

UNITED STATES OF AMERICA
U.S. NUCLEAR REGULATORY COMMISSION

FORTHCOMING PRE-LICENSING MEETING WITH
REPRESENTATIVES OF PACIFIC GAS AND ELECTRIC
COMPANY

March 31, 2011

1:00 P.M. to 4:00 P.M.

TRANSCRIPT OF PROCEEDINGS

Public Meeting

Rockville, Maryland

APPEARANCES

Pacific Gas & Electric Company:

Loren Sharp
Senior Director Engineering Services at Pacific Gas and
Electric

Nathan Barber
PRA Engineer, Pacific Gas & Electric Company

Norm Abrahamson
Engineering Seismologist, Pacific Gas & Electric Company

Bill Horstman
DCPP Senior Civil Engineer, Pacific Gas & Electric
Company

Philippe Soenen
Project Manager, Strategic Projects Organization
Diablo Canyon Power Plant

Rich Klimczak
Design Engineering Manager, Pacific Gas & Electric
Company

Jennifer Post
Attorney, Pacific Gas & Electric

David Repka
Winston & Strawn, LLP, Counsel for Pacific Gas & Electric

Kimberly Keithline
Senior Project Manager, Nuclear Energy Institute

NRC Staff:

Alan Wang
Project Manager, Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Annie Kammerer
Senior Seismologist and Earthquake Engineer
Office of Nuclear Regulatory Research

James Polickoski
Project Manager
Office of Nuclear Reactor Regulation

Maxwell Smith
Counsel for NRC Staff
US Nuclear Regulatory Commission
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Michael Markley
Plant Licensing Branch IV
Division of Operating Reactor Licensing
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Kamal Manoly
Senior Technical Advisor, NRR,
Division of Engineering

Susan Uttal
Senior Attorney, OGC

Jenny Weil
Congressional Affairs Officer

Martin Stutzke
Senior Technical Advisor, Probabilistic Risk Assessment
Technologies in the Division of Risk Analysis, Office of
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Acting Chief , Mixed Oxide and Uranium
Deconversion Branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards

Ata Istar
Office of Nuclear Safety and Safeguards

1 PROCEEDINGS

2 JAMES POLICKOSKI: We'll go ahead and get started. Good
3 afternoon, or morning, for folks that are joining us on the West Coast. My name
4 is Jim Polickoski; I'm the project manager, the Division of Operating Reactor
5 Licensing here at NRC, the responsibility for the Diablo Canyon Power Plant.

6 Today's meeting between the NRC staff and Pacific Gas and
7 Electric is being conducted at the NRC staff's request to discuss with the licensee
8 the NRC staff's questions raised during the previous public meeting which the
9 NRC held on January 26, 2011, as documented in the public meeting
10 announcements, and meeting summary via Adams [spelled phonetically] ML110-
11 120-564, ML110-420-183. This meeting and the previous meeting are related to
12 the licensee's plans to submit a license amendment request to incorporate a
13 methodology for the review of new geotechnical information, and the design and
14 licensing basis for Diablo Canyon Power Plant units one and two.

15 Specifically, the licensee plans to discuss the following questions
16 provided by the NRC staff, and as listed in today's meeting agenda, that is, the
17 enter criteria [spelled phonetically] and intended purpose for their long term
18 seismic program, which I'll call the LTSP for the rest of the day. The long term
19 seismic program flowchart. Clarification of how the LTSP flowchart will be used
20 in various applications, with specific reference to the existing design and
21 licensing basis. Clarification of how an LTSP evaluation relates to the existing
22 design and licensing basis. How LTSP analysis will be used in licensing actions,
23 in light of the existing design and licensing basis. And the role of the LTSP
24 analysis in future operability determinations, and how the analysis that evaluates
25 the Shoreline fault, and any future unevaluated seismic ground motions, in terms

1 of ASME code allowables and against the existing design and licensing basis.

2 The above was discussed in more detail in the notes for the public
3 meeting, and that is the agenda that was attached.

4 I'd like to welcome everyone in attendance and go over a few
5 details before we proceed with the meeting. This meeting is a Category One
6 public meeting, in accordance with the Commission's policy statement on
7 enhancing public participation in NRC meetings, dated May 28, 2002. As such, it
8 is intended to be a dialogue between the NRC and Pacific Gas and Electric
9 concerning issues related to the operating license for Diablo Canyon Power Plant
10 units one and two. The public is invited to observe the meeting, and will have the
11 opportunity to communicate with the NRC staff after the business portion of the
12 meeting, but before the meeting is adjourned. The licensee may respond to
13 comments or questions from the public. The licensee is not obligated to do so.

14 Please identify yourself and your affiliation as we go through the
15 introductions, and that's important today because, and it's part of also, the
16 webcast that we're -- that this meeting is being held under as well. We have a
17 court recorder and stenographer for purposes of closed captioning. So it's
18 important that, not just in the beginning here, but if we could make it a habit, as
19 we're speaking, to identify who you are as you go along for the purposes of court
20 recorder and stenographer.

21 I also had sign-in sheets, some are pre-typed, some blank, for who
22 I was -- new coming here. So please make sure you've initialed and signed in so
23 we can verify who attended. There are also public meeting feedback forms
24 available on the side table if you wish to provide any comments. This meeting
25 was noticed on March 18, 2011, and excess copies of the agenda are available

1 to the right as they stayed on that table over there.

2 I understand that we do have members of the public in attendance
3 locally here at NRC headquarters, that have called into the teleconference, and
4 that are most likely observing via today's webcast. The meeting is scheduled
5 from 1:00 to 4:00 p.m. Eastern Daylight Time. It is our understanding that no
6 proprietary information will be discussed, is that correct?

7 MALE SPEAKER: That is correct.

8 JAMES POLICKOSKI: Okay. This meeting is primarily for Pacific
9 Gas and Electric to convey information to the NRC. As such, no regulatory
10 decisions will be made at this meeting. A meeting summary, including a copy of
11 any presentation slides, will be made publicly available shortly after the meeting.
12 At this point, let's introduce ourselves. Again, my name is Jim Polickoski, Project
13 Manager for Diablo Canyon, from Division of Operating Reactor Licensing.

14 ANNIE KAMMERER: Annie Kammerer, NRC Office of Research,
15 Division of Engineering.

16 KAMAL MANOLY: Kamal Manoly, senior technical adviser,
17 Division of Engineering, NRR.

18 MAXWELL SMITH: Maxwell Smith, Office of General Counsel.

19 [low audio]

20 JAMES POLICKOSKI: If it's red, it means it's on.

21 PATRICK HILAND: [laughs] Thank you. I'm Pat Hiland, I'm the
22 director of the Division of Engineering, within the Office of NRR.

23 NORMAN ABRAHAMSON: I'm Norm Abrahamson, seismologist
24 with PG&E.

25 LAWRENCE SHARP: Lawrence Sharp [spelled phonetically],

1 senior director of Technical Services with Diablo Canyon, for PG&E.

2 RICH KLIMCZAK: Rick Klimczak, design engineering manager,
3 PG&E.

4 PHILIPPE SOENEN: Philippe Soenen, supervisor, Regulatory
5 Services, Diablo Canyon, PG&E.

6 ALAN WANG: Alan Wang, project manager, NRR.

7 MICHAEL MARKLEY: Mike Markley, chief, Plant Licensing Branch
8 IV, DORL, NRR.

9 JAMES POLICKOSKI: Start over there.

10 DAVID REPKA: I'm David Repka of Winston and Strawn, counsel
11 for PG&E.

12 JENNIFER POST: Jennifer Post, counsel for PG&E, in house.

13 GREG HARDY: Greg Hardy, from SGH, consultant to PG&E.

14 BILL HORSTMAN: Bill Horstman, senior civil engineer, PG&E.

15 NATHAN BARBER: Nathan Barber, senior PRA engineer, PG&E.

16 ERIC OSTERLEY: Eric Oesterle [spelled phonetically], NRC.

17 JAMES POLICKOSKI: [inaudible] go ahead [inaudible].

18 MALE SPEAKER: [unintelligible], Project Manager, DORL[spelled
19 phonetically], NRR.

20 MALE SPEAKER: [inaudible], NRO.

21 FEMALE SPEAKER: [inaudible]

22 MALE SPEAKER: [inaudible], NRC.

23 MALE SPEAKER: Steve [spelled phonetically] [unintelligible],
24 NRC.

25 MALE SPEAKER: [inaudible]

1 MALE SPEAKER: [inaudible], NRC, NRR [inaudible].

2 SUE MAY WONG: Sue May Wong [spelled phonetically], NRC,
3 NRR Division of Risk Assessment.

4 FEMALE SPEAKER: [inaudible], NRC, License Renewal.

5 MALE SPEAKER: [inaudible], NRC, NRR, License Renewal.

6 MALE SPEAKER: [inaudible]

7 JAMES POLICKOSKI: Go ahead, no, now we'll move on to the
8 folks on the phone. I understand we have a number of folks on the phone.
9 Bridge [spelled phonetically], if you can just be a little slow in helping me spell
10 names, as well. We'll start with Region IV.

11 JANE SWANSON: This is Jane Swanson [unintelligible], S-W-A-N-
12 S-O-N, calling as an individual although I am affiliated with Mothers for Peace.

13 JAMES POLICKOSKI: Thank you, Jane.

14 JANE SWANSON: [affirmative]

15 CAROLINE MCANDREWS: Caroline McAndrews [spelled
16 phonetically], calling from Southern California, Edison.

17 JAMES POLICKOSKI: What was the first name, ma'am?

18 CAROLINE MCANDREWS: Caroline.

19 JAMES POLICKOSKI: Caroline McAndrews. Thank you.

20 MICHAEL PECK: Here at Diablo Canyon, we have the resident
21 inspectors, Michael Peck, Jonathan Brostead [spelled phonetically], and Christie
22 Dennison [spelled phonetically].

23 JAMES POLICKOSKI: Thank you, Michael.

24 RICHARD DEESE: Here in Region IV, you have Rick Deese,
25 senior project engineer.

1 LAURA UFELDING: And Laura Ufolding, U-F-E-L-D-I-N-G, public
2 affairs, Region IV.

3 JAMES POLICKOSKI: Thank you, Rick and Laura. Anyone else
4 from Region IV on the phone, Bridge? And then any members of the public,
5 besides Caroline and Jane?

6 BOB WHORTON: Bob Whorton, W-H-O-R-T-O-N, with South
7 Carolina Electric and Gas Company.

8 JAMES POLICKOSKI: And what was the first name, sir?

9 BOB WHORTON: Bob.

10 JAMES POLICKOSKI: Bob Whorton.

11 MALE SPEAKER: Okay, I'm Stan [spelled phonetically], from
12 SCE&G [spelled phonetically].

13 JAMES POLICKOSKI: Thank you, sir. Anyone else from the
14 public?

15 DAVID NIKAKI: David Nikaki [spelled phonetically], with Simpson,
16 Gumpertz, and Heger.

17 JAMES POLICKOSKI: Thank you, sir. Anyone else from the
18 public? Okay, I'll take that as no one else on the phone.

19 WALLY HAFIZ: This is Wally Hafiz from [unintelligible] Exelon
20 Clinton Power Station.

21 JAMES POLICKOSKI: I apologize, sir, can you say that -- say your
22 name again, one more time, sir.

23 WALLY HAFIZ: Wally, W-A-L-L-Y, last name Hafiz, H, like Henry,
24 A-F, like Frank, I-Z, like zero, from Exelon Clinton Nuclear Power Station.

25 JAMES POLICKOSKI: Sir, I apologize. If you can just spell your

1 name, last name, one more time. I have your first name.

2 WALLY HAFIZ: Hafiz: H, like Henry, A like apple, F like Frank, I,
3 and Z like zero.

4 JAMES POLICKOSKI: Thank you, sir. Anyone else from the
5 public? Okay, I'll turn it now over to the other, any other NRC managers or staff,
6 for introductory remarks. Mr. Hound [spelled phonetically], do you have any
7 remarks, sir?

8 MALE SPEAKER: No, thank you. As you must realize, we've been
9 fairly busy the last few weeks. I've been able to break away, and I'm interested
10 to hear what you have to say today. Thank you.

11 JAMES POLICKOSKI: Mike?

12 MICHAEL MARKLEY: No, we'd just like to thank, this is the third
13 pre-licensing meeting we've had on this subject, and I realize a lot of work has
14 been going into seismic, both with the licensee and the NRC, so thank you very
15 much.

16 JAMES POLICKOSKI: With that, I have two final comments. I ask
17 that, during the presentation, while others are speaking, if you could please mute
18 your phone, for those that are on the phone conference, as well as here at the
19 table. Actually, here at the table, I don't mind if your mics stay red, because we'll
20 probably be in exchange. But for the folks on the bridge, if your phone does not
21 have a phone mute capability, our phone bridge allows you to press star six on
22 your keypad, and that will actually mute your phone, and then star six again will
23 unmute it on the phone bridge.

24 There's also one last piece of guidance that I was given strict
25 orders to obey, and that this room has a strict no food, no drink policy, and that I

1 must obey that. And that is hard for me, as I will have to survive without my Diet
2 Coke, so. But I now turn it over, unless there's any other remarks, to Pacific Gas
3 and Electric, for their presentation. And, by the way, my intention is to, after your
4 presentation, is to ensure we go through each of the six questions on the
5 agenda.

6 RICH KLIMCZAK: Thank you, so, actually, we'd recommend, for
7 answering part of the first question, instead of providing clarifications for the other
8 questions, we're going to walk through our revised flowchart, and then we'll make
9 sure that we go through the questions like you mentioned.

10 JAMES POLICKOSKI: Okay, and if you could just help us out. We
11 have it up on the -- for all attendees, we have, hopefully for everyone who
12 attended that I knew about, we forwarded the licensee's presentation, for here at
13 the -- in the hearing room, it's on the various screens, and we'll just try to -- keep
14 -- let us make sure we're navigating at the right spot. And we'll try to keep that
15 up for the folks on the bridge. But right now, we're on the PDF file, their
16 flowchart, first page.

17 RICH KLIMCZAK: Okay. This is to address question one,
18 discussion of entry conditions --criteria for use of --

19 JAMES POLICKOSKI: Rich, if you don't mind identifying yourself
20 for our stenographer, court reporter, just to make sure we know that you're
21 speaking. Each time, it helps us out.

22 RICH KLIMCZAK: I have to --

23 JAMES POLICKOSKI: Sorry.

24 RICH KLIMCZAK: -- announce myself?

25 JAMES POLICKOSKI: Yeah, if you don't -- just say your first name,

1 and they already have your title.

2 MALE SPEAKER: If you don't want her chasing you to get your
3 name, that's --

4 [laughter]

5 RICH KLIMCZAK: I think I'm the only Rich. So this is Rich.

6 [laughter]

7 So, the first question was discussion of entry conditions (criteria) for
8 use of the Long Term Seismic Program flowchart, and for what purposes this
9 flowchart will specifically be used.

10 So we're going to walk through the flowchart to answer that
11 question. Starting in the first block below flowchart A overview, it says, "Process
12 for updates in the Long Term Seismic Program, seismic probabilistic risk, and
13 seismic margin assessment." Diablo Canyon had a license condition. As a
14 result of that, the license condition required, "PG&E shall develop and implement
15 a program to reevaluate the seismic design bases used for the Diablo Canyon
16 Power Plant." We met this condition by the LTSP program.

17 This process we are about to go through will utilize the same
18 evaluation process as in the LTSP to address new geologic and seismic data
19 information interpretations. Also, in Supplemental Safety Evaluation Report 34,
20 the NRC recognized PG&E's commitment to continue to maintain a staff to keep
21 abreast of the new seismic, new geological, seismic, and seismic information,
22 and evaluate it with respect to Diablo Canyon. This process we're going to go
23 through is how we're going to evaluate that new information.

