needs containment
22 overpressure credit.

23 MR. LOBEL: That's right. Yes. Nobody
24 has done that yet, but it seems like a viable option.

25 MEMBER APOSTOLAKIS: This is very

1 confusing, to me at least. What you just described is
2 not a risk-informed approach.

3 MR. LOBEL: Right.

4 MR. SHERON: I said that.

5 MEMBER APOSTOLAKIS: Well, how does
6 that --

7 MR. SHERON: That's a different approach.
8 That's an approach that's in the current Rev 4 before
9 -- before they get through modifying it, that current
10 Rev 4 already has that approach.

11 MR. LOBEL: No. But the difference is
12 that what I'm describing is what's done for design
13 basis accidents.

14 MEMBER APOSTOLAKIS: Right.

15 MR. LOBEL: And which is typically the
16 LOCA. The LOCA is the limiting case for this. So
17 what we're saying, I think consistently with what was
18 written in your letters, is we're not only going to
19 look at the design basis accident, we're going to go
20 beyond that and look at every possible mechanism that
21 could affect this issue.

22 VICE CHAIRMAN SHACK: So you're going to
23 take that route of the revised Reg. Guide.

24 MR. LOBEL: No, it'll stay in there. But
25 we'll add more guidance on considering the overall

1 picture, the broader perspective. So we're not just
2 looking at LOCA, we're looking at other scenarios.

3 MEMBER APOSTOLAKIS: Oh, let's come back
4 to what Mr. Rubin said. You've asked Vermont Yankee
5 to do an analysis. That's not the kind of analysis
6 you asked them to do.

7 MR. RUBIN: They've already done that.

8 MEMBER APOSTOLAKIS: They've already done
9 that. So they're going to do a risk assessment.

10 MR. RUBIN: They're going to do a risk
11 assessment. The risk assessment will be based on the
12 typical success criteria approach used in PRAs. If
13 the pump needs elevated pressure -- NPSH -- you will
14 develop -- they will develop the action sequences that
15 can lead to a loss of the required overpressure that
16 will lead to pump failure.

17 That can include human actions to vent, it
18 can include failures of the line, it can include
19 failures of penetrations, anything that can reduce
20 that overpressure that's needed for pump success will
21 quantified. The delta CDF and delta LERF will be
22 calculated and compared to the acceptance criteria in
23 1.174.

24 MEMBER APOSTOLAKIS: It seems to me, then,
25 that --

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1 MEMBER POWERS: Let me ask this question.
2 Suppose you did that. Suppose you came in and delta
3 CDF is zero. Absolutely zero. It seems to me you're
4 still running up in 1.174 against the consistency with
5 defense-in-depth philosophy, and all the calculations
6 in the world aren't going to get you out of that
7 conundrum. That is, the defense consistently --
8 consistent with the defense-in-depth philosophy,
9 trumped the risk analysis.

10 MR. RUBIN: No, it doesn't. Even
11 though --

12 MEMBER POWERS: Well, would the risk
13 analysis trump be consistent with defense-in-depth
14 philosophy?

15 MR. RUBIN: Even though us risk analysts
16 like to think we know everything and can do all of the
17 evaluations needed, that clearly is not the case. We
18 do the risk contribution part. The traditional system
19 analysts will make the call on the defense-in-depth
20 and the loss of margins.

21 We're often involved in discussions with
22 them on it, but I will defer to Mr. Lobel for the
23 defense-in-depth issue.

24 (Laughter.)

25 MR. SHERON: I'm sorry. Let me say Rich

1 here a second, and point out that one of the premises
2 of a risk-informed approach is there is five elements
3 here. Okay? Obviously, one or two of them are kind
4 of deterministic. I mean, you know, obviously, meet
5 the regulations and you can come up with performance
6 monitoring.

7 But when you look at things like defense-
8 in-depth, safety margin, small increases in risk,
9 etcetera, there is a judgment that goes into that.
10 And you take all three of those and you have to kind
11 of weigh them and balance them. Okay? And the way I
12 would describe it is that if you -- if your risk
13 assessment is small, okay, if you look at safety
14 margins, and you have a lot of safety margins and
15 stuff, then maybe you don't have to push as hard and
16 say, "I really need a lot of defense-in-depth, because
17 I've got this other stuff here."

18 MEMBER APOSTOLAKIS: So you're talking
19 about the integrated decisionmaking process.

20 MR. SHERON: Exactly. It's an integrated
21 decisionmaking process, and we did that -- you know,
22 I don't like to bring up Davis-Besse. But when we
23 were debating that issue with -- you know, prior to,
24 you know, whether they shut down on December 31st or
25 not, okay, it was that integrated type of approach,

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1 and we looked at all of the pieces of the puzzle.

