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U.S. NUCLEAR REGULATORY COMMISSION

WORK ORDER 58
BRIEFING ON THE TASK FORCE REVIEW OF NRC
PROCESSES AND REGULATIONS FOLLOWING THE
EVENTS
IN JAPAN

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1:00 P.M.

TRANSCRIPT OF PROCEEDINGS

Public Meeting

Rockville, Maryland

APPEARANCES

NRC Staff and Panel:

Marty Virgilio
Acting Executive Director for Operations

Task Force Members:

Charlie Miller
Director, Office of Federal and State Materials and
Environmental Management Programs and Chair
of the Task Force

Gary Holahan
Deputy Director, Office of New Reactors

Dan Dorman
Deputy Director, Office of Nuclear Material Safety and
Safeguards

Amy Cabbage
Team Leader, ESBWR Design-Center Team, NRO

Nathan Sanfilippo
Executive Technical Assistant, OEDO

1 PROCEEDINGS

2 CHAIRMAN JACZKO: Well, good afternoon, everyone. On behalf
3 of the NRC I would like to welcome everyone to today's public meeting on the
4 Japan task force report. We are very privileged to have a guest to kick off the
5 meeting. So I'd like to introduce our guest and then give him an opportunity to
6 speak and then he has many other things to do so he will be leaving us to carry
7 those out.

8 So I'd like to introduce Senator Mark Kirk of Illinois who joined us
9 today to share his perspectives on the important nuclear safety issues before us.

10 It's always a pleasure to welcome a former fellow Cornell alumnist
11 to the NRC, especially one with Senator Kirk's impressive record of public
12 service.

13 Before joining the United States Senate, Senator Kirk represented
14 the 10th District of Illinois in the U.S. House of Representatives. He served said
15 as special assistant to the Assistant Secretary of State and served in the Navy
16 Reserve.

17 He currently holds the rank of commander, and has served in
18 Afghanistan Iraq, Kosovo, Haiti and Bosnia.

19 In the United States Senate, Senator Kirk has been a strong
20 advocate for nuclear safety, calling on both the nuclear industry and the NRC to
21 take aggressive actions and response to the Fukushima accident. On behalf of
22 the NRC, I want to thank Senator Kirk for his strong commitment to nuclear
23 safety and for joining us today to share his thoughts on this important work.

24 Senator Kirk

25 SENATOR KIRK: Thank you. Mr. Chairman, I thank you for having

1 me and I especially want to thank the staff and the task force and their work for
2 what they have put forward.

3 For me, following the unfortunate events of the Fukushima Daiichi
4 nuclear plant disaster in March, it's clear that America should maintain
5 confidence in nuclear safety, both industry and the NRC, assure us there's no
6 immediate threat to the continued operation of nuclear plants. Obviously nuclear
7 power is very important in the state of Illinois where half of our electricity is
8 generated from that sector. We have more nuclear reactors than any other state,
9 with 11 of the 104 plants operating in the confines of the state of Illinois.

10 I want to applaud the Commission and the industry for undertaking
11 a number of actions to review preparedness and response to severe accidents,
12 including a seismic and flooding events, even as the Fukushima accident was
13 unfolding.

14 In the near term it's my hope that nuclear regulatory agencies and
15 the industry take additional access to increase safety and integrate emergency
16 operating procedures.

17 Further more, nuclear plants should swiftly implement some
18 sensible measures to increase flood protection, enhance containment venting
19 capabilities, install remote monitoring controls of spent fuel conditions, upgrade
20 the ability to cope with prolonged blackout periods, first for eight hours and then
21 hopefully for 72, using preplanned, and hopefully, onsite or near site resources.
22 And as part of a long term discussion, I think we should consider expanding the
23 emergency planning zones around nuclear power plants from the current 10 mile
24 radius to 20 kilometers, approximately 12.5 miles which was the minimum radius
25 used initially by the Japanese officials during their actual crisis.

1 One of the top priorities that we should set should be enhancing
2 flood protection. After 9/11, I understand that the industry called for alternative
3 battery powered generators and pumps at plants for enhanced protection and
4 defense. In the case of an onsite explosion or an airplane attack. Fukushima
5 highlighted the need to take additional precautions to guarantee current back up
6 pumps and generators are also protected against flooding and seismic events.

7 Now the recent flooding of the Missouri River is a demonstration of
8 the need for such enhancements and I understand the flood barriers and
9 procedures thus far protected the Fort Calhoun plant in Nebraska, but this is a
10 time, I think, to further upgrade our defenses against this one danger.

11 One of the key lessons from Fukushima is the need to enhance
12 response capabilities for a prolonged station blackout. Nuclear plants should be
13 able to cope with a prolonged loss of power for the initial eight hour period and
14 then an additional 72 hours, if not longer, in which plant operators can
15 immediately utilize preplanned or pre-staged equipment, hopefully on or very
16 near site.

17 We should be prepared for simultaneous events as well, and adjust
18 to various circumstances including debilitated infrastructure, lack of
19 communication and the loss of onsite power.