24 So, the first block I was in, I said what we were going to do.
25 There's a note there to be performed on a 10-year interval. Note one: Is this

1 update to be performed at less than a 10-year interval if significant new
2 information becomes available. The start of each interval to be based on
3 submittal date of the prior update.

4 Going to the next box below that, we're entering the process now.
5 Update LTSB Seismic Hazard Input Information Received by DCCP. Note two:
6 seismic hazard input is developed by the PG&E Geoscience Department. Types
7 of input include seismic hazard curves, deterministic ground motion, response
8 spectra, source characterization, and ground motion spectral shapes.

9 When we get this new hot seismic hazard information, we would
10 enter the process where we go down to the circle below this box, and we would
11 go to the right first, which we call our seismic margins assessment. It's our
12 primary path. We intend now to use that for operability determinations for the
13 plant. And this process will be run through within 24 hours of receipt of data.

14 KAMAL MANOLY: Let me interrupt you.

15 RICH KLIMCZAK: Yeah.

16 KAMAL MANOLY: Can you clarify by "significant new information"?

17 NORMAN ABRAHAMSON: This is Norm, and I'll try to answer that.
18 So, we are continually doing studies, or evaluating seismic information around
19 the world, for either ground motion models or new source characterization. That
20 will still be a judgment as to when it is significant enough to accelerate the 10-
21 year update instead of waiting for 410 years. So that will be, generally,
22 information that we're aware of, and if it's in the general literature, the NRC will
23 also be aware of that information as it becomes available.

24 But an example would be new major ground motion studies, or
25 [unintelligible] would say, out of the Pacific Earthquake Engineering Research

1 Center, is going to issue a whole new set of ground motion models. That would
2 be a big change, and at that time, we would step up our evaluation. If there was
3 some new information we had on, you know, the offshore faulting, or new
4 characterization of the local faulting onshore, that indicated we had a significant
5 change to our models, then we would move that forward. So it's somewhat of a
6 judgment for us, as to when something becomes significant, but usually it's
7 enough to move the hazard in a way that matters, okay, to what the risk would be
8 at the plant, as opposed to waiting for the 10 years to then go forth and have just
9 a normal update.

10 KAMAL MANOLY: So you're saying it's an engineering judgment,
11 right?

12 NORMAN ABRAHAMSON: It's a mixture of engineering and
13 science, I would say this is mainly on the earth science judgment, because we're
14 not judging the impacts on the plant; we're saying do our design response
15 spectra or hazard curves significantly change?

16 KAMAL MANOLY: Okay. Thank you.

17 RICH KLIMCZAK: This is Rich again. Before we leave the seismic
18 margin assessment box, we have a note three: seismic margin assessment is
19 based on deterministic ground motion response spectra. All that box, we go into
20 flowchart B, and so I'll go to the next page.

21 Flowchart B: seismic margin assessments. It's the entry point from
22 flowchart A. We have received an updated deterministic ground motion
23 spectrum. Note one: the deterministic ground motion spectrum was developed
24 by PG&E Geoscience Department in accordance with current peer-reviewed
25 methodologies. That starts our process for deterministic. Our first decision box

1 is the updated deterministic ground motion response spectra enveloped by our
2 1991 LTSP, deterministic ground motion spectra. Probably be a good time to go
3 to the chart of the spectra, so everyone knows what I'm talking about. In this
4 chart of deterministic comparison, we'll see the dashed spectrum is the 1991
5 LTSP spectrum we're talking about, that we would compare this new
6 deterministic ground motion spectra to.

7 So if that first -- going back to the first decision box, if this new
8 deterministic ground motion response spectra is enveloped by the 1991, we go
9 off to the right, to yes. We would consider any shape changes or any impact on
10 our Heathcliff capacities for impacted SSCs, modify those, and follow the box, we
11 would update our documents. The LTSP ground motion spectra Heathcliff,
12 seismic margins. For this path, we would not be updating the [unintelligible]
13 response spectrum. We would return to flowchart A, which is flowchart B coming
14 back in, and we would submit a peer-reviewed update to NRR.

15 Going back to flowchart B, that same decision box, if the new
16 ground motion spectrum is not enveloped completely, or at all, by the 1991, the
17 answer would be no. The next decision box we would look at, does this change
18 in response spectra impact the Heathcliff capacities? If the answer is no, we'd go
19 to the next box, where we'd reassess the plant's seismic margins for impacted
20 SSCs with the new ground motion spectra and Heathcliff capacities.

21 JAMES POLICKOSKI: Can you expand on that a little bit, on how
22 you're going to go about that, because -- or are you going to get in that later, with
23 the other questions?

24 RICH KLIMCZAK: I believe the next decision box will get you
25 there. The seismic margin is the Heathcliff capacity over the demand. And if the

1 seismic margin is greater than or equal to one, then that will take care --
2 [unintelligible] takes in account the new ground motion spectra, the impact on the
3 Heathcliffs. We calculate the seismic margin to that criteria. And if it is greater
4 than or equal to one -- and since the last time, we used to have 1.14 in there. It's
5 1.0 now. That is consistent with SSER [spelled phonetically] 34 Section 3.8.1.8,
6 where the NRC stated the LTSP deterministic spectra will use to provide
7 assurance that the plant Heathcliff capacity estimates are at least equal to the
8 seismic demand.

9 KAMAL MANOLY: If -- so I guess, you're not providing any margin
10 beyond the 1.0?

11 RICH KLIMCZAK: Right, but there -- in the calculation of the
12 seismic margin, there is conservatism. And I'll have to --

13 KAMAL MANOLY: Well, there's conservatism in anything, but --
14 and we know that. But just in terms of the decision point here, you initially had
15 different numbers, and you were contemplating other numbers.

16 RICH KLIMCZAK: Yeah, we thought this, this is following the same
17 philosophy, and it made the decision easier. So when are you really affecting
18 operability?

19 KAMAL MANOLY: Operability?

20 RICH KLIMCZAK: Yeah. See, if we answered no to this, if the
21 seismic margin that we calculate due to the change in response spectra was less
22 than one, that's the no block off to the right -- left. And then we'd have to, for that
23 SSC, where we don't meet that seismic margin criteria, we'd enter the applicable
24 tech spec [spelled phonetically] limiting condition of operation.

25 ANNIE KAMMERER: So you're saying an adequate margin is

1 basically [inaudible] so it's like for [inaudible] that's from -- and you're basing that
2 on SSER 34?

3 RICH KLIMCZAK: Yes. [inaudible] plus there's conservatism in the
4 way we calculate Heathcliffs. [inaudible] one of our experts talk to that.

5 [low audio]

6 GREG HARDY: This is Greg.

7 MALE SPEAKER: Into the mic.

8 GREG HARDY: Is this on? I guess so. Greg Hardy. The whole
9 seismic margin method is predicated on showing margins. So this greater than
10 1.0 is really just demonstrating you've got adequate margins. So you set up the
11 process which is consistent with the LTSP for establishing margin, and you follow
12 the SMA criteria that you used to come up with a conservative deterministic
13 failure margin. So what they're describing is the amount of margin that's been
14 required, and would be required in any seismic margin study. You establish the
15 earthquake, you go through this process, got a certain amount of allowables that
16 you're required to use, and you establish that your demand, your capacity is
17 greater than that review level earthquake demand that you're coming up with. So
18 that's really what this describes.

19 ANNIE KAMMERER: Okay, so the Review Level Earthquake,
20 though, is based on the deterministic assessment, with some sort of margin
21 that's already -- so it's the deterministic ground motion times some sort of
22 allowable margins, which are defined elsewhere to give you a Review Level
23 Earthquake. It's the Review Level Earthquake that's then compared. I'm a little
24 confused because the way that this is stated, it makes it seem like you
25 essentially have no margin.

1 GREG HARDY: You're establishing margin, consistent to what
2 happened in the LTSP -- so this is a margin evaluation up to this kind of criterion
3 comparison. You generate this high-confidence, low-probability or failure level,
4 which is -- that high-confidence itself establishes margin -- you calculate that
5 value.

6 KAMAL MANOLY: Is that based on orderly?

7 GREG HARDY: Well, it's based on this deterministic earthquake
8 characterization.

9 KAMAL MANOLY: The orderly -- how does the orderly relate to the
10 GRMS?

11 GREG HARDY: I'm not sure -- could you --?

12 KAMAL MANOLY: The orderly -- the reference -- the Review Level
13 Earthquake, how does it relate to the GRMS for this?

14 NORM ABRAHAMSON: This is Norm again. We have a
15 deterministic earthquake, which is an 84-percentile ground motion from a large
16 earthquake inbounding on any of the nearby faults. In this case, this was from
17 LTSP -- it was the Hosgri fault that led to the largest ground motions in 1988.
18 Today we have different faults that are controlling it, but we're still using that level
19 of shaking as our earthquake. The key here, I think what Greg was getting at, is
20 that we -- the way the Heathcliff is already done, we're not setting capacity equal
21 to demand. That's not what we're doing on the margin. The Heathcliff already
22 creates margin, so as long as you're below that level, we're setting -- one, is your
23 Heathcliff is already an adequate margin for operability, and then -- as opposed
24 to saying the additional margin has to be set what the Heathcliff is already
25 creating. Is that making some sense?

1 ANNIE KAMMERER: Yeah. So your 84-percentile ground motions
2 are compared against the Heathcliff. The Heathcliff itself, by definition, is a high
3 confidence of a low-probability of failure -- not the median likelihood of failure.

4 NORM ABRAHAMSON: Correct. And so it's five percent chance
5 of failure using lower bound properties -- or strength properties. I should say
6 lower estimates of the strength properties.

7 GREG HARDY: Right.

8 ANNIE KAMMERER: Okay. Thank you for the clarification.

9 RICH KLIMCZAK: Okay, this is Rich again. Since we went off to
10 the left, you know, if we didn't meet that criteria, whatever SSCs didn't meet it,
11 we'd enter the applicable tax-back [spelled phonetically] limiting -- the limiting
12 condition of operation -- and then the box below, we would consider maybe
13 compensatory measures to restore that margin, so we could say we could meet
14 that LCO requirement. And then, if we can't -- and also to resolve the
15 compensatory measure, we'd have to develop modifications to restore the
16 seismic margin. Going back to the decision box, is minimum seismic margin
17 greater than or equal to 1.0? If the answer is yes, if we are greater, we still need
18 to submit a license-amendment request because -- we're on this path because
19 the new deterministic ground motion spectra exceeded the 1991 LTSP. So if you
20 go back to the deterministic spectrum charts --

21 JAMES POLICKOSKI: But right now, your license specifically
22 states the three earthquakes -- your DE, your DDE, and your Hosgri -- and that
23 probably jumps to the other questions ahead -- but the amendment request
24 needs to modify something related to the three earthquakes, and I'm trying to
25 figure out how you're bridging it to LTSP, which was a margin-verification license

1 condition.

2 RICH KLIMCZAK: That's true. And it was to address new seismic
3 information, so we're following that same process. As a result of going through
4 the LTSP process, for example, back to the spectrum, if you look at the LTSP
5 spectrum, the dashed line, you will see when it's compared to the Hosgri, which
6 is the blue line; that above 15 hertz it exceeded it.

7 JAMES POLICKOSKI: No, I understand the curve. I'm asking --
8 this is a licensing-space question. Not a technical question.

9 LOREN SHARP: He's headed there.

10 JAMES POLICKOSKI: Pardon me?

11 LOREN SHARP: I think he's headed there.

12 RICH KLIMCZAK: As part of the LTSP program, it allows you to
13 address these kinds of exceedances, and then the LTSP we did, and the NRC
14 concluded -- agreed with those -- was an insignificant impact on our SSCs, and
15 they did not require us to modify the Hosgri design spectra because of that
16 exceedance.

17 JAMES POLICKOSKI: I can't -- I don't --

18 RICH KLIMCZAK: Following this process, if you re-meet all the
19 criteria, there is no impact on your design basis earthquake. We're not changing
20 [unintelligible], we're not changing the spectra -- ground spectra -- we're not
21 changing the damping values, we're not doing of that. We're going through this
22 evaluation to tell us whether we do impact those.

23 JAMES POLICKOSKI: I'd prefer to bounce the question if we get
24 into that, because that is the guts of some of these relationship issues to the
25 balance of the designer licensing basis -- when you get to where the values are

1 closer, and the terms of hazard, and how it relates to the engineering it can make
2 -- in our assessment, it can make some portions of the spectrum where the
3 Hosgri is not the only thing that's limiting now. But --

4 NORM ABRAHAMSON: This is Norm again. Part of the reason
5 why we were set up looking at the LTSP spectrum deterministically, and the
6 LTSP hazard curves, is because for those cases we have margins evaluated. So
7 we know when we're below those levels, we're going to have at least as high of
8 margins as what we estimated before. So those are done, they're reviewed, we
9 have fragility curves done for those parameters, and so forth. And so to evaluate
10 safety at the plant, and impacts of new information, LTSP gives us the best
11 baseline on which to work from. The other values -- we don't have a Heathcliff
12 value -- a margin set up for the other earthquakes. They're not taken to the
13 same level of analysis that was done during the LTSP program to establish what
14 those margins are, to establish the fragilities, and so forth.

15 JAMES POLICKOSKI: No, I understand the level of quality
16 difference, and I -- especially with the change in technology and the evaluation
17 methodologies have a full respect for that. But I think the challenge -- and I am
18 getting ahead -- but the challenge is how do we relate it to, I agree, -- especially
19 the other two earthquakes, because LTSP has a relationship to Hosgri, but to the
20 DE and the DDE, because -- I understand there are places where -- that there's
21 potential when you relate the hazard to the engineering that they could be
22 potentially more limiting, and how we bridge that, the fact that the evaluation
23 methodology hasn't been brought up to the same quality. I think that's a
24 challenge for us.

25 MICHAEL MARKLEY: But it -- just to bring it short -- I mean, this is

1 one of the things we're going to have to struggle with in reviewing what you're
2 proposing is; you have certain values that are established in FSAR, and you also
3 have LTSP. And the values in your FSAR are your design basis. And this is
4 another piece -- this is a seismic margins analysis, so -- when we look at things,
5 we say, "Okay, the values in your FSAR and LTSP." Not just LTSP. So that's --

6 LOREN SHARP: This is Lorne. I think, if we can defer for just a
7 little bit, so [unintelligible], I think we'll get to a better discussion on those topics if
8 you can wait a little bit.

9 JAMES POLICKOSKI: Okay. [unintelligible].

10 RICH KLIMCZAK: Okay, I was back up to the -- first, the decision
11 box -- because the new ground motions factor was not enveloped by the 1991 --
12 so if you go to the spectrum again, you know, you can pretend that these spectra
13 here shifted to the left, for example, and let's say that peak popped above the
14 LTSP, or even the Hosgri. That's what we're talking about when we're going
15 down that flow path. It is not completely enveloped with the new deterministic
16 ground motion spectrum. And that's why we need a license amendment,
17 because with this proposed license amendment, that LTSP spectrum is going to
18 be our licensing basis. And we're going to -- when get new seismic information,
19 we're going to assess it against that to determine whether we do have impact on
20 our design, earthquakes or not. The same way the LTSP program did.

21 LOREN SHARP: This is Loren. So in general what he is saying is,
22 we've had the 1991 long term seismic program in place, we committed to it as a
23 license condition that we would continue to implement that process through the
24 letter, through shiffer [spelled phonetically] and, in general, that's the process
25 we've been using. So this would provide clarity for the record, on how we

1 continue to do this process going forward to provide the documentation, as we've
2 talked previously, on how we would review new geotechnical information. So we
3 lose any confusion, or lack of clarity; that's really our process for an OAR
4 submittal, to remove the clarity. So that's our motive for the OAR.