2 MEMBER POWERS: Are you telling me that it
3 doesn't work?

4 MR. SHERON: What?

5 MEMBER POWERS: Are you telling me that
6 the integrated decision process doesn't work?

7 MR. SHERON: It did work. Okay? It did
8 work. What they found -- I don't want to digress on
9 this, but what they found at Davis-Besse when they
10 took a look on February 16th, whatever, when they shut
11 down, was totally consistent with the staff's
12 assessment. The only thing that was different was the
13 fact that the licensee had left a whole pile of boron
14 on the head and basically didn't tell the staff about
15 it.

16 MEMBER APOSTOLAKIS: There is one thing,
17 though, that --

18 MR. SHERON: All of the cracking that was
19 found in that penetration, which is what we were
20 worried about at the time, was consistent with the
21 staff's assessment of why it was okay. There was
22 nothing new, nothing different, and I tell people
23 today that if we had the same information in front of
24 us we would make the same decision.

25 MEMBER POWERS: I mean, what the issue is

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1 is I think this is what Dr. Denning is worrying about,
2 is that there are things that are beyond the current
3 knowledge base that aren't taken into account in
4 calculations, aren't taken account in risk
5 assessments, to be really sure that this meets the
6 other criteria. And that's not inconsistent with what
7 you're saying under Davis-Besse -- is that --

8 MR. SHERON: It's not inconsistent with
9 what -- what Mark said. You know, he's not --

10 MEMBER POWERS: I'm worried about --

11 MR. SHERON: No. We look at the risk, we
12 look at defense-in-depth, we look at the margins that
13 are in the deterministic calculation, and we put them
14 together and we make a judgment and say, "Is that
15 sufficient to allow this plant, for example, to take
16 this" --

17 MEMBER APOSTOLAKIS: But in light of the
18 uncertainties we have here, if you have point estimate
19 risk values, I don't know how valuable they will be.
20 I mean, you know, what Dr. Denning said earlier, I
21 mean, made a very clear case that there are large
22 uncertainties there, you know, whether the pumps
23 cavitate or not, and so on.

24 And I think Mr. Rubin said that he is not
25 sure that the licensee will actually do an uncertainty

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1 analysis.

2 Now, 1.174 is very clear about it. It
3 requires an uncertainty analysis. If we don't do it
4 here, we might as well revise the guide and say,
5 "Don't do it."

6 VICE CHAIRMAN SHACK: No, no. But he will
7 do an uncertainty. He's going to -- his success
8 criteria will be conservative enough that he will
9 bound those kinds of uncertainties.

10 MEMBER APOSTOLAKIS: But it's not an
11 uncertainty analysis. We are --

12 MR. RUBIN: If I could --

13 MEMBER APOSTOLAKIS: It is bounded. This
14 is different. We're not bound. I mean, either we do
15 it or we don't.

16 MR. RUBIN: I would say -- but what I said
17 before is appropriate consideration of uncertainty,
18 and that I would agree with the comment that if we
19 choose a success criteria with enough conservatism to
20 have high confidence that that will get them success,
21 then we're treating uncertainty appropriate in that
22 narrow area.

23 Now, there are other areas of uncertainty
24 that do need to be treated.

25 MEMBER APOSTOLAKIS: Now, you mentioned

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1 operator actions, right? That there may be a
2 possibility that you will have operators doing this
3 during the sequence.

4 MR. RUBIN: There could be a number of
5 operator actions in the sequence, including
6 inadvertent venting or inappropriate venting.

7 MEMBER APOSTOLAKIS: So if they come to
8 you and say, "We use the EPRI calculator," you will
9 say, "Yes, that's fine." And it seems to me that's a
10 mistake, because that's an area where there are large
11 uncertainties. It's not just the pumps.

12 MR. RUBIN: And we may ask --

13 MEMBER APOSTOLAKIS: It's about accident
14 conditions, and so on and so on. I mean --

15 MR. RUBIN: Those are uncertainties you
16 have to address.

17 MEMBER APOSTOLAKIS: There are large
18 uncertainties. I mean, you cannot escape -- I mean,
19 some things you can -- you may be able to handle
20 conservatively, but others you may not be.

21 MR. RUBIN: And we very much agree with
22 you in the area of the HRA analysis, and, if
23 necessary, we'll ask for sensitivity studies and look
24 at the possible contributions.