20 Now throughout the crisis, the Japanese mitigation systems proved
21 unable to cope with the lack of power during this key 72 hour period. The
22 Tsunami caused a complete loss of power and wiped out the backup generators.
23 The battery generators quickly exhausted their eight hour capabilities, thus
24 affects the ability to perform. The critical cooling function and provide power to
25 fans and control systems or to remotely open and close vents and valves that

1 further hindered the ability to provide cooling to the spent fuel pawns and to,
2 especially, one of the reactors.

3 It was clear that operator's ability to cope with the prolonged loss of
4 power was a key factor in their inability to handle the situation. We know now,
5 probably a little bit more than we did before in the state of Illinois that spent fuel
6 pawns pose an almost as great a risk as a core meltdown in a disaster situation.

7 The eight and 72 hour coping period should provide operators with
8 the capability to understand the conditions and the pools and make sure that we
9 can rally more resources. That 72 hour period being it is time that I think
10 especially NRC and the DOD could provide additional resources necessary.

11 Installing proper venting mechanism on all reactors with the Mark II
12 containment design is also an important step in preventing against over-
13 pressurized containments and reducing the risk for hydrogen explosions. My
14 understanding is in the United States we have 23 reactors with the Mark I
15 containment design. There are two of these plants in Illinois located at Dresden
16 and Quad Cities with reactors that have the same design as the Mark I
17 containment that Unit One that Fukushima Daiichi has.

18 Another two reactors in Illinois have the Mark II containments,
19 which by design are only 25 percent larger than the Mark I. We have known
20 since 1989 that the Mark I containments face increased risk of explosions due to
21 an over-pressurized containment.

22 In response, the industry has upgraded the Mark I reactors with a
23 hardened vent to protect against excessive pressure on the containment, yet
24 some Mark II containments lack this protection. The hardened vent should be
25 installed on all Mark II containments across the country without the need for

1 additional regulatory approval. We should not let very much more time pass
2 before making a deliberate improvement that is a direct result of lessons learn
3 from Fukushima.

4 As the NRC and industry begin a long term process of the task
5 force recommendations I think we should also consider expanding the
6 emergency planning zones around every reactor to 20 kilometers, or
7 approximately 12 and half miles.

8 This is the equivalent of the radius that was actually used by
9 Japanese officials and I would just say coming out of the Navy, train as you fight
10 and fight as you train, now that we faced an actual emergency and an actual
11 situation, I think we should take that lesson and make sure that as we update
12 and expand the emergency planning zone, that we also insure that the American
13 people have enough potassium iodide doses for two complete EPZ zone
14 evacuations based on the fully updated 2010 census data of Americans living
15 and working inside the EPZ.

16 The events of Fukushima should also serve as a warning and a
17 beginning of a renewed effort to remove all spent fuel away from our drinking
18 water sources. Now in the Great Lakes, we have about 90 percent of all the
19 fresh water of North America.

20 In our own state, at Zion, we have approximately 1,000 tons of
21 highly radioactive spent nuclear fuel stored just less than 200 yards from the
22 Lake Michigan shoreline.

23 One of the great concerns I've had is to wake up on some future
24 morning listening to WGN, which is the number one radio station in Chicagoland,
25 and hear that some leak has put plutonium into the Great Lakes; at that point the

1 drinking water for 31 million Americans would be contaminated.

2 Anyone who says we should not move nuclear waste into a
3 permanent storage area is a direct, present threat to the future ecological system
4 of the Great Lakes, and that's why I was so happy that Senator Durbin and I have
5 both joined, calling for the movement away and I think with future changes in
6 Senate leadership coming we'll finally have full consensus in both the House and
7 Senate for a further complete permanent storage of nuclear waste in a way that
8 protects the Great Lakes ecosystem.

9 With several dozen storage sites along the Great Lakes shoreline, I
10 am very worried about the long term ecological future of the Great Lakes if
11 anybody tries to prevent nuclear fuel from moving away from this critical drinking
12 water source.

13 The bottom line is that we should not take the lessons learned from
14 Fukushima and turn it into a set of consultant reports leading to no specific
15 action. In the statement that I outlines here, we provided six specific actions that
16 should be taken very quickly without much delay, to upgrade the safety and
17 security of the 11 reactors that operate in my state and the rest of the fleet in the
18 United States.

19 I would urge the NRC to take action fairly quickly on this issue and
20 prevent the need for any action by the Congress. Should the NRC delay then I
21 would urge Congress to take action instead, but I'm hoping you guy who is have
22 done an outstanding job with this report implement very quickly and Mr.
23 Chairman with that, I thank you for the opportunity.

24 CHAIRMAN JACZKO: Thank you for being here Senator.

25 SENATOR KIRK: You bet.

1 CHAIRMAN JACZKO: Thank you

2 SENATOR KIRK: Thanks, guys.

3 DR. MILLER: If you bear with us a few minutes, the chairman's
4 going to return, immediately.

5 CHAIRMAN JACZKO: Okay. Before you begin we have a few
6 things to do. I don't know if Charlie, does Charlie know about any of this, Kim?
7 Oh, okay.