5 JAMES POLICKOSKI: But, I want to make sure from what you
6 stated that you're separating the evaluation methodology from the design and
7 licensing basis itself, you still -- my understanding from the previous meeting, you
8 still hold that your licensing basis, in terms of hazard and hazard related to the
9 engineering of the plant, is still the three: DE, DDE and Hosgri [spelled
10 phonetically] is that correct?

11 RICH KLIMCZAK: Yes we do all our design, our SSC's to those
12 earthquakes.

13 JAMES POLICKOSKI: Okay.

14 BILL HORSTMAN: This is Bill Horstman --

15 MALE SPEAKER: Into the mic, Bill.

16 BILL HORSTMAN: Oh yes.

17 JAMES POLICKOSKI: There's -- also there's a mic over there for
18 all the folks as well. If we can get a hold of a portable mic, too.

19 BILL HORSTMAN: Okay. This is Bill Horstman. Just to kind of
20 clarify on that when Hosgri was introduced in '77, we did not go back and
21 redefine the design or double design earthquake, we still use those. And then
22 when long term seismic program earthquake was finalized in '91, that did not
23 redefine the Hosgri earthquake, either. So we're using that solely for the seismic
24 margins and the seismic risk assessment. So those two changes in the
25 earthquakes didn't go back and affect the earlier earthquakes and that's just the,

1 kind of the historical approach that was taken on this, during the licensing of the
2 plant.

3 JAMES POLICKOSKI: That's an important issue because from our
4 assessment of the licenses, that we did not see that they changed the validity of
5 their existence in the license. You now had additions to your license, not
6 deletions.

7 BILL HORSTMAN: We keep adding further earthquakes, yes.

8 JAMES POLICKOSKI: Okay. I just wanted to clarify that point,
9 because the way you were saying it was in essence it did not redefine them. I
10 want to be clear that you're saying that they did not get removed from your
11 license?

12 BILL HORSTMAN: They did not get removed.

13 JAMES POLICKOSKI: And they still have validity as much as
14 Hosgri?

15 RICH KLIMCZAK: Yes, but they did not -- this is Rich, and they
16 did not get modified as a result of the LTSP.

17 JAMES POLICKOSKI: Right, and that connects to Norm's
18 comment of -- to the increase of quality level, which I know we respect that issue.

19 RICH KLIMCZAK: So that -- I'm going back to the submit LAR box,
20 second from the bottom. There's an arrow down to the document, that arrow
21 wouldn't take place until we got the license amendment approved from the NRC
22 for the LAR and we would update the documentation, return to flow chart A.

23 JAMES POLICKOSKI: Before we move on, I know Annie's got a
24 comment so if we can stick on flow chart B just for a second.

25 ANNIE KAMMERER: Yeah. Sorry, I'm still having a problem with

1 the margin of one because --and, okay, I work in a probabilistic world, I don't
2 work in a margins world, so perhaps you can explain to me why this is the case.
3 But for new reactors the way our point of comparison is the ground motion
4 response spectra with some, you know, design factors which become an SSE.
5 The SSE is compared to the Heathcliff with an additional margin of 1.67. So why
6 would -- and that's because then that gets us to our ultimate risk informed goals
7 from the agency. So -- and you can make the same argue there that the
8 Heathcliff is inherently -- inherently contains margin by its very definition. So,
9 because we're not necessarily going back to what happened in the past, what
10 we're looking here is codifying a new approach. I'm having a bit of a hard time --
11 why for new reactors we'd be looking at an additional margin of 1.67, here we
12 don't have that additional assurance.

13 NORM ABRAHAMSON: I can -- this is Norm again, I would start by
14 saying a couple of things. One; your new reactors should be safer than the old
15 reactors. I think that just moving forward you ought to expect improved
16 performance. What we're looking at here is the plant operability. Is this an
17 immediate, sort of, the fact that we shut down issue. What we are also doing in a
18 parallel path is providing you with the numbers that you're really after, which will
19 be the risk numbers. So if we get to the next flow chart, we not only do this, but
20 we run our core damage frequency so that we can provide you with the risk
21 number and you can see what those are and are they fitting with the risk values
22 that you're looking for.

23 So this is sort of -- we have to have a simple way to move forward
24 to make a fast decision on operability. It's a different way of doing things then
25 what is typically done on -- as new information comes in, because we're trying to

1 look at impacts on the plant. Do we have an immediate safety issue? Do we
2 have, you know, a less immediate safety issue that needs some remediation or
3 has the change in the seismic loading not had a strong impact on our core
4 damage frequency? That's really what we're trying to get at.

5 ANNIE KAMMERER: Okay, I get that -- those arguments. The one
6 complication there, though, is that you've asked that this is a pilot for generic
7 issue 199 and if that's the case, and depending on how that goes, that argument
8 requires that both sides of these are a requirement. And I understand that you
9 are saying for you guys, these will be. This is part of your license amendment,
10 but -- and this is just a comment not a question, that may have an impact how --
11 depending on how that programs goes, whether or not this is viable as a pilot
12 because that -- if someone's only going to do a margins, depending on how that
13 works out that number would have to be different then, we'd be looking at
14 something else because it wouldn't just be operability.

15 LOREN SHARP: Annie, this is Loren. Just a clarification, when we
16 talked earlier before, what we had intended to say is we're certainly further along
17 in many utilities on where we are in this space. So our intent was to provide it as
18 a pilot information. Clearly as you or the rest of the staff review this, it's
19 intelligence for you to use for insights on how you might solve the GI-191-99 path
20 rather than exactly duplicate. So our intent is to basically provide you all insights
21 that we've gained, so that you can use that knowledge in whatever method you
22 decide to do as you move forward. So that's what I would offer.

23 MICHAEL MARKLEY: This is Mike again. They are not a pilot at
24 this point in time. They have not requested anything officially; it's just been a
25 discussion item for the prior meetings. That's all.

1 JAMES POLICKOSKI: Any further questions on flow chart B?

2 Okay, go head Rich.

3 RICH KLIMCZAK: Okay. So now we're going back to flow chart A.
4 We're going over to the left side; we've have updated seismic hazard information.
5 There is the deterministic ground motion spectra, and then there's the seismic
6 hazard curve; so now we're over to the left. The seismic probabilistic risk
7 assessment: We consider this a confirmatory path -- you know, what this change
8 in seismic information, how does that impact risk? And, it will be used for a
9 safety risk assessment; it cannot start until the seismic hazard curves are
10 available. Note Four: seismic hazard curves are typically available within thirty
11 days. And typically this assessment as we go through it, will take about six
12 months to complete.

13 We'll go to flow chart C now. Flow chart C, we've entered from flow
14 chart A. We have an updated seismic hazard curve and updated ground motions
15 spectral shapes. Note One: The seismic hazard curve and ground motion
16 spectral shapes are developed by PG&E Geosciences Department in
17 accordance with the current peer review methodologies. So, we get that
18 information when we enter this process, we would conduct a seismic probabilistic
19 risk-assessment analysis to determine the impact on seismic core damage
20 frequency, when we will use updated input information.

21 Note 3: Input information includes the seismic hazard curves,
22 spectral shape, and fragilities. And updated methodologies, Note 2 and 4. Note
23 2: The seismic probabilistic assessment will be based on a capability category 2
24 of ASME/ANC RA-Sa 2009 or the approved -- whatever the approved NRC
25 version of that is -- as modified by Reg Guide 1.200.

1 And Note 4: The fragilities would be based on the ground motion
2 spectral shape, and peer and current peer review fragility calculation methods, as
3 identified in the ASME/ANC standard out of the NRC-approved version, as
4 modified by Reg Guide 1.200 and those three [spelled phonetically] EPRI
5 documents for calculating fragilities.

6 When we complete that evaluation, we will notify the NRC and we
7 will, you know, document the results of all those, enter in the record. Turn back
8 to Flowchart A, and we would submit a peer reviewed, updated information to the
9 NRR. And after that, we would start the 10 year cycle again for updating.

10 ANNIE KAMMERER: So, if you went through -- let's say that you
11 went through and you -- and when you were doing your seismic PRA, you
12 determined that you were going to have plant modifications. Would you go
13 through, then, and also go back and re-do your margins assessment and provide
14 additional -- an update to that, based on the plant modifications as well, so that
15 all the information was coming in was consistent?

16 RICH KLIMCZAK: Yeah. We would -- if we modified that structure
17 system, we'd have -- that would impact Heathcliff calculations on the seismic
18 margin calculations.

19 ALAN WANG: This is Alan. I just had a question. So, can we go
20 back to Flowchart, I guess, B? You used the Shoreline Fault as an example.
21 There you would have said it was bounded by the LTSP, so you would go to the
22 right.

23 RICH KLIMCZAK: [affirmative]

24 ALAN WANG: So, if you went to the right, would you then conclude
25 -- if you were able to go to the right, would you then conclude that you meet on

1 your current licensing basis, your DE, Hosgri, and SSC?

2 RICH KLIMCZAK: We would conclude they are not impacted.

3 ALAN WANG: Okay.

4 JAMES POLICKOSKI: Let me pull that string -- this is Jim. Let me
5 pull that string a little farther. The thing that -- and again, we've had some
6 discussions -- into all the staff is that it's been -- relating the hazard to the
7 engineering has been our challenge. And, because this whole discussion is
8 heavily on hazard, and it doesn't rope in to the operability call, the engineering,
9 and the three earthquakes are, in essence, equipment performance criteria. And
10 what the equipment is allowed to do is different for each performance criteria and
11 where the hazards get closer, for example, whatever the new evaluated hazard
12 is, let's say Shoreline. And for example, the -- using the -- as you got to the right
13 side of the curve on your deterministic slide, there's points where because the
14 criteria for those three -- for the equipment performance criteria is the
15 engineering criteria of the hazard side, but the engineering criteria coming off
16 those hazards use different values in how they calculate the endgame of what
17 the equipment -- what the equipment had to respond to.

18 It makes it so that, yes, the hazard might have been worse, in this
19 case, for Hosgri or whatever. But because we're holding the equipment to a
20 tighter equipment performance criteria for, let's say, the DDE, then actually DDE
21 can become limiting. And that's been the hard part for us, is bridging the
22 assessment to the engineering and ensuring that how the SAR describes the
23 earthquakes, it goes from the hazard to the engineering. And then that's where I
24 see that main central diamond, where you end up making the call of operability;
25 because that's, in the end what the engineers are going to hand to the operators

1 on making that ultimate call, is whether the equipment will perform in the
2 earthquake.

3 NORM ABRAHAMSON: This is Norm, again. I think the
4 fundamental issue that we need to work out with you and understand NRC's
5 approach is when you get new information, new natural hazard information, what
6 do you with it?

7 Our fundamental approach is to say, "What is the impact on safety
8 at the plant?" It is not to go back and say, "We re-designed the plant." That's not
9 the first thing you do. You look at the impacts on safety. If the impacts on -- if
10 they're -- let's say there are no significant impacts on safety. Then those old
11 design bases are still okay, because they are leading to adequate safety. All
12 right, that's the -- the goal is not to go back -- as I understand it and re-do your
13 design bases every time you get new information. You want to say, "Does my
14 design basis lead to adequate safety?" That's the fundamental question.

15 The way we address that is looking at what is the core damage
16 frequency; whether it's a risk? And we look at the margins; so we're doing it both
17 ways in our analysis. But that doesn't change what the design basis was. It
18 stays the same. If that design basis leads to adequate safety, then those rules,
19 even though they were developed back in 1965, are still doing their job. If we
20 find they didn't give us adequate safety, then we need to do a revision, like in '75,
21 when they discovered the Hosgri, the old design basis wasn't covering
22 everything. And so, an additional design spectrum had to be imposed.

23 But the fundamental question ought to be impacts on safety, not,
24 "Let me go re-do the design basis every time." And I think that's -- if -- we have
25 to get through that question or we're never going to solve this issue.

1 KAMAL MANOLY: So, you were saying earlier that if we have a
2 larger -- if you discover a new fault that has a major change from the LTSP, it will
3 invariably affect the margin and the seismic core damage frequency in a way that
4 will compel you to revisit your licensing basis. Is that what you're saying?

5 NORM ABRAHAMSON: Correct. And so -- I'll say -- and this is
6 Norm again. I'll try to keep putting my name in to make it clear to people on the
7 phone.

8 Fundamentally, if we find something that increased our core
9 damage frequency significantly, you know, so to a level that's not safe enough,
10 we need to -- you would shut down and make plant modification and then you, at
11 that time, would have said, "My old design rules weren't giving me adequate
12 safety, so I now need to do something else, something [unintelligible]." And at
13 that point, you change your design basis or you add another one. You know, we
14 may -- whatever it's going to be, I just keep adding them on top each other. But
15 that's -- you have to get to -- if it's -- if there's agreement that the way you look at
16 new natural hazard information, its impacts on safety, then I think what we're
17 laying out can -- we can work out to achieve that. If you're saying, "This seismic
18 information means you go re-do your design basis every time," then what's laid
19 out here doesn't do that at all.

20 JAMES POLICKOSKI: The one part, I guess, Norm. I follow your
21 point. I do. It's just -- you're separating the phrase impacts on safety and design
22 basis, as potentially mutually exclusive in how I asked the question. But the
23 license, in our respect, in terms of defining operability, that defines operability
24 and then -- safety could be -- operability might not be the ultimate margin you
25 have left; hopefully not. There's more margin on top of operability. But how we

1 define operability is with the license, and that's why I'm trying to make sure I
2 bridge it to what I know the license to be --

3 NORM ABRAHAMSON: Right.

4 JAMES POLICKOSKI: -- which is DE, DDE, Hosgri, and then
5 however Shoreline shakes out.

6 NORM ABRAHAMSON: This is Norm. So one more time I'll say
7 my piece here, as how I think things make most sense is that the -- when you get
8 new information, I think the question you're asking is, "Does the current design
9 basis lead to adequate safety, given this new information? Is it still doing its
10 job?"

11 Okay? So you can then be always checking how we met the
12 design basis and followed those rules. But -- it -- the basic question is: Did we
13 find some new information that shows that old design basis is not leading to
14 adequate safety? Okay, that's different than saying, "Do we revise it?" because if
15 I was going to build something new today, I would do it differently; that's a very
16 different question. And it would help us to know -- on your side how do you guys
17 see approaching this? We think the approach to GI-199 has been following the
18 approach of, "Yes, there's the design basis. I'm not going to go re-do that. Is
19 that design basis leading to adequate safety as we review new information on
20 ground motion models or source characterization in the Eastern United States?"

21 Right, but as opposed to saying, "Every time something new
22 happens, re-do your design basis." You'll be in a never-ending cycle if you try to
23 do that.

24 JAMES POLICKOSKI: I have one more. But I'll defer to you, sir. I
25 don't remember your name, sir.

1 GOUTAM BAGCHI: My name is Goutam Bagchi. I just wanted
2 clarify on your question. Sorry, I don't pronounce your last name very well.

3 [laughter]

4 JAMES POLICKOSKI: It's common in my life. Don't worry.

5 GOUTAM BAGCHI: Mine is hard, too.

6 [laughter]

7 Norm has a point with respect to safety, but the operability issue is
8 not related to that. The operability will always be limited by DDE, as you pointed
9 out. What is the purpose of operability? If it doesn't operate, you go into the
10 NCO condition and then you can go back, and do your evaluation, and determine
11 if we approve your proposal, that this becomes your rule -- operability
12 determination basis, then you can do that operability determination and you
13 either proceed or you don't. That's, I think, a point we needed to review first,
14 based on what you just said. Thank you.