25 MEMBER APOSTOLAKIS: Now, we don't get to

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1 review these things, do we? This is -- Mr. Chairman,
2 do we get to review cases like that? Or is it the
3 specific licensee action?

4 VICE CHAIRMAN SHACK: I can't imagine you
5 wanting to very often.

6 MEMBER APOSTOLAKIS: Say again?

7 VICE CHAIRMAN SHACK: I can't imagine you
8 wanting to.

9 MEMBER POWERS: No. The staff reviews
10 licensee actions.

11 MEMBER APOSTOLAKIS: So my point is we'll
12 never get to see this.

13 MR. LOBEL: This is Richard Lobel. This
14 is going to be done for Vermont Yankee, and you're
15 going to review the Vermont Yankee power uprate.

16 MEMBER POWERS: Let me ask a question
17 again on this. In doing the PRA where you set your
18 success criteria to be bounding enough to accommodate
19 your phenomenological uncertainties, how do you do
20 that? How do you know?

21 It seems to me I can imagine you putting
22 in a very restrictive success criteria and making a
23 plausibility argument to me that that was big enough,
24 in hopes that by just wearing me down that I'd buy --
25 I would buy into it.

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1 But if you're uncertain about the
2 phenomenology, how in the world do you go about --

3 MEMBER KRESS: Bounding it.

4 MEMBER POWERS: -- defining the success
5 criteria?

6 MEMBER KRESS: Good question.

7 MEMBER POWERS: I mean, maybe it can be
8 done in specific instances, but I can't imagine
9 writing a prescription very effectively, I don't
10 think.

11 MR. RUBIN: This is Mark Rubin again. We
12 will be very interested in looking at what we get from
13 the licensee. You're raising a number of very
14 important questions here, and we had a lot of
15 takeaways from this meeting, and we appreciate it.

16 We'll be looking at the case they make for
17 the success criteria. I mean, pumps have head curves,
18 and they have -- there are vendor tests, and there are
19 performance tests, surveillance tests they do on these
20 pumps. They're not under typical accident conditions.
21 We have to be very aware of that.

22 But we'll be looking at what case the
23 licensee makes. We're referring it to our great
24 system experts whether it is a reasonable success
25 criteria. And PRAs are based on -- as realistic as

1 you can reasonably achieve, are realistically
2 conservative in the area of success criteria based on
3 thermal hydraulic analysis. We -- you know, we do the
4 best we can, and we probe so we have high confidence
5 in the decisions that are made.

6 MEMBER POWERS: George, there is nothing
7 that prevents you from reviewing this stuff. I think
8 that was your question.

9 MEMBER KRESS: I have a more mundane
10 question about the use of 1.174. That is, it
11 generally calls for a look at the change in LERF.
12 Now, these scenarios we're talking about with the net
13 positive suction head is not going to affect LERF.
14 It's going to affect late containment failure.

15 And it seems to me like that should be an
16 important element, and rather than stick strictly to
17 the 1.174 guidelines, I would add a requirement that
18 looks at late containment failure and show that the
19 increment -- incremental increase in that is small
20 also.

21 MEMBER DENNING: Can I make one more -- I
22 realize we have to move on here. But as I look at
23 that viewgraph, although we've commented on the PRA
24 elements of it, I think that the one thing that really
25 fails there is the defense-in-depth. I think that

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1 argument they've got there I don't think is adequate.

2 I think there are adequate arguments you
3 can make, but I don't think that one is -- you know,
4 this going to realistic conditions. I don't think
5 that says we -- we still have defense-in-depth.

6 MR. SHERON: Well, I mean, I think there
7 is a conservativeness in the calculations as well as
8 there is other conservatisms -- for example, as I
9 said, you know, if this licensee or a licensee came in
10 and just said, "We're going to take credit for
11 operator action in 10 minutes," which we've given in
12 the past to licensees for other things -- if you
13 remember, we're still giving, I think, B&W plants
14 credit for operator action in three minutes to turn
15 off their pumps in a LOCA.

16 If we give them credit to throttle the
17 pumps back, okay, we probably might not even be
18 sitting here, because they would probably come in and
19 say, "I don't need credit for overpressure." And if
20 the staff accepted that, then we'd say, you know,
21 everything is fine, but --

22 MEMBER DENNING: Yes. And then, I think
23 the argument is that loss of containment integrity
24 does not tie -- you know, there is sufficient margin
25 there that loss of containment is not as --

1 MEMBER APOSTOLAKIS: Yes. I think the
2 integrated process, though, I mean, takes care of
3 that. I mean, you can't really have rigid boundaries
4 and say, "Each of the principles have to -- has
5 criteria." That's why they all feed into an
6 integrated process.