8 [laughter]

9 I'm going to [unintelligible] on August third, but I think you will beat
10 me to the punch, right.

11 Let me say a few words, certainly since the events of Japan began
12 to unfold over four months ago, the NRC has taken strong and immediate actions
13 to insure the continued safety of the nation's nuclear power plants. A critical
14 aspect of these efforts has been a systematic and methodical review of the
15 NRC's nuclear safety program. And the task force which led this review, and
16 from which you will hear today, was established by the Commission to spearhead
17 this effort and help us better understand what nuclear safety requires in a post
18 Fukushima world.

19 In its report, the task force developed a comprehensive set of 12
20 recommendations that they believe are necessary to strengthen nuclear safety.
21 These recommendations, many with both short and long term elements, range in
22 areas from loss of electrical power to earthquakes, flooding, spent fuel pools,
23 venting and emergency preparedness. These are all tremendously important
24 issues. And deciding how to move forward in these recommendations, I believe
25 it's important that we do so openly and transparently and I think this meeting is a

1 great opportunity to kick that process off.

2 So I want to thank all the members of the task force for the work
3 that they did, but before we begin, or you all begin the meeting, I do want to take
4 a moment to recognize the task force for their outstanding work in developing its
5 report, as well as the many other NRC staff that contributed to their efforts.

6 The reports analysis and recommendations clearly reflect the
7 tremendous level of experience and level of expertise that was brought to bear in
8 this effort. And I think I added up, I think it's 135 years of regulatory experience
9 assembled here at this table.

10 Now I want to especially acknowledge Charlie Miller who delayed
11 his retirement in order to lead this effort. Now that the task force has completed
12 its review and report, Charlie will be going forward with his plans to retire. As a
13 sign of appreciation for his 31 years of service to the NRC, I would like to present
14 Charlie, on behalf of the Commission, a United States flag that was flown over
15 the U.S. Capitol.

16 DR. MILLER: It's heavy

17 [laughter]

18 [applause]

19 CHAIRMAN JACZKO: So with that I would just like to say, and
20 part of the reason I did this I'm going to be gone -- Charlie when you're retirement
21 event happens and I just want to say, I've had the opportunity to work with you on
22 a number of different issues and what I found in every one of those endeavors is
23 you have brought -- you have brought an independence and a clarity and a
24 leadership to everything that you've done, whether it was the radiation source
25 task force, this particular task force, I think you leave behind a tremendous

1 legacy of accomplishment and so we thank you for all your dedication and
2 service to the agency and to the American people.

3 DR. MILLER: Chairman, thank you for your kind remarks.

4 CHAIRMAN JACZKO: Absolutely I'll turn the meeting over to you.

5 MR. RAKOVAN: Thanks.

6 [applause]

7 Actually before we turn things over to the task force, it's my turn.

8 Hi, my name is Lance Rakovan; I'm a communications specialist here at the
9 Nuclear Regulatory Commission. I'm going to help facilitate today's meeting. I
10 have my associate, Jared Heck, and also Rick Daniel who's going to be in the
11 boot helping with the phone lines that are going to be helping me out. And,
12 essentially, we're looking to make this meeting productive for everyone involved.

13 Again, the purpose of the meeting is to discuss the results of NRC's
14 near term task force with the public and other stakeholders. Our agenda today is
15 pretty simple. We're going to start out with the presentation by Charlie and the
16 rest of the crew; they want to go over the results of their reviews, and then,
17 essentially we're going to hope it up for questions and answers with the public.

18 We plan to take a short break after the panel is done with their
19 representations so that Rick can organize the speakers on the phone line and
20 Jared and I can organize the speakers here, so that once we kind of reconvene
21 we'll be able to call people to the microphones, hopefully quickly. We ask if do
22 you have a chance at one of the microphones, you do ask maybe one or two
23 questions to start out with, if we are able to get through everyone, then we'll loop
24 back around and give you a second chance if we have enough time.

25 Again I want to stress that the purpose of the meeting is to ask

1 questions of the task force, regardless of how we move forward with the results
2 of this review. There will be formal occasions for the public to make comments
3 and have influence on that process.

4 There is about a 30 second delay I'm told with the web streaming,
5 so for those who are participating through the web streaming that want to ask a
6 question, you're not going to know that I open things up for question until 30
7 seconds after everyone else. Hopefully the operator and Rick will help you out
8 with that.

9 We also have some cards on the sides, Jared and I will run those
10 around once we do open up. If you want to ask a question, using a card and
11 write it down, Jared or I will be more than happy to go ahead and ask your
12 question for you -- sorry about that.

13 Please note that this meeting is being transcribed, we wanted to
14 make sure that people who weren't able to listen in today would have a chance to
15 read what the discussions were, so if we see something that is going to prevent
16 participants from hearing discussions or from getting a clear transcript, we will
17 step in -- and by things, I mean, side conversations, not using a microphone, one
18 more than -- more than one person speaking at a time, et cetera. You can also
19 help us to get a clean transcript by making sure that you've either turned off
20 electronic devices or silenced them at this point.