15 JAMES POLICKOSKI: Thanks, sir.

16 KAMAL MANOLY: I just -- a follow up on what Tom said. It's a
17 screening tool for operability. That's what he said.

18 JAMES POLICKOSKI: Right. Say that again, Kamal.

19 KAMAL MANOLY: It's that the screening tool for operability?

20 [speaking simultaneously]

21 LOREN SHARP: Yes.

22 KAMAL MANOLY: I'm asking, I --

23 MALE SPEAKER: I would say yes.

24 JAMES POLICKOSKI: Let me zero in more on that question and
25 then keying off the comment just made -- this is Jim again -- that I understand

1 how -- and I apologize for the gentleman -- is that Bill? Yeah. That stated that
2 you had -- that earlier, because that does reflect the history of the license was
3 developed, but there's one key thing: Is that what this flowchart doesn't make
4 reference to is at looking at also any impacts to whether the DE and more
5 importantly, the DDE still confines safety. And using your words. Because it is.
6 Does that -- as also part of the licensing basis -- determine if the plant is safe,
7 because it had different criteria that it is holding the plant to, that even Hosgri --

8 MALE SPEAKER: Yeah. Right.

9 JAMES POLICKOSKI: So, that's important is --

10 NORM ABRAHAMSON: This is Norm again. So, we would still
11 meet all the criteria for the DE, and for the DDE, and for the HE -- the 77 HE
12 [unintelligible]. Those are all met, I mean, so if we didn't meet those, then you're
13 clearly failing. All right? So maybe, I mean -- our assumption here is the
14 equipment and everything else has satisfied, all our systems, structures,
15 components -- satisfied the DE, the DDE, and the HE, with their allowables, all
16 right? Because they're in there now.

17 This is new information on the seismic loading. Does that change
18 it? And then so the fundamental question then is: Do you re-do your design
19 basis and start over again? And, so we would still do our -- the exact same
20 checks. I mean, you would be able to say, "Have you satisfied the DE? Have
21 you satisfied the DEE?" You may find conditions where those still are controlling
22 when you're doing design or replacing a piece of equipment. That will still
23 happen. But new information is really, again I'll say, my understanding is the
24 goal of treating of new information, deciding what to do, is looking at it in terms
25 of, you know, what are the impacts on your risk? Are things changing or not?

1 ALAN WANG: Yeah. This is Alan. I think that's one of our
2 questions, though, was exactly that: Is when you did your operabilities that you
3 compared it to the LTSP, and since it was bounded you were okay, our question
4 still was, is: Did you do those comparisons against the DE, the DE and HE?

5 NORM ABRAHAMSON: Right.

6 ALAN WANG: And if you did that, then I don't think we would have
7 a question about operability.

8 NORM ABRAHAMSON: Then we need to make that clear. Yes.
9 All right? So, all of these would --

10 RICH KLIMCZAK: No, I think what they're saying is with this new
11 information, did you modify your DE, DDE spectrum?

12 MALE SPEAKER: No.

13 MICHAEL MARKLEY: Did you evaluate against it?

14 RICH KLIMCZAK: No, no.

15 NORM ABRAHAMSON: We --

16 MALE SPEAKER: [unintelligible] Go ahead. I'm sorry.

17 MALE SPEAKER: DE, DDE and Hosgri: all those components at
18 this time are qualified to the criteria.

19 NORM ABRAHAMSON: So I think we can solve -- this is Norm
20 again. We can solve this very easily. If you would like to see this satisfying all of
21 those earthquakes, that will be fine. That should be no issue for what our chart
22 is. We see those as unchanged.

23 MICHAEL MARKLEY: Yes.

24 NORM ABRAHAMSON: And what we are looking at are things that
25 are changing. All right, so that the -- what we see is there's, let's say, higher

1 loading. How is that changing the safety of the plant, given its current design?
2 And that has met those other earthquakes. But if we put in here that we're going
3 to meet all those other earthquakes as is, that would sure makes things simple.

4 JAMES POLICKOSKI: I think one breakdown in communication --
5 this is Jim again -- could be that it almost comes across to me, and I can't say
6 you've necessarily said this, but let me get the question on the table: that DE
7 and DDE are, by definition, subsets of Hosgri and LTSP.

8 But the challenge it's been to us is that there are parts of the
9 spectrum where when they're translated to the engineering criteria against the
10 ASME code or whatever other criteria reins in, that because we're holding, let's
11 say, DDE by the grouping of the equipment groups or something, that it could
12 potentially be slightly harsher than Hosgri, for example. And that could make it
13 so that you can't just treat it as some Venn diagram of concentric circles. There's
14 somewhere -- there's some spillage potentially, when you get down to the
15 engineering, not just the hazard.

16 NORM ABRAHAMSON: So this is Norm again. And I would say,
17 "Yes." We would completely agree with that. Our question or issue has -- that I
18 have been, let's just say, arguing with these guys as well, is that we do not revise
19 -- change the DE, the DDE. They are what they are. They're that certain level of
20 shaking with certain acceptance criteria [unintelligible]. They are fixed, okay?
21 We don't change them and we always satisfy them. What we're looking at now is
22 as we have new information, do we think that the design that resulted from that
23 design basis is still adequate? Is it still safe enough, because we have new
24 information that might change the frequency of earthquakes, or the loading rates,
25 or whatever.

1 ALAN WANG: This is Alan again. I -- so, yeah. Actually, that goes
2 back to my original question, because I said -- when you say it's -- when you go
3 to that first diamond and said it's bounded by the LTSP, did you go to the right?
4 And I had asked you, "Does that imply that you meet your DE, your DDE, and
5 HE?" And you said, "Yes."

6 But does it meet that because it's bounded or does it meet it
7 because you actually did something to confirm that those things were met, that
8 those earthquakes are met?

9 MICHAEL MARKLEY: I think what we've been struggling through
10 here for some time is are there boxes or diamonds leading up to that, with each
11 one of those other design basis questions?

12 NORM ABRAHAMSON: I'll let --

13 ANNIE KAMMERER: Yeah, maybe the -- if I can express the way I
14 think about it, it can be maybe clear.

15 Okay, so the DE and the DDE are set ground motions. They are
16 what they are. The performance criteria that's tied to each of those are set.
17 They are what they are.

18 JAMES POLICKOSKI: Right, right.

19 ANNIE KAMMERER: So really what's changing, in a probabilistic
20 sense, is the return periods or the probability that those ground motions occur,
21 the DE and the DDE are changing as a result of the new information. But that
22 doesn't change what the actual ground motions are. But the license criteria is a
23 set ground motion and a set performance criteria. And I think that -- and, you
24 know, same for DE and the DDE. And what we're really looking at is new
25 information that's beyond those additional criteria.

1 So I think what we do need to do is get -- just have something in
2 here that says, "Any existing license criteria remains an existing license criteria,
3 and this is an addition to it," because what I think is, maybe, is what is confusing
4 people is this inherent understand that the likelihood that the DE and the DDE
5 are seen is changing. We all kind of get that concept. But there are specific
6 ground motions that are deterministically based, and so how likely they are
7 doesn't play a part in a license itself. So, if we could just get that clarification in
8 here, I think that that would go a long way towards satisfying some of our criteria.
9 Because I think that there's confusion that maybe somehow, there's an
10 implication that that's not the case.

11 JAMES POLICKOSKI: I'm playing off -- this is Jim again -- off of
12 Alan's question. I understand that. And I separate them; I had the hazard from
13 the performance criteria. But I am really laser-guided on the performance criteria
14 and my question is that -- you're right your license says, the equipment -- thou
15 shalt do this. The pipes shalt hung there, it shall take up this much elastic or
16 inelastic loading and it shall respond thus.

17 And that's what I'm really focused on is, when you have a new
18 hazard, was it evaluated against those criteria of how the pipe hung on the wall --
19 of how much it's going to deliver to that pipe -- was that reassessed through
20 some modeling or something, where, as Alan was suggesting, there are boxes
21 that we don't see that are inside boxes, because that analysis, in essence, was
22 done. And that, it spits out a DE number, a DDE number, something where, yes,
23 that pipe -- we handled it at Shoreline, we hanged it at some, you know, new
24 seismic information and the pipe performed at the existing design criteria to that
25 pipe performs fine when we handled that earthquake. That's, I think, the hard

1 part for us is because it's not just the hazard, it's also the engineering.

2 LOREN SHARP: Rich needs to answer that.

3 RICH KLIMCZAK: This is Rich again. The answer is, "No," again
4 because of what Annie was saying. We got new information, but that doesn't
5 change our DE or DDE spectra. [unintelligible] our criteria we used to code allow
6 [spelled phonetically] those [unintelligible].

7 JAMES POLICKOSKI: It doesn't change -- I agree, it doesn't the
8 spectra, because that's its license. But the equipment has to perform --

9 RICH KLIMCZAK: -- relative, to the new hazard.

10 JAMES POLICKOSKI: Relative to the hazards is our issue. And I
11 agree, the performance criteria didn't change either. But the variable now is the
12 new hazard. It has to be translated to how it's going to affect that point.

13 RICH KLIMCZAK: If you consider it a new hazard, you're going to
14 have to have impact on spectrum.

15 NORM ABRAHAMSON: This is Norm. Could you tell me what you
16 mean by there's -- to start with, for example, adding the Shoreline faults. It
17 doesn't change the DE spectrum. It doesn't change the DDE; they're what they
18 are. The allowables are what they are. So the Shoreline fault being there
19 doesn't do anything to the way that we do to meet the criteria for the DE, the
20 DDE, or the Hosgri spectra.

21 JAMES POLICKOSKI: I concur for what your plant was licensed to
22 for the pipes as built and as constructed. But now you have a new outside piece
23 of data that determine operability, and again I'm focused on operability, does -- is
24 that hazard present input that the engineering design cannot handle, in terms of -
25 - I'll just pick DDE in this case --

1 NORM ABRAHAMSON: But that's --

2 JAMES POLICKOSKI: But, I can't --

3 KAMAL MANOLY: I think I know what Jim is -- when you discover
4 the Hosgri, you evaluated the components --

5 JAMES POLICKOSKI: Right.

6 KAMAL MANOLY: -- through Level D, right?

7 JAMES POLICKOSKI: Yes.

8 KAMAL MANOLY: Essentially, right? So, I think that's what Jim is
9 saying. We have to evaluate it to some extent or level, and [unintelligible] Level
10 D. So, we still have to read Level D limits when we do the evaluation of
11 components, right?

12 GOUTAM BAGCHI: Can I clarify a little bit? This is Goutam again.
13 With respect to the seismic capacity evaluation, you don't go by any specific
14 code-required criteria. You go by an evaluation which says it will function based
15 on the fragility of the CDFM, conservative deterministic failure model, that's used
16 normally for the seismic margin. Those things have not changed and they are
17 what they are. They're capacity. But if the hazard curve changes, response
18 spectrum changes, and right where they were capable, it has increased
19 substantially, which is highly unlikely, then your capacity is no longer the same.

20 However, if it changes, you got another frequency, you could look
21 at that and determine that nothing has changed in your capacity. And I'll throw
22 out one more example. If this new fault comes much closer to a certain safety-
23 related entities -- I don't want to clarify this anymore -- then your failure mode --
24 the common mode of failure effects are going to affect your seismic system
25 faultry [spelled phonetically] event sequences will change, and you may even

1 need to look at the system logic. I just want to leave it at that. The capacity is
2 capacity based on those response spectra. The response spectrum curve
3 changes substantially in an area where the equipment has natural frequency,
4 then it can be effected. Otherwise, not.

5 GREG HARDY: Let me see if I can add to that. This is Greg
6 Hardy, but -- let me step back and take you away from Diablo and just say this is
7 any plant, and they have two earthquakes they're designed to: the OBE and
8 SSC [spelled phonetically], which have different allowables that govern in certain
9 areas. I really don't view this as any different than any other plant. Much like GI-
10 199, new information comes out that potentially could affect the plant and maybe
11 we believe earthquakes in this case are larger or maybe the criteria for
12 generating design -- some fragility aspect is changed.

13 As A46 happened, this has happened in the past, several times, on
14 an industry wide basis. And the solution is, as Norm said, to assess it -- and Jim
15 used the word 'as it hangs,' the pipe -- you're assessing the plant as installed.
16 Whatever your designed criteria is, it's agreed to license: boom. It resulted in a
17 certain condition of the plant, with a certain amount of strength, different levels of
18 margin.

19 And that's incumbent on us, then, with new information, to go back
20 and understand whether that affects the safety of the plant. As it stands,
21 whatever resulted in it, it's got a certain size anchors. They got a certain size --
22 certain type of re-label -- whatever drives the safety of the plant is now there and
23 you have to come back and understand whether the new information affects that.

24 So, for A46, for IPEEE people went back and did that, resulted in
25 maybe some upgrades, but it's not a design basis issue. Whatever it took to get

1 you there, that's what happened. Now, you've got to go and then evaluate it to
2 this new information. So, you get new information, you're going to have to do this
3 for GI-199. You're going to have to go through a process like this to do a best
4 estimate. As Goutam says, the capacity -- what you do to evaluate what really is
5 the failure is the level, what margin you need may not depend on any of those
6 criteria. All three of those that have changed over time -- the codes change --
7 you're going to use your best available information to do that evaluation now.
8 That's what you did to get the hazard. That's what you've got to do to get the
9 margin of fragility and you estimate your risk based on what the plant is today --
10 might have changed on what your design was. Maybe they've added new
11 system, new components. All those have to be taken into account and in order
12 to meet the standard -- either PRA or margin -- that's what you've got to do.

13 So, I view the design basis as how you got there, not how you get
14 out of it. You've got to address what you really believe the risk is and margin,
15 based on your best estimate of what the plant condition is in terms of what's
16 there, aging effects -- whatever happens, it's your, now, best estimate today.

17 KAMAL MANOLY: How do you define the demand?

18 GREG HARDY: How do you --

19 KAMAL MANOLY: Define the seismic demand?

20 GREG HARDY: Well, there's a whole process you've got to go
21 through, based on the new information. If a hazard changes, that sets the
22 demand. So you just -- like you would do in any PRA, you now have to set that,
23 generate it through some best estimate -- I mean, it does depend now whether
24 you're in a margin or a PRA, but there's two different set criteria and methods
25 you go through to get that demand.

1 KAMAL MANOLY: Or margin.

2 GREG HARDY: Well, you've got to set your earthquake and do
3 some kind of a best estimate response. You start off with whatever it is and go
4 through your best estimate response. You've got to go through soil-structure
5 interaction, got to go through the -- I mean, it's no different than it was. It's just
6 using state-of-the-art techniques to do it.

7 KAMAL MANOLY: But with new information you have a new
8 demand.

9 ANNIE KAMMERER: Right.

10 GREG HARDY: All right, say that again.

11 KAMAL MANOLY: With new information, you have new demand.

12 GREG HARDY: Maybe, yes. That's what you're checking. New
13 information can be less demand.

14 KAMAL MANOLY: Oh, yeah. But I'm assuming, obviously. If it's
15 lower than, it's not an issue.

16 GREG HARDY: Well, but there's all kinds of lower and upper, you
17 know. It can be higher and high frequency, and lower, lower frequency and --

18 KAMAL MANOLY: I understand.

19 GREG HARDY: -- you know what I mean. There's -- yes, you have
20 to assess it. And that's -- this flowchart describes that. You've got to go through
21 it pretty carefully to address all the changes and you have to step through the
22 whole process two different ways. I mean, this is unique to commit to do it twice,
23 two different methods, kind of, I guess, based on LTSP, there's some precedent
24 for having to gone through that.

25 ANNIE KAMMERER: Okay, so based on this conversation, let me

1 ask a question of the whole table, because maybe this gets to some of the lack of
2 understanding.

3 At least on my part, I'm not sure of the answer to this. So in the
4 licensing basis, okay, so you got these static ground motions, which are the DE
5 and the DDE. You've got a static performance criteria, right, and some sort of
6 bilinear [spelled phonetically] behavior is typically what we see in the SSC ground
7 motion. And you have to analyze the SSC, your structure systems components,
8 to assure that they meet the required performance criteria for that particular
9 ground motion.