7 MR. SHERON: Yes.

8 MEMBER APOSTOLAKIS: Now, of course, it's
9 a matter of judgment, did you balance it correctly or
10 appropriately.

11 MR. SHERON: Right.

12 MEMBER APOSTOLAKIS: But one thing I want
13 to finally understand -- the risk-informed approach
14 will be applied to the EPU, and this thing with the
15 credit will be a sensitivity analysis on that.

16 MR. SHERON: No, we're not applying risk-
17 informed to the entire EPU.

18 MEMBER APOSTOLAKIS: I must say I don't
19 quite understand how you can apply it to a particular
20 issue, because this is not a change in the licensing
21 basis, is it?

22 MR. RUBIN: This will be a change in the
23 -- correct me if I misstate, because I am not an
24 authority on Reg. Guide -- Safety Guide Number 1. But
25 this Reg. Guide change will specifically require them

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1 to do a risk-informed assessment of taking credit for
2 containment overpressure where it's needed for pump
3 success, and the risk contribution of that, looking at
4 the accident sequences that could result in the loss
5 of that containment overpressure. And it will be
6 compared to the Reg. Guide 1.174 safety guidelines.

7 MEMBER APOSTOLAKIS: Okay. This, then,
8 would be a very interesting case to review when the
9 time comes.

10 MR. RUBIN: Well, I should add that even
11 though the risk -- even though the power uprates are
12 not technically risk-informed applications, they are
13 all coming in with very complete power uprate risk
14 assessments. It's being done voluntarily. We're
15 reviewing them for adequate protection rather than
16 specifically against the Reg. Guide 1.174 guidelines,
17 but everyone is meeting the 1.174 guidelines without
18 any problems at all.

19 MEMBER POWERS: I don't think they've made
20 any of them meet the guidelines. None of them. Zero.
21 With respect to the risk. They're all point
22 estimates.

23 MEMBER APOSTOLAKIS: And what's worse, in
24 some cases, Mark, this thing about voluntary --
25 voluntarily submitting analysis from the -- my limited

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1 experience, but I have seen some of the actual
2 decisions, it's -- it really gives you a way out. I
3 mean, I've seen cases where the reviewer says, "Okay.
4 They gave me this number. I don't quite believe it.
5 They may have to do something else to make it more
6 rigorous."

7 But, after all, this is a voluntary
8 submission, so I shouldn't really pursue the issue.
9 So either you use it or you don't. I mean, this
10 voluntariness leaves you --

11 MR. SHERON: No, no. It's not -- this
12 isn't voluntary, George. Okay? What we said --

13 MEMBER APOSTOLAKIS: Isn't that what I
14 just said?

15 MR. SHERON: For a power uprate in which
16 a licensee comes in and says, "I meet your
17 deterministic rules and regulations, and I'm not
18 taking credit for overpressure," all right, then we
19 would not ask the licensee to make a risk-informed
20 submittal.

21 MEMBER APOSTOLAKIS: Okay. I -- yes.

22 MR. SHERON: If a licensee comes in and
23 says, "I would like approval for a power uprate, and
24 I want credit for overpressure," what we are saying is
25 that because of the concerns that have been raised

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1 here by the committee, okay, we believe an appropriate
2 approach to deal with that, to determine whether it's
3 acceptable or not, is to move to a risk-informed
4 assessment a la 1.174, which is to look at those five
5 elements, try and understand what each one means,
6 okay, what kind of defense-in-depth they have, what
7 kind of margins they have, how this affects risk,
8 etcetera, and we will make a considered judgment.
9 Okay?

10 The whole idea, again, is to put this on
11 a more consistent basis, because, like I said, we've
12 been approving these things in the past.

13 MEMBER POWERS: And you are being explicit
14 here. You're not saying the risk analysis does not
15 trump either safety margins and defense-in-depth ipso
16 facto.

17 MR. SHERON: No. It's one piece of the
18 equation, and we'll probably be down here with other
19 plants that take this, and discussing it with you and
20 getting your input on whether you think we've got the
21 right balance.

22 MEMBER POWERS: I mean, it sounds like
23 you're --

24 MR. SHERON: There's an approach that
25 we're trying to take that makes it -- puts everything

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1 on a consistent basis. Rather than just saying, you
2 know -- the one I worry about is I've got two
3 identical plants..