21 For those on the phone lines, I think we're going to be able to pretty
22 much keep you muted but if you can keep your phones on mute, that will help us
23 as well.

24 Since we are a safety organization, always like to go where over
25 where the emergency exits are. You can see them; they're both to the right and

1 the left of the room, if anything happens please do proceed in a calm manner as
2 much as possible.

3 With that I would like to turn things over to Charlie. Again, we
4 would like you to hold your questions so that the team can get through their
5 presentations then we'll take a short break to organize your questions and then
6 we'll go ahead and proceed go Q&A. So, Charlie if you would.

7 DR. MILLER: Thank you, Lance and welcome everyone on this
8 beautiful sunny cool Washington afternoon.

9 I'd like to just open up by saying this group put a lot of effort in and I
10 know while I've received some laudatory remarks at this meeting, the people that
11 sit around me are the real brains of the task force and they bring a lot of
12 experience in, there's been a lot of thoughtful process into what we've done. We
13 recognize that the recommendations we made are -- have various views and we
14 expect to hear the various views of our stakeholders in this public meeting today
15 and that's what this is all about.

16 So without further adieu, I would like to introduce to each of you, for
17 those of you that don't know the, the members of the team.

18 To my far left is Amy Cabbage. Amy is a team leader in our Office
19 of New Reactors.

20 To her right is Jack Grobe. Jack is the deputy office director in the
21 Office of Nuclear Reactor Regulation.

22 To my immediate left is Gary Holahan, who's the deputy director for
23 the Office of New Reactors.

24 To my far right is Nathan Sanfilippo, he works in the Executive
25 Director of Operations Office.

1 And to my immediate right is Dan Dorman. Dan is the deputy office
2 director for our Office of Nuclear Material Safety and Safeguards.

3 I, myself in my normal capacity am the director of the Office of
4 Federal and State Materials and Environmental Management Programs.

5 So the members of the task force have come from a broad
6 spectrum of responsibilities throughout the agency. So with that, I'd just like to
7 make a few remarks concerning how we went about our efforts and I'm going to
8 ask our members of our task force to walk you through the recommendations. I
9 recognize most everyone in the room has probably had some opportunity to
10 become familiar with those. That's why you're here today, but just to kind of set
11 the stage for the discussion and the questions and comments you may want to
12 make, I thought it would be prudent to do that, so if I could have slide three
13 please.

14 We developed 12 overarching recommendations and with detailed
15 recommendations that support them with regard to implementation. Our
16 recommendations encompass the following areas: a recommendation for a
17 policy statement, recommendations for rulemakings, orders, staff actions and
18 things that need further long term evaluation before any such recommendations
19 could be made. Slide four, please?

20 Our focus areas were primarily looking first at the regulatory
21 framework and we've made recommendations in that regard; you'll hear about
22 that today.

23 We followed what NRC traditionally does and that's a Defense-in-
24 Depth philosophy. And the way that we -- the Defense-in-Depth philosophy
25 doesn't necessarily lend itself to a strict definition and the way we try to apply it

1 was in the following way: First, protection from natural phenomena. Then
2 mitigation for long term station blackout. And finally, emergency preparedness.

3 Finally our focus areas also had us look inwardly with regard to
4 NRC programs and where they might be recommended for some type of
5 examination or enhancement.

6 With that I would like to turn the microphone over to the task force
7 to lead us through the recommendations, Gary?

8 MR. HOLAHAN: I'm going to speak to the first recommendation
9 and each of us can speak to the different recommendations, but it's important to
10 point out that this is not a collection of individuals with recommendations; I mean
11 all the task force members in effect support all of the recommendations.

12 The first recommendation has to do with enhancing the NRC
13 framework for regulating beyond design basis events and severe accidents. And
14 the reason it's the first recommendation is because it has an influence on the way
15 in which the task force looks at all the other recommendations and how it
16 formulated some of its thinking.

17 Might be worth mentioning that originally, this recommendation in
18 fact was in the section of the report on NRC programs, so in fact, it was in it was
19 near the back of the report. I think, throughout our deliberations, it became more
20 and more clear that the framework issue was in fact influencing how we were
21 thinking about the other issues. And it presented the others in a more coherent
22 light and a more consistent manner to bring that recommendation up front, to lay
23 it out, because it not only constitutes a recommendation for how the agency
24 could go forward and deal with severe accidents and beyond design basis
25 events, but it also helps clarify the other issues, prevention, mitigation, and the

1 emergency preparedness, how they follow on in the report.

2 One other thing I would mention early on, and I think it applies to all
3 the recommendations, is I think we would encourage you to actually read the
4 report. And it isn't -- obviously we don't know how many people read the report,
5 we can speak about it but we spent a lot of time, writing the report and frankly
6 arguing over what were the right words so we would encourage you to not just
7 listen to us but actually read the report.