10 The tools in which you do -- that you use -- the assumptions that
11 are made in that analyses are very important and I guess my questions is, one:
12 To what degree are those defined in the licensing basis, because perhaps part of
13 the confusion, or at least my confusion as well, is that say, for example, damping;
14 the kind of damping that you're going actually going to see naturally coming out
15 of the structure during a DDE level ground motion, which is much lower than,
16 say, what we would see from the highest grade ground motion. You're going to
17 see a lot higher damping inherent in the structure throughout that event.

18 So, I guess perhaps some of the confusion, perhaps some of my
19 confusion, is within the licensing basis, how much of that is defined such that we
20 can be assured that you're not going to use, say, damping that's more
21 appropriate for a Hosgri-type ground motion, to show that the DDE performance
22 criteria are met.

23 BILL HORSTMAN: May I? Bill Horstman again. In our license, we
24 defined the criteria and methodologies separately for each of the three
25 earthquakes. We have a tabulation of damping, based on material or structure

1 type. And then there's three categories. There's a value that goes with the DE,
2 there's a value for the DDE, and a value for the Hosgri. So we may have small
3 bore piping; DE is a half a percent, DDE is 1 percent; and Hosgri is, say, two
4 percent.

5 Now, if you've got a ground motion that's at a DE level, you know
6 the damping is lower. You can't take the Hosgri damping at two percent and then
7 apply it, ever, to the DE level-earthquake; but those always go together. The
8 same thing on allowables. You know, DE, we use 60 percent of yield strength;
9 DDE, we may use 90 percent of yield strength; and Hosgri, we use 1.0 times
10 yield strength.

11 So those methods and acceptance criteria always go with the
12 particular earthquake. When it came to long-term seismic program, the
13 acceptance criteria we used there to develop our capacities, the Heathcliff values
14 are based upon the seismic margins guideline, basically the EPRI, the NP-6041
15 SL report, that has median centered damping. It has 95 percent cophonous
16 [spelled phonetically] material properties.

17 So again, the LTSP, the fourth curve has its own acceptance
18 criteria, which is not the same of any of the other three earthquakes, but we
19 always keep those -- we don't mix and match between the criteria and the
20 different earthquakes.

21 JAMES POLICKOSKI: That's an important point. We do not hold
22 that your license is the LTSP. We hold your license is the three earthquakes.

23 BILL HORSTMAN: Yes.

24 JAMES POLICKOSKI: And the way you stated it was actually
25 pretty well. And, you know, from my read. And that they have criteria. And

1 rolling back to Annie's question, in the end, if new seismic information comes in,
2 it's going to produce what it's going to produce, but it has to be measured against
3 those three yardsticks you just described pretty well. Because that's your
4 license; that's how we define safety, for what it was worth at the time.

5 Now, it may not have been built by the best quality at the time,
6 because things have dramatically improved; and I understand that. And that's
7 something that probably is a topic for a separate meeting. But that's how we
8 understand the license and how we define operability for the moment. And I
9 understand you want to make this amendment, which in a lot of respect, is a lot
10 of goodness that I know the staff sees in what you guys want to include in the
11 amendment. But we also have to look at the license for what it is. We
12 understand what we're changing it from.

13 KAMAL MANOLY: Would you clarify, if -- would you classify this
14 amendment as introducing a tool for operability determination?

15 RICH KLIMCZAK: It's a tool to assess new seismic information.

16 KAMAL MANOLY: Well, yeah, but to determine operability,
17 because when -- typically, if you discover some new information about -- let's say
18 you discovered a component that you thought had a certain yield strength
19 [unintelligible] is lower, you will have to re-do your analysis based on the lower
20 yield strength, because you discovered you had an error in the CMTR or
21 something like that.

22 So here, you discovered new information but you said, "I'm not
23 going to revise my licensing basis." So you're really using it just as -- for
24 operability.

25 GREG HARDY: No, [unintelligible]. You're really assessing the

1 safety. This has happened. You were involved in it. A46 and IPEEE; it's the
2 same issue and it wasn't the licensing basis and it wasn't an operability issue. It
3 was a safety issue. You determined that by a margin or a PRA.

4 KAMAL MANOLY: But A46 was to -- [unintelligible] that were not
5 licensed to IEEE -- 1970 --

6 GREG HARDY: Why was that? Because the methods changed.
7 Some of these plants were licensed without any real seismic considerations. Did
8 you go back and force them to change the -- you didn't evaluate their license
9 basis. That would be foolish. They really had no seismic licensing basis.

10 You did it to a criteria to assess whether it was safe or not. You
11 were required to bring them up and do some things in terms of mods, right?
12 Similar to this. Same with IPEEE -- it came on top of that. New information
13 became available, and that was primarily hazard, not just methods, in the IPEEE
14 case.

15 You did an evaluation, not to operability, not to the design basis. It
16 was based on that level of safety that you felt comfortable with and had to show
17 that. I -- that's got to be it, because Diablo has a more confusing history of their
18 design. Think of what you're saying and how that applies to other plants that had
19 little or no seismic design basis. You're going to let them off the hook for doing
20 nothing because they had not committed anything? You have to hold everybody
21 to the equal standard of safety.

22 MALE SPEAKER: Greg, excuse me. Oh, sorry.

23 JAMES POLICKOSKI: Well, I just -- this is Jim again. We've got to
24 watch how we used the word, "How it impacts safety and operability," okay?
25 Those -- because impact safety is the end, the ultimate mission, okay, for, you

1 know, for us. But we also have a line where we put it in the license that our
2 immediate license line for safety, before we might require further analysis if that
3 line gets crossed, is operability.

4 And that's a critical line. And we defined it through these
5 yardsticks, which Bill described. And that's -- I understand the challenge and it
6 had some history here, and I respect that. But we all have to focus on what you
7 as Diablo are bringing and -- but that's -- that is the huge disconnect is how --
8 and I think why we're having an impasse in communication is that -- is we totally
9 understand that you have new seismic information, new hazard, let's say, that
10 comes in. But in the end, the yardstick is not LTSP; the yardstick, by which you
11 ultimately declare operability, is what the license states. I understand it may be
12 antiquated. I understand that --

13 NORM ABRAHAMSON: Could you explain to me, given the
14 Shoreline fault --

15 JAMES POLICKOSKI: Okay.

16 NORM ABRAHAMSON: What would you do to evaluate
17 operability? My DE or DDE, and my Hosgri, we've agreed are static in terms of
18 their spectra --

19 JAMES POLICKOSKI: Right.

20 NORM ABRAHAMSON: -- they're static in terms of their
21 allowables. So the Hosgri fault or the Shoreline fault has no impact on those
22 three design events and their criteria. So, what would we do different?

23 FEMALE SPEAKER: Incorporate the license amendment.

24 JAMES POLICKOSKI: Hosgri is part of the license as a special
25 case earthquake, yes. The -- I think what we -- in fact, even looking at the

1 reports you're giving us for Shoreline and -- is that it is a science assessment, in
2 essence, of the hazard. What -- and there's been previous items that -- of review
3 at Diablo, even recently, for certain pieces of -- I mean -- for certainly safety-
4 related equipment, SSCs, that the limiting earthquake was not the Hosgri -- and
5 therefore --

6 NORM ABRAHAMSON: Could you tell me -- I hate to be really
7 specific --

8 JAMES POLICKOSKI: No, please.

9 NORM ABRAHAMSON: -- but what would you do differently --

10 JAMES POLICKOSKI: Right.

11 NORM ABRAHAMSON: -- because the Shoreline fault is there or
12 not. Okay, let's say I didn't have the Shoreline fault. You evaluate your piece
13 equipment against the DE with its allowables, the DDE with its allowables, the
14 Hosgri with its allowables, and the LTSP with its margin requirements. You do all
15 those and you meet it. Now you say, "I have a new fault, the Shoreline fault."

16 JAMES POLICKOSKI: Right:

17 NORM ABRAHAMSON: How does that analysis change at all?

18 JAMES POLICKOSKI: I can give you a direct answer. The issue is
19 -- the question that has to be asked, in my opinion, and I'm not necessarily
20 polling, speaking for the entire NRC staff, is that the FSAR has to be evaluated, if
21 it is truly bounding in terms of your license condition -- in terms of your license.

22 If the FSAR is not bounding -- meaning you have found a hazard
23 that can cause a non-conservative impact in terms of the three criteria -- then
24 therefore, that hazard now --

25 NORM ABRAHAMSON: How do you do that? I don't even know --

1 JAMES POLICKOSKI: You've -- in my assessment, you have done
2 Step 1, which is evaluated the hazard.

3 NORM ABRAHAMSON: But, what do I do with the hazard? How
4 do I even tie it to a DE? The DE is a spectrum and a set of allowables. I don't
5 change that spectrum.

6 JAMES POLICKOSKI: My understanding is that, and actually, from
7 listening to you, especially the January 19 meeting, is you have equipment
8 groups that are very sensitive to specific areas of your spectrum. There's
9 probably equipment groups that are more sensitive than others in each band of
10 the spectrum and that those would probably have to be targeted to see if they
11 are, in fact -- is there a chance that the pipe that's hanging on the wall could be
12 effected worse in the Shoreline, since that's the example we were talking about,
13 than through the earthquakes, as licensed.

14 NORM ABRAHAMSON: And that's what we're doing. But when
15 we're doing that evaluation, we're using our -- what we're trying to say -- what will
16 really happen to it. Okay? And, so using modern estimates of the capacities of
17 the systems and modern estimates of the shaking. That's what we're saying,
18 here.

19 I'm still trying to figure out, do you want to make a change to the
20 spectral values used for the DE?

21 JAMES POLICKOSKI: It's not a matter of changing the spectral
22 values. You've been handed a new spectrum with Shoreline, for example. It is
23 what it is. And it is going to be different than DE or DDE. That just is what it is.
24 But it's going to cause the equipment to respond in its own unique way --

25 NORM ABRAHAMSON: Okay.

1 JAMES POLICKOSKI: -- depending upon where it is in the plant,
2 what spectrum, which frequency causes it the worst.

3 NORM ABRAHAMSON: But the allowables that we would use in
4 the evaluation would be the most up-to-date engineering practice, not --

5 JAMES POLICKOSKI: Is that meaning separate from how the
6 license was developed? Is that what you say --

7 NORM ABRAHAMSON: You have to say it because the license
8 goes with those damping values, go with the spectral values; they're a pair; you
9 can't separate them. Building codes -- you can't take one piece and say, "I'm
10 going take something from 40 years ago and I'm going to shove it together with
11 something modern." They have to -- they fit together in a way that is
12 unseparable.

13 MICHAEL MARKLEY: It's Mike Markley. We've been on the same
14 question for 45 minutes. I'd like to hear the rest of --

15 NORM ABRHAMSON: They're all related to the --

16 MICHAEL MARKLEY: Yeah.

17 NORM ABRHAMSON: -- the same fundamental issue.

18 RICH KLIMCZAK: All the answers are the same.

19 [laughter]

20 ANNIE KAMMERER: I think people have to be careful too, to stop
21 talking about earthquakes and start talking about ground motions, because I
22 think part of the problem is that people think about these things as it being an
23 earthquake or fault or whatever, and that's not what engineering is based around.
24 It's based around ground motions.

25 ANNIE KAMMERER: So, if we could start with that change, I think

1 that would be really helpful.

2 JAMES POLICKOSKI: Okay, and I'm using a licensing phrase,
3 which is -- because the earthquake encompasses the -- all of the above. You get
4 everything with it, but the hazard and the engineering criteria behind it. And I'm
5 focused on the engineering here. And Norm, I apologize if I was unclear on that.

6 And -- but, it just -- I do agree with you to move on. Let me just get
7 this last question out. If we're going to talk about it in more clarity later, Rich,
8 then we can cover that. It's that -- I understand your point because it's a
9 licensing point too, but in the end, if the pipe has to be held to certain
10 parameters, it cannot elastically or inelastically deform but so much. Then that is
11 -- that's the building code, so to speak. And if Shoreline makes it do worse than
12 that, and then that's not good. That's how we look at it. That's the black and the
13 white part of operability, at least in my narrow view. I won't speak for the whole
14 staff here. But, you know, and that's the part that -- how do we know you did that
15 if, in those places where the pipe will perform worse compared to the building
16 code we held it to. That's the part we're having -- we can't see in your analysis.

17 KAMAL MANOLY: Let me try to take a shot at what he's trying to
18 say. I'm not too concerned about the Shoreline fault, but let's say that Shoreline
19 fault has spectrum that some above the LTSP. And he's saying, "How do you
20 evaluate the components on a spectrum that's much higher here?" I expect that
21 you're going to be doing -- using the same design rules for -- the highest one is
22 Level D, for ASME, right? Isn't it? I mean, correct me if I'm wrong. Whatever
23 reloading combinations for the highest level of loading? I mean --

24 RICH KLIMCZAK: What are the level -- what are the loading
25 combinations?

1 KAMAL MANOLY: No, I mean whatever the loading combination --

2 RICH KLIMCZAK: Right, right.

3 KAMAL MANOLY: -- you know, for Level D --

4 RICH KLIMCZAK: There's a set of loading combinations to meet
5 Level D criteria.

6 KAMAL MANOLY: Whatever you've been using for in your
7 licensing, right?

8 RICH KLIMCZAK: Right.

9 KAMAL MANOLY: So, but isn't that -- isn't that the answer to his
10 question or -- I mean, I know you're not saying that. But I don't want to answer
11 for you?

12 BILL HORSTMAN: May I?

13 KAMAL MANOLY: Bill, go ahead.

14 BILL HORSTMAN: We use the Heathcliffs in the new information,
15 be it Shoreline or another earthquake. We come up with a new demand based
16 upon the new ground motion. We either use the same Heathcliffs we computed
17 for a long-term seismic program back in '88 or we update those, if necessary, if
18 there's a change in the spectral shape, so that it's more dominant in one
19 frequency, since the Heathcliff values are dependent on the average spectrum of
20 acceleration between 3 and 8.5 hertz, or how we define them.

21 If we re-define them, but we still follow the same rules. The rules
22 that are define the Heathcliff are based upon median damping, 95 percent
23 cophonous material properties, Level D allowables for ASME, certain increases
24 for that concrete code allowables, depending if it's a concrete structure or an
25 ASME structure. So those rules are implicit in the LTSP evaluation from '88

1 timeframe. And the ground motion definition should not affect those --

2 KAMAL MANOLY: I was trying just to clarify --

3 BILL HORSTMAN: Yes.

4 KAMAL MANOLY: -- Jim's question.

5 RICH KLIMCZAK: Yeah.

6 BILL HORSTMAN: But maybe another thing I wanted to mention --

7 which, I don't know, maybe it's kind of terminology -- that, you know, we keep
8 talking about operability and in a classic sense, at least to me, operability, you
9 look at when you have degraded or non-conforming conditions. Is something
10 broken or do you find, like, an assumption error or an analytical error? You
11 mentioned, you know, the incorrect CMTRs. So that's actually affecting the
12 physical condition of the plant. A new seismic hazard doesn't affect the installed
13 condition of the equipment in the plant. It's just a new, outside piece of
14 information.

15 JAMES POLICKOSKI: That is why I clarified that Norm's question
16 why the issue begins at the FSAR. Is the FSAR correctly bounding or not? And
17 if it is not, then it comes back to looking at the SSCs to verify, are they built to a
18 potentially hazard that was not included in your FSAR previously, but now you
19 realize the FSAR is not bounding enough for what the environment might be
20 handing the site, and that's how that changed.

21 The comment is well-taken. But still, it doesn't mean it gets
22 ignored; it means the FSAR is moderating the best starting point, because the
23 FSAR evaluate -- in terms of Chapter 2 and Chapter 3 -- the best known data at
24 the time.

25 ANNIE KAMMERER: Okay, I've been asking a question. I'm

1 getting different answers, so maybe we can clarify this as part of the problem.