4 MEMBER POWERS: I know exactly what you're
5 worried about.

6 MR. SHERON: They both have the same risk
7 assessment, and they both want a power uprate, and one
8 of them has a small containment hatch, and one has a
9 big containment hatch. Okay? And one of them says,
10 you know, "Gee, is it practical to change the pumps?
11 Yes, because I can get the pumps through the hatch."

12 The other one says, "No, I've got to cut
13 a big hole in my containment. It's going to cost me
14 gillions of dollars. It's not." Do I say, fine, the
15 plant that can -- that has the big, open hatch, okay,
16 you have to put the pumps in, and the other one
17 doesn't. You have to be safer than that one, for
18 whatever reason, only because of that one. But that's
19 not the way we regulate, okay?

20 If it's needed for safety, we make them do
21 it whether they have to cut a hole in the containment
22 or not, and that's what I want to get away from is
23 that no practical alternative type of thing.

24 MEMBER APOSTOLAKIS: We've exhausted, I
25 think, the usefulness of this debate --

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1 MR. SHERON: Yes.

2 MEMBER APOSTOLAKIS: -- at this level.
3 The next level will be to actually see a modification.

4 MR. SHERON: Good. I'm glad you said
5 that.

6 (Laughter.)

7 The next steps. We're revising, as we
8 told you, the appropriate sections in Reg. Guide 1.82
9 to clarify the requirements, describe licensee
10 expectations for submitting a risk-informed license
11 amendment, to credit containment accident pressure, if
12 that's what they are proposing.

13 We would propose to provide the ACRS with
14 this revision to the Reg. Guide. One of the questions
15 I was telling Bill is that I'd like to understand,
16 does the subcommittee, would they like to see this and
17 discuss it with the staff first, or is this just
18 something that the committee can deal with?

19 That will determine a little bit what
20 schedule we're able to do things on, and the like.
21 For example, if just the committee wanted to see it,
22 I think we could try to get something down here by the
23 week before Thanksgiving, which would -- then,
24 hopefully we could get it on the December agenda.

25 If the subcommittee wants to see it, then

1 we'll have to just find out what the best schedule is
2 to do it.

3 MEMBER APOSTOLAKIS: We have the chairman
4 of the subcommittee here.

5 MEMBER RANSOM: I don't know. I think the
6 concerns are really at the committee level.

7 VICE CHAIRMAN SHACK: Yes, we can discuss
8 that this afternoon at the --

9 MR. SHERON: Yes. I don't need an answer
10 now. I would just -- we would like to know, how would
11 you like to proceed on this?

12 MEMBER POWERS: But, I mean, the basic
13 strategy is not one that's orthogonal to our letter.
14 It says, you know, that they should be considered much
15 more on a case-by-case basis, and in light of all of
16 this information that you're going to take in.

17 I mean, I -- it does not sound like it's
18 orthogonal to our letter at all, or our position in
19 the past.

20 MR. SHERON: But as I said, I want to put
21 it on a more --

22 MEMBER POWERS: You want it articulated.

23 MEMBER APOSTOLAKIS: Are you looking at
24 the first bullet there?

25 MEMBER POWERS: No, no, no. I'm just

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1 saying that -- that this -- it may not require
2 reconsideration of the --

3 MEMBER APOSTOLAKIS: That's what I'm
4 saying.

5 MEMBER POWERS: I think he's just trying
6 to -- he's volunteering to put this down on a piece of
7 paper where he gives us some idea, nothing -- no one
8 piece of information trumps the other.

9 MEMBER KRESS: We had this stuff about
10 practical alternatives in there, you know?

11 MR. SHERON: Well, I guess I am taking --
12 the no practical alternative, really, is -- I'm saying
13 is I think that's a very low priority on our part.
14 And we would like to focus it more on the safety and
15 risk elements of 1.174 --

16 MEMBER POWERS: That's a good point.

17 MR. SHERON: -- as the decisionmaker.

18 MEMBER POWERS: I think that's a good
19 point.

20 MEMBER APOSTOLAKIS: So you're asking us
21 to write a letter that says we were wrong.

22 MR. SHERON: No. What I'm saying is that
23 the staff is proposing that, based on your concerns
24 that you raised, okay, we understand. And what we're
25 saying is we are proposing a more integral, holistic

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1 approach to dealing with this, and so we're asking you
2 to reconsider our approach and then judge it on its
3 merits, and the like.

4 MEMBER POWERS: The committee has been
5 pretty consistent in saying credit for NPSH -- for
6 overpressure in NPSH should be safe, available, and
7 rare.