8 Now the way recommendation one came about was, when we
9 looked at the event at Fukushima it became quite clear that a seismic event
10 beyond the design basis of that plant produced a flood, a Tsunami, beyond the
11 design basis for that plant, which caused a station blackout, which in fact, beyond
12 a design basis for any plant, in fact, would've been beyond design basis for any
13 plant that I'm aware of, ultimately resulting in severe accidents, core damage and
14 releases that were what we would call severe accidents which are well beyond
15 the design basis as well.

16 So we thought that addressing the way in which the NRC deals with
17 beyond design basis events was in fact a fundamental part of our task. And the
18 charter of the task force and the tasking memo that kicked off this activity, in
19 those two, the Commission asked us to look at NRC requirements, NRC
20 programs, NRC practices, so how the NRC deals with these types of events was
21 in fact, a central issue to the task force.

22 In a report it outlines the history of how events beyond the design
23 basis are dealt with. In fact, how the design basis itself which is a series of
24 requirements and events that should be included in the design of any plant,
25 licensed by the NRC, how that was developed, how it's documented and in fact,

1 the design basis events are basically articulated in a 1978 regulatory guide which
2 I believe hasn't been modified since.

3 So we have a three decades old, well established basis for how
4 design basis events and design basis are dealt with. But the task force then
5 looked at how issues beyond the design basis have been dealt with. And beyond
6 the design basis and fundamentally events which are more severe, more
7 challenging than those within a design basis, or in fact, a design basis event in
8 which some additional error or operator error takes place and drives that issue
9 beyond what it was -- its intended response.

10 When we looked at the collection of issues that are in the NRC
11 regulations or within the NRC scope of safety concerns, we found a whole
12 collection of issues.

13 Anticipated transience without scram, commonly known as ATWIS
14 [spelled phonetically] is a design basis event, anticipated transient for which the
15 scram system should shut down the reactor; and that's the design basis:
16 transient scram. Transient, with the failure of a scram system was a concern
17 identified in the early 1970s. It was analyzed quite extensively and after as
18 much as a decade of consideration, the NRC issued a rule, on how to deal with
19 anticipated transient without scram, and that was really the first time in which the
20 NRC dealt with a beyond design basis event in terms of reactor design
21 requirements.

22 The NRC's always dealt with emergency planning and that element
23 of being a failure of design basis, but not in terms of specifically looking at
24 events.

25 So we looked at ATWIS, it's not an occurrence that took place at

1 Fukushima, but it's an example of how events beyond a design basis have been
2 managed.

3 We also looked at station blackout. We looked at issues following 3
4 Mile Island, like how the NRC has dealt with severe accidents, severe accident
5 management guidelines and also how the NRC has dealt with the terrorist events
6 following September 11, 2001. What we found is there was there was a
7 collection of different ways in which the issues beyond the design basis have
8 been dealt with. Sometimes they've been dealt with in rule, sometimes they've
9 been dealt with through voluntary actions of licensees. So if we take something
10 as simple as how emergency procedures are dealt with, emergency operating
11 procedures, that is how the procedures are formed for the operators to deal with
12 design basis events, are in fact a part of the licensing basis, both the licensing
13 basis of the plant and the licensing of the operators.

14 Severe accident management guidelines which are guidance
15 instructions on how to deal with events more severe, than the design basis
16 accidents are not a part of the regulatory requirements. They're not included in
17 the operator licensing arena. They are fundamentally voluntary activity and as
18 part of the task force's effort, we actually asked the NRC inspectors to go out and
19 look into how those severe accident management guidelines were formulated
20 and how they were being kept in place and maintained at the plants; and frankly
21 what we found is something of a mixed situation, some being very good, others
22 being not as well integrated into their training configuration control and other
23 plant systems.

24 We also looked at the extreme damage mitigation guidelines that
25 were developed after the events of 9/11 and we found that those are

1 requirements and those are dealt with more strictly in a regulatory process. They
2 are inspected for example. So we see a collection, some things are required,
3 other things are not. Some things are within the operator licensing arena and
4 some things are not.

5 So these insights are brought to the task force to the idea that the
6 regulation of situations beyond the design basis has been done on a case by
7 case basis without one set of clear coherent guidelines as to what is appropriate
8 that ought to be included and what is too remote to be included. And we see that
9 clarity and additional guidance as to the way in which this area could be dealt
10 with, would be of some value. It would help in the regulatory decision making. I
11 think it would bring clarity to the public understanding of what the NRC does and
12 why it does it, and frankly we felt it would be of some value for the industry to
13 understand what the NRC's expectations are, what is required and what would
14 be a more clear role for voluntary and regulatory requirements.

15 And I think the -- if you look at the report, we do acknowledge role
16 for industry voluntary initiatives, but the task force felt that that role is more
17 appropriate as identifying mechanism for implementing required safety programs
18 rather than as a substitute for substantial safety programs.