2 After the LTSP, there was -- it was an evaluation for safety to a new
3 ground motion spectrum, which we've seen. Subsequent to that, was there a
4 license amendment such that now there are three licensing bases, or three
5 ground motions with their coupled performance criteria and assessment
6 methodologies in the license or not?

7 In other words, was the license ever modified so that it includes the
8 DE, the DDE, and the HE? Or was the HE just more sort of a safety
9 assessment that came after?

10 RICH KLIMCZAK: This is Rich. The license was amendment and
11 we have the three earthquakes: the DE, the DDE, and the Hosgri. And they
12 have their own set of acceptance criteria.

13 ANNIE KAMMERER: And was it then, was it defined as a ground
14 motion? Or was it defined as a ground motion resulting from a specific fault?

15 RICH KLIMCZAK: The ground motion -- in fact, the NRC and the
16 SSC are 78-34 and ASLB hearings said they met the criteria of the SSC Part
17 100. [spelled phonetically]

18 NORM ABRHAMSON: It was set as a ground motion.

19 RICH KLIMCZAK: A ground motion?

20 NORM ABRAHAMSON: It's a spectrum and it's a ground motion,
21 and acceptance criteria.

22 KAMAL MANOLY: Let me just ask a simple question. In the -- info
23 conference, you guys mentioned that the Hosgri was downgraded to a very
24 different shape than what's shown here? Is [unintelligible]

25 MALE SPEAKER: Do you want to answer that?

1 LOREN SHARP: Yeah, I think that the answer is it's not the Hosgri
2 spectrum is still the curve shown that we have continued to judge ourselves
3 against, but what the research was done, recently in the Shoreline report, shows
4 that it -- the Hosgri itself -- if it were analyzed in today's world with today's
5 knowledge, would be the lower curve.

6 KAMAL MANOLY: Oh, okay. But you don't intend to change --

7 LOREN SHARP: No, we do not, no.

8 BILL HORSTMAN: It's -- let me say -- this is Bill speaking again. I
9 want to say something to Annie on this, maybe a little clarification for what Rich
10 said.

11 Okay, our license has three deterministic earthquakes with their
12 own acceptance criteria: the design, the double design, and the Hosgri. Now, I
13 don't think you were around for this, but the license condition from the Atomic
14 Safety and Licensing Board was we had to re-evaluate the plant over a 10 year
15 period for new information. So that culminated in the long-term seismic program
16 final report in '88, after the plant was operating. That was part of our license
17 condition. That's what's evaluated in Supplement 34 to the Safety Evaluation
18 Report.

19 So that's part of our license and that fourth earthquake has its own
20 acceptance criteria, the seismic margins criteria. So that's the dashed curve on
21 our figure there, which is independent of the Hosgri -- what we're calling the '77
22 Hosgri -- which is the one that the plant was retro-fitted for, prior to operation.

23 ANNIE KAMMERER: Right, but meeting the license condition
24 doesn't necessarily mean that your license -- it doesn't inherently change your
25 licensing basis.

1 BILL HORSTMAN: But we --

2 ANNIE KAMMERER: Your legal license [inaudible] --

3 BILL HORSTMAN: In our FSAR, after the license condition was
4 satisfied, we, be it as it may, we added in Chapter 2.5; there's a brief discussion
5 of the fact that we re-evaluated for the long-term seismic program. It references
6 the reports that were submitted and it references the NRC review and SSER34
7 [spelled phonetically] and that's discussed in Chapter 2.5 of our FSAR, in terms
8 of it being a seismic margins evaluation for the plant. So that at least introduces
9 the fourth earthquake. It was not through a license amendment process. It was
10 after the close out of license condition -- what is? 2.7 or 2.C.7 I think it is?

11 ANNIE KAMMERER: Well, then there's three.

12 BILL HORSTMAN: Yes.

13 ANNIE KAMMERER: Just because, [inaudible] license [inaudible]

14 JAMES POLICKOSKI: Okay, we're going to take a break here and
15 we'll recess until -- 10 til that clock right there on my left. That gives us 12
16 minutes and I know there's a suggestion to have an internal [unintelligible] -- So -
17 -

18 MALE SPEAKER: Yeah.

19 JAMES POLICKOSKI: Okay. All right, so we'll take a 10 minute.
20 For those on the phone, we will recess until 2: 50 Eastern Daylight Time. And if
21 you haven't signed in, please sign in. I think I have a -- you know, the sheets
22 here on the table are by the door.

23 [break]

24 JAMES POLICKOSKI: Okay. Thanks. We went a little long there
25 to our folks on the other end of the line. And we do have a few questions on our

1 end, but I do want to let Rich finish if you had further, more formal parts, of your
2 presentation.

3 RICH KLIMCZAK: I would like to say something before we begin
4 because we went through a lot of the same kind of debate outside of here that
5 we went through in here. And I think one of the things that would be really
6 helpful to us as we go forward -- I mean some of the classic terms that we're
7 talking about safety and operability and how you walk through that. Maybe as
8 you proceed toward developing your actual submittal, that you clarify that
9 decision making process a little bit better would be probably very helpful and
10 even how you're evaluating the margins. That's all.

11 JAMES POLICKOSKI: Did you have more formal -- I mean we sort
12 of hijacked there in the middle there and dug into the questions. It looked like
13 you might have had more formal news, Rich.

14 RICH KLIMCZAK: Yeah, this is Rich again. I do have responses to
15 all the questions. We can go through them. Okay, we kind of lumped questions
16 two, three and four together. We have a generic response to all three. Two is
17 clarification of how the LTSP analysis flow chart will be utilized to qualify new
18 plant equipment, perform plant modifications, perform condition evaluations and
19 are evaluating non-conforming degraded conditions with specific discussion of
20 the LTSP analysis and licensing basis relationship to existing design and
21 licensing basis of the operating basis earthquake and DCP, which is the OBE
22 which is DCPD safe shut down, SSC, Diablo Canyon, DDE, Hosgri and
23 regulations from Title 10 of Part 50 Appendix Alpha, GDC 2, General Design
24 Criteria 2, design basis for protection against natural phenomena and 10 CFR
25 Part 100 reactor site criteria.

1 Question three, clarification of how results of the LTSP flow chart
2 either deterministic, probabilistic or both for LTSP evaluated ground motions
3 specifically relate to the three license associated and existing design ground
4 motion equipment performance criteria, OBE, SSE, Part 50 Appendix Alpha GDC
5 2 and Part 100. And four is discussion of how the LTSP analysis results will be
6 used in conjunction with the OBE, SSE, Hosgri, Part 50 Appendix Alpha, GDC 2
7 and Part 100 as a licensee basis for future licensing actions. So the way we're
8 responding to that, we're looking at the purpose of our flow chart is to evaluate
9 new, geologic and seismic data information and interpretations for impact on the
10 DCPP seismic design basis.

11 We're looking at that in two cases. One, we got a new determines
12 of ground motion spectra and it's completely enveloped by the 1991 LTSP, just
13 as we discussed in flow chart. For that case, this new ground motion spectra
14 would not be used to qualify new plant equipment, perform plant mods, perform
15 condition evaluations or [unintelligible] graded non-conforming conditions. There
16 is no adverse impact on the original existing design licensing basis OBE and
17 SSE which is DEDD, Hosgri or our compliance to the Code of Regulations, Part
18 50 Appendix Alpha GDC2 or Part 100. The other case is when we have a new
19 determines of ground motion spectra which is not completely enveloped. We
20 have an exceedance in some frequency range. If -- as you saw in our process, if
21 the seismic margin acceptance criteria are met, we're concluding the SSC has
22 sufficient capacity over demand to perform their safety function.

23 There will be no immediate impact on the qualification of new plant
24 equipment, performance of plant mods, performance of condition evaluation and
25 our non conforming degraded condition. A licensee then will be submitted to

1 address the impact on the SSEs and the frequency range of exceedance of the
2 1991 LTSP spectrum. The result of the license amendment may result in a
3 revised LTSP spectrum and maybe the Hosgri return on where the exceedance
4 is. And then once we get that license amendment, those amended spectrum for
5 LTSP and possibly Hosgri would be used for the qualification and new plant
6 equipment, plan mods, conditioning [unintelligible] and or evaluation of non-
7 conforming degraded conditions.

8 There is a second part to the second case where, you know, we
9 have an exceedance of the LTSP and possibly Hosgri, is where we don't meet
10 the seismic margin acceptance criteria for 1.0 or greater or less than that. We
11 would have entered, you know, the applicable LCO, declared the NFSC
12 inoperable and at that time we would look at possible development of
13 compensatory measure for that, those impacted SSE's to restore that margin so
14 that we can meet that acceptance criteria. And again we would need a license
15 amendment because of the exceedance to resolve the issue.

16 KAMAL MANOLY: I have a question, just a clarifying question. So
17 if you're spectrum exceeds the LTSP sum frequency but you still pass the
18 threshold on the right and left side, would you request an amendment or not?

19 RICH KLIMCZAK: Yes.

20 KAMAL MANOLY: Even though you meet the threshold in margin
21 end [unintelligible]?

22 RICH KLIMCZAK: Because we consider that LTSP spectrum our
23 licensing basis.

24 KAMAL MANOLY: I see, okay.

25 RICH KLIMCZAK: And if we have --

1 KAMAL MANOLY: I'm sorry, I understand. I'm not saying I agree, I
2 understand what you are saying.

3 RICH KLIMCZAK: Any other questions?

4 ANNIE KAMMERER: OK, so based on the discussion that we had
5 during our caucus, I think that I understand where some of the confusion is lying
6 or some of the miscommunication. Let's say for example that the Shoreline fault
7 has not even been identified. That we're going back to, you know, prior. I think
8 that there's an impression that it's the viewpoint of perhaps some PG&E staff that
9 when you're looking at say new equipment or operability of the plant on a longer
10 term, ongoing basis, just day to day operations that there's -- that by checking
11 against the Hosgri ground motion and using all of the tools and allowables that
12 are associated with that, that that sort of somehow by default means that you are
13 going to be able to meet the performance criteria of the DE and the DDE.

14 And that, that's maybe more of a problem on a longer term basis
15 and that that impression exists and so that may have been leading to some
16 situations within in the plant prior to this. And so I think there's some misgivings
17 or maybe some lack of understanding that here -- what you're saying here, which
18 is a completely separate thing from the requirements that existed previously to
19 meet those three performance criteria before that really in practice only one of
20 them was being considered. And so that as we're looking at codifying a new
21 license amendment that it really needs to be made very crystal clear that the
22 need to always check against those other criteria is ongoing, is separate any new
23 information that may be found. And so I think the inclusion of a very robust
24 description of that fact, that those three license conditions must always be
25 considered.

1 Not just the HE ground motion needs to be incorporated, because I
2 think that there's still an impression that it's the viewpoint, again of some staff of
3 PG&E, not necessarily people here, that sort of if you can show that you're okay
4 in the [unintelligible] ground motions and the higher ground motions, that sort of
5 by default, you can sort of prove the others. And that's not the case and that's
6 the viewpoint of NRC staff. And there's some specific, I guess, examples where
7 that has been shown to not be the case where actually the more stringent
8 performance criteria for the DDE turned out to be the illuminating case. And so
9 we have to really, I think, clarify that in order to be able to do an amendment like
10 this.

11 RICH KLIMCZAK: Address the impact on the DE and DDE.

12 ANNIE KAMMERER: Well the fact that those, all those
13 requirements before are still in place, will continue to be in place. That all this
14 does is address new information.

15 MICHAEL MARKLEY: How it's screened against those basically?

16 LOREN SHARP: Let me clarify a little bit. This is Loren. So
17 essentially what Bill Horstman and others have identified is that when we're
18 doing new modifications or when we're doing changes to the plant, what we have
19 always maintained is essentially that we would design a new modification to the
20 DE, the DDE, the Hosgri and the LTSP. We would look at all four of those
21 because we believe the way that we have implemented our process in such a
22 way that when the license condition was met, we committed to continue on and
23 do the LTSP process as part of our commitment to do that. So right now the
24 engineers are doing all four.

25 MICHAEL MARKLEY: And that's the understanding that we have

1 and didn't fully appreciate I think through all of the discussion.

2 LOREN SHARP: And again as we have agreed in the past, we are
3 just continuing down the path that we previously did, identified in 34 that when
4 we find the information, we were judging that new information for new insight
5 against the LTSP process we previously been reviewed and accepted by the
6 staff.

7 MICHAEL MARKLEY: Okay, good clarification.

8 RICH KLIMCZAK: Now I want to ask for a clarification, this is Rich.
9 So are you saying when we get new seismic hazard information that we have --
10 and the ground motion spectrum is developed, spectrum's developed, that we
11 have to take that and assess it against the criteria for DE and DDE and Hosgri?

12 ANNIE KAMMERER: No, because the new hazard information
13 doesn't impact the DE and the DDE. It does impact the capacity and it does
14 impact those ground motions. I think the challenge is more that there is some
15 residual viewpoints from maybe in the past just in the ongoing operability rule
16 reviews or work that's been happening at the plant. But there hasn't been that
17 awareness, that there are actually all of these different review level ground
18 motions and they're accompanied requirements.

19 So no, I mean, new seismic information does not impact what the
20 ground motions are for the DE and the DDE or what their requirements are or the
21 methods and tools that are used to assess them. Right? By definition it doesn't.
22 All it does is changes our perception of how likely those events are but that's
23 taking a probabilistic understanding into a deterministic world. Right, that's not a
24 part of the licensing basis but I think that there's, again, some residual hesitation
25 because of a view that that maybe that didn't always happen in the past, just on

1 an ongoing basis.

2 GREG HARDY: So this is Greg. This is actually clarifying
3 something that I didn't think we'd get to but you're exactly right. If you separate
4 this from new information, what you're talking about is defining what your design
5 basis now is and how you do it. Then this is something on top of that for new
6 information which --

7 MALE SPEAKER: Right.

8 GREG HARDY: Maybe that's why we were so far apart. I still think
9 that it's very clear to me how this process has worked. The NRC has, on every
10 case that I can think of, used this kind of safety risk implication to decide what to
11 do. So I think it does go back to the design basis, maybe there's a
12 misunderstanding or a misinterpretation or whatever to what's being done in
13 terms of all these earthquakes.

14 But again if you take it away from Diablo and take it into another
15 plant that's got an SSE and OBE, defining what you do and when the SSE
16 governs and when the OBE governs and when the two actually do that for any
17 new piece of equipment, that should be incumbent on the utility to do and define
18 it. And they should do it and if they're not doing fine but it doesn't affect how you
19 treat new information. And hasn't whether it's a real earthquake or a new hazard
20 or whatever it is, always that I can think of, you've used that kind of litmus test of
21 does it affect the plant safety and it may indeed end up affecting the licensing
22 basis but only after you've gone through that exercise.

23 MALE SPEAKER: Do you want to go on?

24 RICH KLIMCZAK: I can't let this go, sorry, Rich. So what I'm
25 hearing -- because Annie you talked about there's maybe somewhere on our

1 side of the house people think that if we're okay for the Hosgri, we don't have to
2 consider the impact on the DE or the DDE. In other word, how is it screened
3 against the DE and DDE? So and then I heard, it doesn't impact the spectra for
4 the DE and the DDE and that this new information doesn't -- so I got this new
5 Shoreline fault ground motion spectra, how do I screen it against DDE? I just
6 simply say, it's new information for this process? It's not impacting the DE, DDE
7 qualification?

8 ANNIE KAMMERER: The requirements for your ongoing
9 operations to be consistent with their licensing basis in terms of maintaining the
10 equipment against the DE and the DDE performance basis remains. And your
11 information doesn't change the fact that you have to continue to maintain your
12 plant such that it needs to be licensed performance criteria.