8 MR. SHERON: Well, I can't argue with the
9 -- it's the rare part I can't -- like I said, if a
10 licensee comes in and they meet all of the criteria
11 that we lay out, then we would approve it. Okay? And
12 that's what I'm really trying to -- I can't tell a
13 licensee, "You can't use it," or the like.

14 MEMBER POWERS: Oh, I understand.

15 MR. SHERON: What I have tell them is what
16 are the bounds under which I will find it acceptable,
17 and that's what I'm trying to define here.

18 MEMBER KRESS: Since we can't fix 1.174,
19 I would suggest you write into the Reg. Guide you're
20 talking about here about the late containment failure.

21 MR. SHERON: The Reg. Guide does have a
22 consideration of it. It just doesn't have a numerical
23 --

24 MEMBER KRESS: Well, yes, I think we need
25 one.

1 MR. SHERON: If I remember correctly, the
2 committee raised that when we were down here on 50.46.

3 MEMBER KRESS: Yes, we've raised it
4 before.

5 MR. SHERON: And we said that that would
6 be something that we would revisit when we do revisit
7 --

8 MEMBER KRESS: When you revisit the 1.174.

9 MR. SHERON: Yes.

10 MEMBER KRESS: But, you know, I don't
11 know which is going to come first.

12 MR. SHERON: So, anyway, and we also --
13 like I said before, we are going to continue to work
14 with the industry to explore options to develop
15 realistically conservative NPSH calculations, in a
16 sense. A lot of this we think is, you know, kind of
17 the industry brought it on themselves with these very,
18 very conservative analyses.

19 And as I've told people, I said, you know,
20 the staff has a tendency to review what's put in front
21 of it. Okay? That's really what we have to do. And,
22 you know, if a licensee comes in with something that's
23 horribly conservative --

24 MEMBER POWERS: You don't come back to him
25 and say, "Try some of these conservatisms."

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1 MR. SHERON: Exactly, yes.

2 (Laughter.)

3 It's kind of hard to do that, so we would
4 like to encourage them to rethink this a little bit in
5 light of some of the concerns that have been raised.
6 So that's where we are.

7 Conclusions. You know, as I said, we
8 believe using a risk-informed approach is consistent
9 with Commission policy. We've proposed to go forward
10 with this approach, and, again, we'll -- if you give
11 us guidance on how you want us to come back to you
12 with this, we're ready to do that.

13 And with that, I'm finished.

14 MEMBER RANSOM: One thing that I don't
15 understand is why a lot of these questions couldn't be
16 answered by a non-parametric statistical approach
17 folded into a PRA where you have uncertainties in the
18 different point estimates, rather than just a point
19 PRA-type analysis.

20 MEMBER APOSTOLAKIS: That's what we've
21 been complaining about. We don't want to see a point
22 estimate.

23 MEMBER KRESS: Yes, it could be done that
24 way.

25 MEMBER APOSTOLAKIS: Yes.

1 MEMBER KRESS: You know, or you could
2 use --

3 MEMBER APOSTOLAKIS: It will involve a lot
4 of expert judgment, but, you know, so be it.

5 MEMBER RANSOM: But even the questions of
6 defense-in-depth and safety margin, all of these seem
7 to be just one part. You know, they're folded into
8 that sort of --

9 MEMBER APOSTOLAKIS: I'm not so sure.

10 MEMBER RANSOM: -- analysis.

11 VICE CHAIRMAN SHACK: We have rationalists
12 and structuralists, so --

13 (Laughter.)

14 MEMBER APOSTOLAKIS: No, no, no. that's
15 not true.

16 MEMBER RANSOM: Containment overpressure
17 is just -- it's a fact of life. I mean, in some --

18 MEMBER POWERS: The problem is it's not a
19 fact of life ipso facto.

20 MEMBER RANSOM: I mean, not overpressure
21 credit, but overpressure itself is just a feature of
22 the operation of the plant -- the system.

23 MEMBER POWERS: Not if the containment is
24 open.

25 MEMBER RANSOM: In some situations you

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1 will have --

2 MEMBER POWERS: Not if the containment is
3 open. If you leave the containment open, it's not a
4 fact of life.

5 MEMBER RANSOM: Well, then, you need to
6 deal with the probability of containment failure. I
7 mean --

8 MEMBER APOSTOLAKIS: And that's what
9 they're going to do, right?

10 MEMBER RANSOM: -- associated with that.

11 MEMBER APOSTOLAKIS: That's what their
12 probabilistic analysis will consider.

13 Are we done?

14 MEMBER POWERS: Are there any more
15 questions or comments? One of the questions that
16 maybe I'll just toss out here -- it's not really
17 pertinent to this, but it is the Appendix J test on
18 containment leak rates, and what not, and what you're
19 forecasting in that particular area. Brian, do you
20 have any views or comments in that area?