19 So can I go on to the second of the slides on this recommendation?
20 Let's see, back one. Thank you.

21 So, there are three slide on this recommendation, first one is
22 basically a statement of it, this second one outlines the mechanism in which this
23 recommendation could be implemented, we see that this is a fundamental
24 Commission policy, it would influence the way in which regulatory decisions are
25 made and how they are structured. And we thought it would be appropriate that

1 if the Commission chooses to follow this recommendation that it make a very
2 clear articulation of what its expectations are and the task force has
3 recommended that that be done in a Commission policy statement. And the
4 normal practices, Commission policy statements are not rules or regulations but
5 they do express the Commission's intent, and I think this policy statement would
6 lay out the Commission's expectations and its thinking that might influence a
7 number of regulations in the future.

8 The way the Commission has traditionally implemented its policy
9 statements, they would be drafted, the Commission would issue them, would get
10 public comment on them, almost in the same format as is done for regulations.
11 So if I consider the policy statement that the Commission issued on the use of
12 probabilistic risk assessment back in the middle '90s, I think about a year was
13 spent developing a concept and I think there were public meeting before that was
14 formulated. It was then issue indeed a proposed format. The Commission
15 collected comments and issued a final statement. It was about two to three
16 years as an overall process. So we see that this recommendation would involve,
17 probably first, an articulation of the Commission's expectations and then following
18 that there would be implementing rule making activities. And I think one of the
19 important elements in this case is this would be an articulation of the
20 Commission's expectation -- this is the task force's recommendation -- that the
21 Commission would articulate that what it considers safe, safe enough, adequate
22 protection, would include both design basis and beyond design basis events. I
23 think it's because beyond design basis events are not considered adequate
24 protection issues, that it becomes somewhat difficult to quite understand which
25 belong within a regulatory framework and which not, and we think there should

1 be clarity on that point.

2 And I think the task force didn't go any further with how such a
3 policy statement and how the rules would lay out. The borderline between what's
4 an appropriate design basis event and what is an appropriate beyond design
5 basis event, which we come to call extended design basis event. We didn't draw
6 that line. We would leave drawing of that line to an open process in which they
7 would be stakeholder input.

8 I think so; the recommendation is that the Commission would lay
9 out the concept and then further develop that concept in an open process. So,
10 this is a conceptual framework, it's not a detailed framework. Details would be
11 worked out later. Could I have the last slide on this issue. Thank you.

12 So what this recommendation envisions is policy statement
13 followed by appropriate rulemaking there would also be guidance documents that
14 were influenced, particularly regulatory guidelines, which are now written mostly
15 about how to perform cost benefit analysis, in fact a handbook that goes along
16 with a regulatory analysis guideline is a -- details a prescription how to do cost
17 and benefit analysis. That would be influenced by this framework as well.

18 And the last item consistent with this framework would be to go
19 back and look at activities that have taken place on an voluntary basis, the
20 individual plant examinations, the individual plant examinations for external
21 events, to relook at those and see what insights, what activities in those areas
22 would be appropriate to fit into this new presumably the extended design basis
23 area.

24 I think to fully understand how this recommendation would play out,
25 you have to realize that our current regulatory requirements cover a wide range

1 of likely events. Remember, I said that the list of design basis events is present
2 in a 1978 document, but in fact it was developed indeed the late '60s and
3 throughout the '70s and it did not have the benefit of probabilistic risk
4 assessment. It was published before the 3 Mile Island accident. It didn't have
5 the benefit of any of the lessons learned, task forces, not only this one; it didn't
6 have the benefit of any of the previous ones.

7 So they're -- a new regulatory framework, I think would relook at the
8 existing design basis events. I think it's likely to find some of those or some
9 portion of those, which are more appropriately dealt with as extended design
10 basis events with an appropriate level of requirements. The task force is
11 suggesting that they probably wouldn't need to be at the safety related appendix
12 b single failure proof level. It would be a different set of standards.

13 So this new framework opens up an opportunity to reconsider
14 what's the appropriate collection of design basis and beyond design basis
15 events. And I think I've already said probably more than I intended and I will take
16 questions on this after the whole section.

17 MS. CUBBAGE: Thanks, much of Gary's discussion focused on
18 beyond design basis events and I would like to take us back to design basis for a
19 moment. I'm going to discuss the task force recommendation for design basis
20 protection.

21 One of the key insights from the Fukushima accident is that plants
22 should be protected against the appropriate external hazards. Design basis
23 external hazards were established in the constructions permit phase for existing
24 operating U.S. plants and the hazards are not typically reevaluated through the
25 life the plant. For many plant this is was complete in the 1960s. Since that time,

1 the state of knowledge and seismic and flooding hazards has evolved to the point
2 that is appropriate. For licensees to evaluate the designs of existing plants, to
3 insure that structure systems and components important to safety will withstand
4 such events without a loss of capacity to perform their intended function. Next
5 slide.

6 I'm going to go through the detailed recommendations in this area.
7 The task force had three recommendations regarding protection.

8 First we recommend that the Commission order licensees to
9 reevaluate the design basis seismic and flooding hazards for each plant using
10 current NRC requirements and current regulatory guidance. And as necessary
11 upgrade the protection of plant systems, structures and components to match the
12 new design basis hazards.