13 RICH KLIMCZAK: We agree with that. I just want to be clear.

14 JAMES POLICKOSKI: Right and that's been part of the challenge.

15 ANNIE KAMMERER: I'm not a license person, I'm a seismologist.
16 So if I'm not using --

17 JAMES POLICKOSKI: That point has been part of the challenge, is
18 the discussion focuses on LTSP which has a relationship to Hosgri but what it
19 doesn't do -- and the discussion is easy when you're trying to build a new -- put a
20 new mod in because going forward it's easy. You have the three criteria and you
21 assess that mod. But when it's reversed process, which is not a hazard change
22 potentially and you've already got existing SSE's sitting in your plant, it's the
23 backwards path that's the challenge.

24 RICH KLIMCZAK: Right.

25 JAMES POLICKOSKI: And the screening, as Annie just put it, is

1 the challenge and what we've been presented is mainly an LTSP HG discussion.
2 What we didn't see is any of the work to insure that any performance criteria
3 against the DE and DDE was assessed. It's not that we're saying the equipment
4 is self-changed, we're not saying that because the equipment that's hanging on
5 the wall didn't change and the licensing basis itself did not change. It's is the F
6 star limiting or not because that describes the hazard your plant will face. And
7 then it could have a resultant impact of the ability for the equipment as built to
8 perform or not. And that's the challenge, it's the backwards approach is the
9 challenge. The going forward --

10 MICHAEL MARKLEY: I think we can visualize what you're saying.

11 JAMES POLICKOSKI: [unintelligible] mostly on this and it may be
12 there and we just, some people don't see it. I maybe don't see it at times but
13 never the less I think it's probably built into your process. But it needs to be more
14 conspicuous.

15 KAMAL MANOLY: Just one clarifying question, when you're buying
16 the equipment to replace all the equipment what -- levels of earthquake do you
17 qualify to only do [unintelligible] qualification?

18 RICH KLIMCZAK: This is Rich again. DE, DDE and Hosgri, if it's
19 seismic category one --

20 KAMAL MANOLY: But not LTSP.

21 RICH KLIMCZAK: There's a sub set of the equipment that we
22 committed to assessing impact on seismic margin.

23 KAMAL MANOLY: So some will require qualification for LTSP and
24 some don't?

25 RICH KLIMCZAK: That's correct.

1 KAMAL MANOLY: What -- would make one go versus the other?

2 RICH KLIMCZAK: That was developed in the LTSP program and it
3 was primarily the SSE's that impact seismic risk that had a seismic margin of 3.0
4 G or less.

5 BILL HORSTMAN: Heathcliff?

6 RICH KLIMCZAK: Heathcliff? [unintelligible]

7 BILL HORSTMAN: Bill Horstman speaking again. Our criteria for
8 new equipment or modifying existing equipment, we have a list of components
9 that came out of the LTSP evaluation, the seismic margins evaluation and the
10 seismic PRA that were considered the high contributors to risk or core damage.
11 And they used the cutoff of anything which had [unintelligible] low probability
12 [unintelligible] of capacity of less than 3Gs but where our deterministic demand is
13 1.94Gs, so it's basically anything with less than a 1.5 over that demand. We said
14 if we change that, we've got to look at that. So when we get a new breaker that
15 we have to shake table test, we do a DE shake for the number of five OBE levels
16 and then we do the SSE level and then if we can we actually do a margin, a load
17 to failure or to the limit of the table.

18 So we'll say, "Okay it's good for, you know, 5G's and that qualifies it
19 for the Hosgri," and then we crank it. And okay, it doesn't break, so we get up to
20 6G's, we get up to 7G's. We try to do that, we do fragility tests if it's possible on
21 the equipment. Otherwise we'll do a fragility analysis, we'll have it done
22 analytically if we can't actually fragility test the component. But that's only on the
23 ones we identified in 1991 as the limiting combone [spelled phonetically] as the
24 contributors to seismic risk.

25 KAMAL MANOLY: But that's all in your current procedure, so that

1 has nothing to do with the amendment you're proposing.

2 BILL HORSTMAN: No, we are not changing that, we're clarifying.

3 [unintelligible]

4 JAMES POLICKOSKI: Go ahead, Rich.

5 RICH KLIMCZAK: There's two final questions. Question five,
6 discussion of how the LTSP analysis flow chart will be utilized in the performance
7 of future operability determinations to include specific discussions on the
8 employment of each side of the LTSP analysis flow chart. I believe we answered
9 that by going through the flow chart.

10 JAMES POLICKOSKI: And you're talking about the bravo --

11 RICH KLIMCZAK: [unintelligible]

12 JAMES POLICKOSKI: With the kick out to the left on the --

13 RICH KLIMCZAK: Right.

14 JAMES POLICKOSKI: -- grade to the 1.0.

15 RICH KLIMCZAK: Right. And the last question for the Shoreline
16 fault in future unevaluated seismic ground motion clarification of how the
17 American Society of Mechanical Engineers Boiler and Pressure Vessel Code
18 allowables for safety related structures and components are being evaluated for
19 exceedance for OBE, SSE, DDE, Hosgri and the LTSP ground motion specter is
20 not immediately or only marginally bounding and safety related SSE's are
21 relevant in the applicable primer range. So for our answer for the case where
22 1991 LTSP ground motion spectra is not bounding the new ground motion
23 spectra, the effected SSE's, seismic margin is compared to our seismic margin
24 acceptance criteria.

25 That seismic margin evaluation method utilizes static capacity

1 equations for components for ASME covered components based on ASME
2 section three service level D limits which is the faulted values. The ASME code
3 allowables for DE, DDE and Hosgri are unchanged by this evaluation process.
4 Changes to the ASME code allowables for DD, DDE and Hosgri would require a
5 license amendment.

6 KAMAL MANOLY: It changes as we record levels?

7 RICH KLIMCZAK: This is asking -- the question was asking
8 whether they change and I'm saying no.

9 KAMAL MANOLY: I've never seen amendments requesting
10 changes at recorded levels.

11 RICH KLIMCZAK: I know, well I mean we're not intending to, I
12 want to answer your question.

13 JAMES POLICKOSKI: That's not what the question asked.

14 RICH KLIMCZAK: What did the question ask?

15 JAMES POLICKOSKI: It did not say, "Would you change the code
16 allowables?" It is saying how would you evaluate if you were not bounded or
17 marginally bounding for those things. How would it be evaluated in terms of
18 whether you have exceeded the code, because that's also another part that we
19 haven't actually seen in your analysis, how you handle whether the code
20 allowables are exceeded or not.

21 RICH KLIMCZAK: Again, our seismic margin process, which we
22 are using for our criteria whether we have operability or not for ASME code
23 components utilizes level D limits.

24 JAMES POLICKOSKI: Okay, how is that analysis propagated to
25 that level so that it could be reviewed?

1 RICH KLIMCZAK: To the level of the DE, DDE and Hosgri?

2 JAMES POLICKOSKI: Right. I mean is that something that is
3 going to be inspectable, viewable?

4 RICH KLIMCZAK: Based on our previous discussion, our
5 clarification of how this process impacts DE and DDE would have to cover that.

6 JAMES POLICKOSKI: You mean something that you're going to
7 incorporate in this amendment is what you're saying.

8 RICH KLIMCZAK: Yes based on this, you know, as you pointed
9 out, this methodology that we're proposing only talks about the LTSP and the
10 Hosgri. It does not talk about the DE and DDE. Hearing what you have told us,
11 we need to talk about how this process impacts those and along with that, that
12 would have to address that question.

13 KAMAL MANOLY: I guess you want to --

14 ANNIE KAMMERER: Are we done? I have a question, what
15 happened to the Delta CDF on flow chart C?

16 NORM ABRAHAMSON: We had decided, based on some other
17 discussions that this was not -- that was a number that was causing you guys a
18 bit of discomfort. That we would put a formal risk based number that we would
19 be trying to go after. So here we have left it in terms of looking at what the risks
20 are and we'll basically let you know and work through what has to be done if the
21 risks have gone up or gone down. So we'll report them to you, so that you'll have
22 them available but we didn't want to set a number that said exactly, "If we're
23 below this number, we're not going to do anything."

24 LOREN SHARP: This is Loren. We listened to you very well. We
25 understand that you're not risk based, that you're risk informed. So we try to

1 keep it that way.

2 ANNIE KAMMERER: So now you're going to determine a CDF and
3 presumably you'll pull the Delta CDF pretty easily out of that and then you're
4 going to provide that for us. And then we're going to see what we think about it
5 versus you guys having a hard number. That's the change in the process.

6 NORM ABRAHAMSON: Correct.

7 JAMES POLICKOSKI: Is that per go around or with the
8 amendment? I missed how you were going to provide it to us. Is that hard and
9 fast in the amendment or per evaluation that that gets notified to NRC in the next
10 block?

11 RICH KLIMCZAK: This is Rich, per evaluation.

12 JAMES POLICKOSKI: Okay.

13 RICH KLIMCZAK: And the license amendment, both.

14 JAMES POLICKOSKI: Oh, so you will have a number in the
15 amendment?

16 RICH KLIMCZAK: No, no, not in the amendment because until it's
17 our licensing basis then we have to include it. So only in the updates of the
18 seismic PRA we would have those values.

19 JAMES POLICKOSKI: Per evaluation, not in the amendment,
20 thank you.

21 RICH KLIMCZAK: Right.

22 JAMES POLICKOSKI: I know there was additional question.

23 Kamal, I'll turn it over to you in the 1.0.

24 KAMAL MANOLY: Yeah, I guess I want more discussion on that
25 number 1.0. I think [unintelligible] expressed their views earlier. You guys were

1 kind of contemplating different numbers and now you bought it down to 1.0. And
2 I guess we have some level of discomfort about that number.

3 RICH KLIMCZAK: Are you comfortable with the 1.0 for operability
4 criteria to conclude the SSE can perform --

5 KAMAL MANOLY: [unintelligible] in the SCR, I mean, I don't have
6 it in front of me so, whatever is written in the SCR, it is what it is, read the
7 English.

8 RICH KLIMCZAK: Right.

9 ANNIE KAMMERER: What we'd accept in 1991 and what we'd
10 accept today are not necessarily the same thing. I mean this is a determinate
11 notification that we're accepting that this is sort of a permanent licensing change
12 versus you know, that we have time to think about a priority and work through the
13 implications. And I certainly again not being someone who works on margins
14 world a lot don't necessarily understand all the implications. I'll have to go back
15 and read the SSCR 34 but, you know, to be in situation where this, all of a
16 sudden this Hosgri, you know, seismic zone comes up and being in that situation
17 versus deciding something 20 years later, that this is a number we can live with
18 permanently. And that also other plants are going to look towards for guidance I
19 think we have to, we as the NRC staff, I think we need to look -- by the way, I'm
20 not saying my name. I'm assuming since I'm the only female voice that you can
21 figure out who's talking.

22 NORM ABRAHAMSON: This is Norm. Annie, we will provide the
23 NRC with the risk calculations so that you can make your judgments. This was --
24 we were trying to set something where if we have new information we need to
25 make an immediate decision, is this such a safety risk we shut down or not.

1 That's really what we're talking about here, as opposed to saying, "Okay, it's 1.0
2 and we're never going to look at anything more." This doesn't mean the
3 evaluation stops, right, because the risk calculation still goes through. So if the
4 risk numbers are not good enough, you would still need to do something to bring
5 the risk values down so that they're small. This is --

6 ANNIE KAMMERER: Right, right, but that's sort of saying that the
7 margins assessment, well this is exactly what you're saying, the margins
8 assessment is only for operability. But I mean that's basically what you're saying
9 and I think that we just need to think about that a little bit. Or at least I need to
10 think about it a little bit more because you're basically going from a deterministic
11 basis to where, you know, it's just for operability to where you're really making
12 your decision in term of modifications or anything like that to the plant in a
13 probabilistic risk role. Of course, that's the world that I live in so I'm comfortable
14 with that but because, I think, at least for my own edification I need to dig into it a
15 little bit more.

16 MICHAEL MARKLEY: I think the burden is to explain why you're
17 picking what you're picking. You had a justification and a rational and an
18 analysis supporting the prior number you bought and now you have an obligation
19 to provide the same for whatever new numbers relative.

20 KAMAL MANOLY: When [unintelligible] and the plant evaluated for
21 [unintelligible] point 3G and Laughlin's [spelled phonetically] SSE was much
22 lower. So it was a lot of [inaudible].

23 GREG HARDY: It wasn't operability though, I mean that's not
24 shutting the plant or not if you find you're below that RLE. This is sort of a
25 different piece of the puzzle that they're talking about here.

1 KAMAL MANOLY: I keep going back to you saying that this is
2 really my operability call. That's what you are saying.

3 GREG HARDY: That's what we're doing. [unintelligible]

4 JAMES POLICKOSKI: Norm, just one quick question, this is Jim.
5 Are you separating whether we have to shut down or not from entering an LCO
6 or are you just saying that for clarity of your point? I noticed you said that a
7 number of times when in essence that kicks you out to an LCE or are you trying
8 to separate an immediate safety question to the health and public or are you
9 meeting operability LCO?

10 NORM ABRAHAMSON: The whole operability, so not --

11 JAMES POLICKOSKI: Okay.

12 NORM ABRAHAMSON: It's really though trying to do something
13 on the very short term, what do we have to do as opposed to we've got some
14 new information, we've looked through the risk which takes a longer time to run
15 through all that analysis. And as you mentioned, nobody else is trying to do a
16 dual approach, right. They either do the margin or they would do the
17 probabilistic. And we wouldn't advise that this be the only criteria and you don't
18 have to do the probabilistic. The other question is how else could we do an
19 operability assessment with new seismic information because that was part of
20 what we were being encouraged to try to come up with an approach with that and
21 this is the approach that we've come up with right now.

22 ANNIE KAMMERER: I would encourage you in the documentation
23 discussion of the fact that this is -- that the margins now is moving into operability
24 space. And it really is that decision is being made because this is a two part
25 process, I think you would do the industry a big service by making that very clear

1 that that in and of itself is not enough. That this really is part of a more holistic
2 approach.

3 NORM ABRAHAMSON: Okay.

4 JAMES POLICKOSKI: All right, we've gone through the agenda, I
5 appreciate that Rich. I just want to insure for formality's sake that we covered
6 that and sense that we also got some nuances off there. Is there any media
7 questions because I do need to give some time to our Region Four brethren as
8 well as the public? Is there any media questions on the topic? Look around the
9 room. Okay, I'll turn the floor over to Region Four or the site, is there any
10 questions from Region Four or the site from the NRC staff?

11 MICHAEL PECK: Michael Peck from Diablo.

12 JAMES POLICKOSKI: Go ahead Michael.

13 MICHAEL PECK: Hi, I have a question on operability. Of course
14 the site inspector operability is a process that we look at to insure that there's not
15 an immediate safety question or immediate safety issue. And so I'm looking in
16 front of me at the deterministic comparison that was part of the hand out and I
17 just, I guess I'm going to ask PG&E just to step me through a specific example.
18 So if I look at a component on the reactor, the reactor head, which we spend a lot
19 of time looking at a similar metal weld and we know that for the reactor to be
20 operable in other words to maintain the integrity during an earthquake combined
21 with an accident, we say it has to meet the code allowable stresses associated
22 with that.

23 And we know that from our reactor head inspection that the double
24 design earthquake is more limiting than the Hosgri for that particular case. And
25 we know that the no design earthquake had a peak round of acceleration of

1 about .4G. So now if I go here and I look at for example the San Luis Bay
2 spectrum that's one this comparison, this margin comparison to the Hosgri, I see
3 that's about 60 percent higher or has about a 60 percent higher peak ground
4 acceleration than what was used to demonstrate that this particular weld could
5 hold together during an earthquake. And so from an immediate operability
6 perspective using this proposed process, how can I feel comfortable that this
7 earthquake, this new information, in this case the San Luis Bay earthquake, if it
8 should occur, that that would induce greater than the code allowable stress on
9 this particular weld?