21 MR. SHERON: No, I haven't really thought
22 about it, but it's something we can consider.

23 MEMBER POWERS: I mean, it's coming along
24 here. We've been about 10 years since Appendix J, so
25 those things are coming up.

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1 MR. SHERON: Yes.

2 MEMBER POWERS: And --

3 MR. SHERON: All right. Well, let us go
4 back and --

5 MEMBER RANSOM: There was one point in the
6 letter that indicated I guess we wanted to see whether
7 -- a positive means for indication of containment
8 integrity. And that I guess would be part of the --

9 MR. SHERON: That would be a question we
10 would ask -- hope the licensee would address as part
11 of their risk-informed submittal. And that's part of
12 that -- that last one is the monitoring part, which
13 would be a piece of it, and that is that -- that gets
14 into the question of, if you are coming up with a
15 probability of, for example, loss of containment
16 integrity, what is the basis for that?

17 You know, and are there things that you
18 can -- are there actions you can take, for example,
19 like improving procedures, improving training, so
20 operators don't, you know, inadvertently do something
21 during an accident?

22 MEMBER RANSOM: As I recall the
23 discussion, the thought that went into that was more
24 to favor like sub-atmospheric containments or inerted
25 containments, ones where there are positive ways of --

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1 MR. SHERON: But, I mean, the fact is we
2 have approved a number of these -- the credit for
3 overpressure and large drives that don't have --

4 VICE CHAIRMAN SHACK: Thank you very much,
5 Brian. We'll get back to you on how we want to
6 proceed with the reconsideration of Reg. Guide 1.82.

7 Our next topic is an internal one --
8 format and content of the NRC Safety Research Program
9 for the Commission.

10 Bill? We have a member of the public that
11 would like to comment on this.

12 MR. SHERMAN: I'm Bill Sherman from the
13 State of Vermont, and I've appeared before the
14 subcommittee and the committee before. I only wanted
15 to say that I have no comment, appreciate the
16 opportunity to comment.

17 Also, from the State of Vermont's
18 perspective, we appreciate very much the committee's
19 consideration, and the staff's consideration. It does
20 seem to be a hard issue, but from a stakeholder
21 perspective, we are getting, as a stakeholder, what we
22 had hoped for. And we are very appreciative of the
23 consideration and believe that in the end we'll come
24 to the right conclusion.

25 VICE CHAIRMAN SHACK: Thank you. And

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1 we're off the record at this point.

2 (Whereupon, at 11:21 a.m., the
3 proceedings in the foregoing matter went
4 off the record.)

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CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Advisory Committee on
Reactor Safeguards
526TH Meeting

Docket Number: n/a

Location: Rockville, MD

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.



Eric Hendrixson
Official Reporter
Neal R. Gross & Co., Inc.

STATUS OF BL 2005-02 RESPONSES

**Eric Weiss
NSIR/DPR/EPD
(301) 415-3264**

Response Summary

- All licensees responded within 30 days
- All licensees plan to modify ECLs and EALs
- All licensees plan to notify the NRC of security events promptly
- All licensees plan to address onsite protective action enhancements
- We expect all licensees will adequately address staff augmentation enhancements
- All licensees support improvements in security-based drills and exercises
- Licensees are in the process of implementing enhancements

Emergency Classification Levels and Emergency Action Levels

- All licensees plan to modify ECLs and EALs consistent with Bulletin information
- Licensees plan to use guidance for NUREG-0654, NUMARC/NESP-007, or NEI 99-01 ECLs/EALs, as applicable to their current or proposed scheme
- All licensees plan to complete ECL/EAL revisions within 180 days, except 1 (210 days)

NRC Notification

- All licensees plan to modify procedures to provide prompt notification to NRC of security events
- 16 sites plan to complete changes within 60 days, 47 sites plan to complete changes within 90 days, 1 has completed changes
 - Bulletin requested “60 days”
- Most sites used a “goal of 15 minutes” in their response.
 - Bulletin did not use the term “goal”

Onsite Protective Actions

- All licensees plan to incorporate enhancements to onsite protective actions
- Many licensees will consider developing a decision making tool to aid control room staff
- All licensees plan to complete revisions within 180 days, except 1 (210 days)