13 Now there's been a lot of discussion since the task force report was
14 published about the logic between orders and rulemaking, et cetera, and in this
15 case, the task force felt was appropriate to use orders as the regulatory vehicle
16 because we're relying on existing requirements and existing regulatory guides
17 that have been fully vetted through public processes and the standards are well
18 understood. Moving on to the next slide.

19 Our second detailed recommendation in this area is to insure that
20 the design basis protection from seismic and flooding hazards continues to be
21 sufficient in the futures, we recommend rulemaking to require licensees to
22 confirm seismic and flooding hazards every 10 years.

23 And lastly we recommend an order for interim action. We
24 recognize that reanalysis and potential modifications to upgrade plant facilities
25 will take time to implement. Therefore as an interim action we recommend that

1 licensees be ordered to conduct seismic and flooding walk downs and identify
2 and address plant vulnerabilities. Next slide.

3 We identified one topic for long term evaluation regarding
4 protection. We evaluated potential concurrent related events and we determined
5 that seismic events have the potential to cause internal fires and floods. In light
6 of the Fukushima accident and other recent experience, for example in 2007
7 there was an earthquake in Japan that resulted in a seismically induced fire. The
8 task force concluded that these topics warrant additional evaluation and
9 consideration; therefore we recommend that the staff evaluate potential
10 enhancements to the capability to prevent or mitigate seismically induced fires
11 and internal floods as part of the NRC's long term review effort. Dan will cover
12 the next topic.

13 MR. DORMAN: If I could go to slide 12 please. In the framework
14 that Gary was describing we drew from the safety goal policy statement of the
15 Commission to describe an approach to the Defense-in-Depth philosophy as
16 applied to the beyond design basis events and we recommended a balance
17 between protection, mitigation and emergency preparedness, now we're moving
18 from the protection area that Amy described for protection against design basis
19 events and moving into mitigation for beyond design basis events.

20 Nuclear power plants rely heavily on alternating current power to
21 drive pumps, fans and compressures [spelled phonetically] to open and close
22 valves to provide instrumentation and controls necessary to cool the reactor and
23 the spent fuel pools. Normally this power is provided from the offsite electrical
24 grid. Typically, plants have at least two pathways to get this power from the grid.
25 If the power from the grid is lost, plants have redundant emergency generators

1 on site to supply this power, and by redundant I meant that if one generator does
2 not work when called upon, the remaining generator has sufficient capacity to
3 supply all necessary electrical loads to cool the reactor.

4 In the rare event that all of the offsite and all of the onsite sources
5 of power are lost concurrently, the plants have either alternate sources of AC
6 power, or they have batteries that provide the capability to cool the core for four
7 to eight hours.

8 For a bit of perspective in the history of U.S. nuclear power, this
9 concurrent loss of all onsite and offsite power sources has occurred once and
10 lasted for less than one hour. But at Fukushima the earthquake damaged
11 components in the transformers and the switch gear, such that all offsite power
12 was lost. The ensuing Tsunami flooded the rooms with the diesel generators and
13 flooded the switch gear through which electrical power would be distributed.
14 There were also reports that the fuel supply for the diesels may have been lost.

15 The result was, essentially, an unrecoverable loss of all AC
16 sources, or what we refer to in the report as a prolonged station blackout. The
17 existing NRC requirements depend on the high reliability of the onsite emergency
18 generators and rapid recovery of either the onsite or offsite AC power supplies in
19 determining the acceptability of the four to eight our coping capability. The
20 existing requirements do not envision a severe external phenomena causing
21 extensive damage to both onsite and offsite power supplies and power
22 distribution resulting in a station blackout of, essentially, an undefined duration.

23 It is to address this situation, which occurred Fukushima Daiichi
24 that the task force recommend that a comprehensive strategy to strengthen
25 plants ability to withstand a prolonged station blackout event. Go to the next

1 slide, please.

2 The proposed strategy ultimately encompasses an undefined
3 duration of station blackout by insuring the ability to cool both the reactor and the
4 spent fuel pool until preplanned and pre-staged equipment can be delivered to
5 the site and brought into operation.

6 In the first stage of a station blackout the primary objective is to
7 provide core and spent fuel pool cooling with minimal operator actions using
8 permanently installed equipment. During this period, operator action should first
9 be focused on recovering the onsite or offsite sources of AC power. In the most
10 likely blackout scenarios, these sources are recoverable and this should remain
11 the highest priority. The second priority of the operators during this period should
12 be to implement a planned strategy to extend core and spent fuel cooling
13 functions beyond the initial phase. This would likely involve use of portable
14 equipment such as those that were required after the 9/11 to address large fires
15 and explosions.

16 The task force assessed that implementation of this extended
17 coping capability could be accomplished in several hours and therefore a
18 reasonable coping period for the first phase would be eight hours.

19 The extended coping is intended to insure adequate core and spent
20 fuel cooling until offsite resources can be brought to the site and installed. The
21 task force assessed that properly preplanned and pre-staged equipment could be
22 delivered and installed within 24 to 48 hours and therefore 72 hours was a
23 reasonable extended coping duration.