10 RICH KLIMCZAK: This is Rich. So following our process, the way
11 our license amendment process works, we would again follow through with this
12 new ground spectra, compare it to the LTSP, consider any impacts on the
13 Heathcliff values and assess the impacts against the seismic margin of 1.0 to
14 determine any impacts on the plant's SSE's to perform their safety function.

15 MICHAEL PECK: Just to follow up, the long term seismic program,
16 did it include all the SSE's that were required to be qualified for the double
17 design? And I say that because I know that not all seismic class one SSE's that
18 were qualified for the Hosgri were also -- excuse me, all the SSE's that were
19 required for the double design were not required to be qualified for the Hosgri.
20 So the long term seismic program with the H cliffs, would that include all plant
21 seismic qualified equipment or just those associated with the Hosgri event?

22 RICH KLIMCZAK: This is Rich again, the components for the
23 LTSP were the ones that impacted seismic risk of the plant and are your major
24 structures, containment building, ox building and major components, diesels,
25 safety injection pumps, those kinds of things.

1 MICHAEL PECK: And one last question.

2 JAMES POLICKOSKI: Michael, hold on a second.

3 MICHAEL PECK: The safe shutdown earthquake is defined by our
4 regulations requires that equipment that either prevents or mitigates an accident
5 has to be -- remain functional following the accident. And part of the way that the
6 code accounts for that is it includes the loading on equipment, not only from the
7 earthquake and the dead weight but also the loading combinations including that
8 of the loss of coolant accident. The Hosgri is accepted as an exemption from
9 that accident loadings. It just assumes the earthquake and not the accident. So
10 when I'm looking at this margin curve against the Hosgri design spectrum, does
11 that margin curve when you're looking at the H cliff, does that include the
12 accident loads or does that just include the loading associated with the Hosgri
13 earthquake?

14 RICH KLIMCZAK: This is Rich again. I don't know the answer to
15 that off the top of my head.

16 MICHAEL PECK: Thank you.

17 JAMES POLICKOSKI: Any clarification, you guys can provide later
18 I guess.

19 RICH KLIMCZAK: Pardon me.

20 JAMES POLICKOSKI: This clarification you can provide later?

21 RICH KLIMCZAK: Yes, we'll have to look into that to get back to
22 Michael.

23 JAMES POLICKOSKI: OK, I did have one clarification question of
24 what Michael just asked. LTSP is based on risk based equipment groups only?
25 Is that what I understood you to say for PRA?

1 RICH KLIMCZAK: The set of components that are modeled in
2 PRA, right.

3 JAMES POLICKOSKI: Only, not the deterministic group of SSEs?

4 RICH KLIMCZAK: Not all of them.

5 JAMES POLICKOSKI: OK, all right.

6 ANNIE KAMMERER: And those were identified through the PRA
7 that you guys undertook that started the LTSP?

8 RICH KLIMCZAK: That is correct.

9 ANNIE KAMMERER: I know that, as I recall, you were going to be
10 reviewing or revising your PRA. So are you going to look at that as potentially
11 informing the potential that there might be more equipment that should be
12 incorporated in the list? Right because it is came out as the critical equipment
13 out of the original PRA and you're going to be redoing your PRA, presumably you
14 may be able to find some new accidents sequences or some things that you may
15 feel is important and might identify new equipment particularly in light of, you
16 know, some recent developments.

17 JAMES POLICKOSKI: Nathan, could you answer that?

18 NATHAN BARBER: Nathan Barber. We're at this point starting a
19 gap assessment process on our PRA.

20 JAMES POLICKOSKI: Could you speak up just a little bit?

21 NATHAN BARBER: Sure, we're starting to perform a gap
22 assessment on our PRA that includes our system response models as part of
23 that gap assessment if we identify anything that would result in new PRA
24 modeling than we would include those in the PRA model. And I would assume
25 that they would be included in our LTSP for our methodology going forward.

1 JAMES POLICKOSKI: Are you implying that the goal is that to
2 have that gap analysis complete for the amendment or -- I want to make sure I
3 understood that.

4 NATHAN BARBER: It's going to be as I understand it, proceeding
5 in parallel with the licensing amendment. So by the time -- we are granted the
6 license amendment, we would have that PRA available.

7 JAMES POLICKOSKI: Okay, so they're connected but it's not
8 necessarily in the amendment. You'll make reference to it in the amendment,
9 Okay. Thank you. Any other comments from NRC staff Region Four site?
10 Questions?

11 MICHAEL PECK: Just one more question if I could. On this
12 deterministic comparison -- this is Peck at Diablo -- shows that there's margin for
13 the long term seismic program to the Hosgri spectrum that also demonstrates
14 that the re evaluation of the three earthquakes show margin to the long term
15 seismic spectrum. Would it be possible to get a comparison also with the new
16 earthquakes with the double design earthquake to demonstrate, you know,
17 where that is in terms of margins?

18 NORM ABRAHAMSON: Yes. That's what you question is? Yes.

19 MICHAEL PECK: Thank you. I haven't been able to find a
20 spectrum for the double design.

21 JAMES POLICKOSKI: I want to make sure that I know what just
22 got "yes'd". Okay, so he asked for, go ahead.

23 NORM ABRAHAMSON: This plot here, so our spectra plot, he
24 wants to see the double design earthquake compared to these.

25 JAMES POLICKOSKI: Okay, I've got it. And Norm, you said you

1 were willing to do that, okay, on deterministic comparison plot, okay. Any other
2 questions, comments from Region Four NRC staff?
3 Okay hearing none, I'll turn it over to our members of the public and if you can
4 just, again, state your name for the record so we understand who's speaking and
5 then go ahead with your question. Not sure who we have out there.

6 JANE SWANSON: Jane Swanson, do you hear me?

7 JAMES POLICKOSKI: Yes, ma'am. Go ahead, Jane.

8 JANE SWANSON: OK, I have one question and I will sound like a
9 lay person, because I am, but I didn't hear any talk or have not seen anything in
10 writing about plans to do thorough studies of the San Luis Bay fault or the Los
11 Osos fault. You know, all the studies on Hosgri and Shoreline are appreciated by
12 members of the public but are there plans to do similar studies on those other
13 two faults?

14 NORM ABRAHAMSON: This is Norm and the answer is yes.
15 There is a plan that's going on right now for onshore geophysics for the Los Osos
16 fault and there's additional 3D work being done for the offshore part of the San
17 Luis Bay fault and an onshore for the San Luis Bay fault will be captured by those
18 same seismic lines that are mainly geared on covering Los Osos. So yes, that
19 work is beginning, I think the planning is starting this year and we'll probably be
20 conducting some of the surveys, they should be started by next year.

21 JANE SWANSON: Is there --

22 NORM ABRAHAMSON: I [unintelligible] I have to always, you
23 know, we have to get the permits to be able to do it, but we have budgets and
24 plans to do them assuming the permits come through.

25 JANE SWANSON: Okay, so it sounds like you can't predict when

1 those would be completed, just when they're going to start. Is that correct?

2 NORM ABRAHAMSON: That's -- they generally if we have
3 permits, they should be completed within a year.

4 JANE SWANSON: Thank you.

5 LOREN SHARP: But that, this is Loren, that is a key piece. Once
6 a permit is issued, that we can't predict that time frame nor what Norm is saying.
7 It would be done after the permit is issued.

8 JAMES POLICKOSKI: And Norm just for clarity, what groups are
9 involved in that work you just said?

10 NORM ABRAHAMSON: This is being run by the Geo Sciences
11 Department and so we'll --

12 JAMES POLICKOSKI: PG&E's?

13 NORM ABRAHAMSON: PG&E's Geo Sciences is coordinating the
14 work and still seeing bidders, you know, bids to do those surveys.

15 JAMES POLICKOSKI: Say that last part again.

16 NORM ABRAHAMSON: It's open bids for --

17 JAMES POLICKOSKI: Open bids, oh, I've got it.

18 NORM ABRAHAMSON: For doing the surveys.

19 JAMES POLICKOSKI: Okay but it's going to be under your
20 contract, okay.

21 NORM ABRAHAMSON: Correct.

22 JAMES POLICKOSKI: Okay, go ahead, I'm sorry Annie.

23 ANNIE KAMMERER: I'm sorry, I was just going back over my
24 notes and I realized that I didn't ask one question that was a follow up from the
25 very, very beginning which is the question of significant, because you responded

1 to Kamal's question basically, you know, there's some of course ways you could
2 know, you could tell kind of quickly like what moves a needle and what doesn't.
3 But you know, starting down this path you necessarily -- once you start down it
4 by the time you get to the end, you've done a bit of work, right and so is there,
5 what would be the process if NRC staff believe that something has been
6 identified that maybe significant like maybe -- whatever, maybe it's some new
7 information found out about Los Osos. And you guys say, well, we don't think it's
8 significant and we do. What would the -- and maybe this is to both sides of the
9 table, what would the process be then for NRC staff to initiate this check?

10 JAMES POLICKOSKI: I'll quickly answer that because there's a
11 method, there's a number of avenues we can go, confirmatory action letter, an
12 order, there's many paths depending on how significant we see the issue, how
13 immediate threat to public health and safety. We have a bunch of legal paths
14 that can very much drive the licensee or it could just be an inspection space
15 where we're in operability review and it could be purely in violation space. It
16 could run that gamut from inspectable issue and violation that there is margin
17 remaining, we felt they were not conservative all the way to potential shutdown
18 order. It can run the gamut. It's hard to even guess.

19 MICHAEL MARKLEY: But the bottom lines is safe operation of the
20 plant is licensee's responsibility.

21 JAMES POLICKOSKI: Right.

22 MICHAEL MARKLEY: I don't want to short change the public's
23 opportunity to chat here either because we've had plenty of time for ourselves.

24 JAMES POLICKOSKI: Okay, sorry Jane. I hope we didn't cut you
25 off. Did you have a follow up?

1 JANE SWANSON: No, thank you. My question was completely
2 answered. Thank you.

3 JAMES POLICKOSKI: Okay, any other folks from our
4 teleconference? And again just a reminder to the folks, I know you can hear me
5 on the webcast but you can't yell at your computer screen, you have to talk on
6 the teleconference. Any other questions from the public? I don't want you all to
7 lose out. Okay, Annie, did you have a follow up. Public, I'll check back with you
8 in a second. Annie, did you have a follow up?

9 ANNIE KAMMERER: Yes, in terms of all the different processes
10 that you just mentioned, given that this isn't what's going to be a somewhat
11 unusual licensing element, is there any clarification that needs to be made to
12 make all those processes consistent? Or is the fact that, as Mike said, if there's
13 any [inaudible] that comes up, the processes fall into place no matter what or I
14 just want to make sure that if there is something that we need to bring up now in
15 terms of that, that we do.

16 JAMES POLICKOSKI: To be clear, our processes are -- other than
17 the fact that we're, you know, once we receive this amendment request and we
18 process it and we codify in their license, that has no specific bearing on actions
19 we can take on our own with the code, I'll grant somewhat our own policies allow
20 us to do as the license holder. Yes, public health and safety is ultimately their
21 responsibility in running their plant, but we as the oversight regulator have a
22 number of paths. But it doesn't mean that there's no caveats in their amendment
23 that they would submit to that because our policies exist over and above that as
24 backed up by the code. And I'm not trying to be wishy-washy in the answer but
25 that's how it works.

1 MICHAEL MARKLEY: I would like to just say one thing. This is in
2 many respects a voluntary submittal. And we do believe that over time and when
3 we sort through all these questions that will clarify the design and licensing basis
4 for both the licensee and the NRC. I'm not going to hesitate to say that we'll
5 probably have more discussions where it takes time to work through the mutual
6 understanding and I appreciate your patience and taking the time to do this. It is
7 important; I think the last couple of weeks have increased our sensitivity to it.
8 Not that we weren't already working on it because I think at least as far as Diablo
9 Canyon is concerned, we've been working on seismic for a very long time. And
10 again, I think this is a good initiative on your part and others will probably learn
11 from it. And we're going to be questioned a lot more about all aspects related to
12 this, so.

13 LOREN SHARP: This is Loren. We do appreciate that and in our
14 mind and role where we'll see where we take the input from this dialogue as well
15 as the previous ones and our intent essentially is to submit the LER and start that
16 dialogue as you mentioned as we work through the process. We understand that
17 this could take some time as you work through the review and approval process
18 in an amendment like this.

19 NORM ABRAHAMSON: This is Norm. Did you have any feedback
20 on the 10 year update?

21 ANNIE KAMMERER: I say, "Yay." I'm really glad that you've
22 incorporated that because it takes away the question of when is this triggered,
23 what is significant, a lot and I mean I think there's been a lot of discussion in the
24 broader technical community about how often we should be doing these.
25 Currently the NRC has a program that's with DOE and EPRI, the Central Eastern

1 U.S. Seismic Source Characterization Project and we've been, you know, we
2 even put in there that we felt that's about as far out as you can go in the seismic
3 hazard world and still have creditability. So I really applaud the fact that you
4 voluntarily incorporated that.

5 JAMES POLICKOSKI: I'll respond to just one other comment
6 because we did provide some feedback in the January 26 meeting in that regard
7 and I think we alluded to it in December. There was kind of two angles to the
8 comment that we had raised which is there has to be -- we were looking for some
9 sort of -- enforcement may not be the right word but checking capability as the
10 regulator to insure that you're still on track because this amendment can be
11 viewed as slightly open ended is the problem. And how do we as the regulator
12 come back and agree that you're number one you're keeping a good threshold
13 and number two, your process is truly as up to date as you state.

14 And so it's two fold, it's allowing us to double check it and make
15 sure the technologies and we rely on our experts to insure you're keeping pace
16 with industry. And the 10 year scratches the first itch, definitely, and the second
17 point, I defer to Annie on whether it scratches that itch because the one part, in
18 fact I had a question I failed to ask is how you're going to document peer review
19 methodologies so that we understand when it says peer review, that's an open
20 ended term. You know, it's got to pass the NE sniff test and other folks in the
21 staff to insure, that you know --

22 NORM ABRAHAMSON: For us, that's actually a review by our
23 Seismic Advisory Board, so we have an outside board of consultants and they
24 would need to essentially agree that the methods we're using are, you know,
25 appropriate. So we will have a letter or documentation from them saying, "Yes

1 they have reviewed these methods and we are following, you know, state of the
2 practice or state of the art.”

3 JAMES POLICKOSKI: And would you just said, would that be
4 covered under the amendment Loren?

5 LOREN SHARP: I would just add that this is really a continuation
6 of what we currently do, so yeah, we can address that as part of this ongoing
7 process that we have.

8 RICH KLIMCZAK: Let's let Nathan address how the seismic PRA
9 is peer reviewed.

10 NATHAN BARBER: This is Nathan and I think you know, we
11 reference the ASME standard in our process as well as something we're going to
12 use to make sure that we're up to date. We'll be using whatever the most recent
13 version of that is to update our peer reg including the updated hazard, fragilities
14 and the peer remodel itself.

15 JAMES POLICKOSKI: Thank you. I'll go around one more round
16 of questions, see if there's any other final thoughts. I'll give it to the public one
17 more time. Is there any other thoughts from around the table or here? Region
18 Four, do you have any other final thoughts, comments, questions or the site?
19 Hearing none and the last to the public, since we had a few folks from the public
20 on the line, is there any folks from the public who would like a final comment,
21 thought or question? Okay, Michael, I lost my other senior manager, would you
22 like to have any closing comments?

23 MICHAEL MARKLEY: I've already summarized I think.

24 JAMES POLICKOSKI: Okay, I will thank you. I appreciate PG&E
25 for making the trip out here. This really helped in our dialogue. I appreciate the

1 folks from the public especially in light of the recent events in Japan, it matters
2 more to have the public aware of our process in an open way. Thank you very
3 much and this will close the meeting.

4 [Whereupon, the proceedings were concluded]