ERO Staff Augmentation

- We expect all licensees to enhance staff augmentation consistent with the Bulletin information
- 19 licensees were contacted to provide clarification to their response
- 1 licensee is not completely consistent with the Bulletin information
 - The licensee is reviewing options to address non-consistent issues
- NRC staff are engaging the licensee, and will provide licensee results in a SECY to the Commission

Security-based Drill and Exercise Program

- All licensees plan to support the inclusion of security-based scenarios into their drill and exercise program
- Most licensees included a condition for FEMA review and acceptance of security-based scenarios in meeting exercise objectives
 - Performance of security-based exercises was contingent on NRC and FEMA endorsing changes to a new evaluated exercise program

Actions Forward

- NRC staff preparation of a SECY “Status of Emergency Preparedness Directorate Activities in the Post 9/11 Environment”
- NRC staff is interacting with licensees not providing consistent response to Bulletin
- Future report to the Commission with recommendations

REGULATORY GUIDE 1.82 REVISION 4

Discussion of ACRS

September 20, 2005 Letter to the EDO

Dr. Brian Sheron

Associate Director for Project Licensing and
Technical Analysis

October 7, 2005

SEPTEMBER 20 ACRS LETTER

- Rev. 4 to RG 1.82 should not be issued for public comment at this time
- Revise guidance describing what factors to consider in conservatively calculating containment overpressure to improve its clarity:
 - Section 1.3.1 (PWR)
 - Section 2.1.1 (BWR)

SEPTEMBER 20 ACRS LETTER

- Containment overpressure credit to ensure sufficient NPSH for ECCS and containment heat removal pumps should only be “selectively” granted:
 - Demonstrate no practical alternative
 - Only grant for robust containments with positive indication of containment integrity
 - Limited to a “few” hours

STAFF OBSERVATIONS

- “No practical alternative” criterion was developed during the resolution of the BWR sump issue in the mid 1990s
- Necessary for existing BWR designs to demonstrate compliance with 10 CFR 50.46
- Criterion addressed the immediate need, but was not the preferred regulatory approach

STAFF OBSERVATIONS

- Staff has approved numerous requests from both BWRs and PWRs for containment accident pressure credit
- Recent power uprates have prompted the staff to re-examine the issue and develop a consistent regulatory approach for allowing credit for containment accident pressure

HISTORY

- 25 plants credit some amount of containment accident pressure
- December 1997 ACRS letter agreed with containment accident pressure credit; "...should consider a broad range of accident sequences such as typically found in a PRA..."
- Dresden, Quad Cities, Duane Arnold, and Brunswick extended power uprates, which credited containment accident pressure, received favorable ACRS letters

RISK-INFORMED APPROACH

- Previous staff interactions with ACRS may not have sufficiently addressed the staff's risk-informed approach to this issue
- Risk-informed approach relies on a demonstration by the licensee that the five key principles of risk-informed decisionmaking in RG 1.174 are met when credit for containment accident pressure is requested

RISK-INFORMED APPROACH

- Five key principles from RG 1.174:
 - Meets current regulations
 - Consistent with defense-in-depth philosophy
 - Maintains sufficient safety margins
 - Increases in CDF or risk should be small and consistent with the Commission's Safety Goal Policy Statement
 - Impact should be monitored using performance measurement strategies

RISK-INFORMED APPROACH

- Staff is revising RG 1.82 to clearly describe the elements of a risk-informed approach for crediting containment accident pressure:
 - Defense-in-depth: Licensee to show that, under realistic conditions, credit is either not needed or only needed for relatively short time
 - Safety margins: When credit is requested, analysis should be conservatively calculated
 - Small risk increase: Licensee must submit PRA results to demonstrate they meet RG 1.174 numerical risk acceptance guidelines
 - Performance monitoring strategies: Licensee must describe program to ensure containment integrity

NEXT STEPS

- The staff is revising appropriate sections of RG 1.82 to clarify requirements and describe licensee expectations for submitting risk-informed license amendments to credit containment accident pressure
- The staff will provide ACRS with revised RG 1.82

NEXT STEPS

- Staff will request that the ACRS reconsider its position on this issue in light of the staff's approach to use a risk-informed approach to crediting containment accident pressure
- Staff will work with industry to explore options to develop realistically conservative NPSH calculations

CONCLUSIONS

- Staff believes using a risk-informed approach to determine when credit for containment accident pressure can be given is consistent with Commission policy to risk-inform our regulatory process
- Staff intends to use this approach for future license amendments that propose to credit containment accident pressure