24 Given the very low likelihood of such an overwhelming loss of AC
25 power, the task force concluded this recommendation did not require immediate

1 action. And in addition the task force recognized that this strategy will involve
2 implementation challenges and details that will need to be worked out in a way
3 that will warrant extensive stakeholder engagement. Therefore the task force
4 concluded that the appropriate implementation mechanism for this
5 recommendation was rulemaking. Go to slide 14, please?

6 Notwithstanding the low likelihood of such a severe station
7 blackout, the task force found that there is an opportunity for prompt action that
8 can further enhance the ability of licensees to mitigate such as event should it
9 occur. The task force noted that the equipment acquired after 9/11 for dealing
10 with large fires and explosions had inherent capability to mitigate prolonged
11 station blackout events. However the implementing guidance for that equipment
12 focused on storing the equipment away from the areas of concern from fires and
13 explosions. It did not address other potential initiating events such as
14 earthquakes and floods.

15 The result of NRC inspections after the Fukushima accident
16 indicated that at some plants this equipment could be lost in the same event such
17 as a flooding event that could cause a prolonged station blackout. In addition,
18 the implementing guidance only required sufficient capacity to address a fire or
19 explosion event involving one reactor or one spent fuel pool at the site.
20 Therefore the task force recommended prompt action to require that the
21 equipment be stored in areas reasonably protected from natural phenomena
22 such as severe flooding and that the equipment be augmented as necessary to
23 insure capacity to cool all reactors and spent fuel pools at each site.

24 When we say reasonably protected, the intent of the task force is
25 that the licensee consider existing structures and locations on site where the

1 existing equipment may be protected from a broader range of initiating events,
2 thus making it more likely to be available in the unlikely event it is called upon. It
3 was not our intent to cause a licensee to have to erect new structures for this
4 prompt action. I'll turn it over to Jack to discuss the additional mitigation
5 strategies.

6 MR. GROBE: Thanks, Dan. Dan discussed the first of five areas
7 that the task force focused on regarding mitigation, I'll address three and then I'll
8 turn it back to Gary to do the final mitigation focus area.

9 There were three areas that I was going to talk about, the first
10 concerned containment pressure control, the second combustible gas control
11 and the third spent fuel safety and these three areas, likewise, come directly from
12 the lessons that we learned from Fukushima.

13 Regarding containment pressure control, during the '70s '80s and
14 '90s, that's the 1970s, 1980s, 1990s, we developed enhanced knowledge of
15 reactor plant behavior during severe accidents. One of the characteristics of a
16 certain severe accident is that you lose the ability of cooling the reactor core and
17 you also lose the ability to remove heat from the containment structure. The
18 reactor folks refer to this as the TW Sequence, it's a loss of feed water and a loss
19 of the heat sink for the plant.

20 During those conditions you have the increase in pressure inside
21 the containment structure because you're not able to remove energy from the
22 containment that's being generated by the reactor. During those studies in the
23 '70s, '80s and '90s it was identified that certain designs of containment structures
24 were more susceptible to increased pressure challenges than others, and BWR
25 facilities, boiling water reactors with what's characterized as a Mark I containment

1 design was the most susceptible. These are the designs that existed at
2 Fukushima Daiichi, Units One, Two, and Three that were involved in core
3 damage accidents.

4 In the United States we have quite a few boiling water reactors with
5 Mark I containments, during that timeframe that we were gaining additional
6 knowledge in this area, all of the operators of BWR facilities with Mark I
7 containments added a system that was called a hardened event and the purpose
8 of this system was to be able to relieve pressure from containment in a controlled
9 fashion. Approximately half of the boiling water reactors which with Mark II
10 containment designs also had added harden vents and these were done as
11 voluntary actions.

12 The BWR Mark I containments and Mark II containments were
13 approximately equivalent in size, at volume in this case, and could be susceptible
14 to similar phenomena that occurred at Fukushima.

15 Because these were voluntary actions there was quite a large
16 variability when the task force went back and looked at the designs of these
17 containment events, quite a large variability in how they were designed and
18 because they're voluntary actions they don't typically follow under our NRC
19 inspection and evaluation programs. So they have not been reviewed or
20 approved by the NRC.

21 In recommendation five, we recommend that a requirement, an
22 NRC requirement, be established to insure that a reliable and hardened vent --
23 and I'll get into a little bit more detail on these words -- be assured in BWR
24 facilities with Mark I and Mark II containment structures. Next slide, please?

25 This slide provides a little bit more detail regarding this

1 recommendation. First the recommendation included orders to licensees for
2 Mark I and Mark II containments to provide a more reliable containment vent
3 system. The performance objectives for this reliable operation, we anticipate
4 would be more passively oriented. Meaning that the system could function
5 without significant operator action at the Fukushima Daiichi plant with a long term
6 station blackout. The operation of the equipment necessary to vent containment
7 was significantly challenged.

8 In that design, motor operated valves, AC motor operated valves,
9 were necessary to open, to provide air pressure, to open a second series of
10 valves and then there was another set of isolation valves that were, again, AC
11 operated so there was a strong dependence in the Fukushima Daiichi system for
12 venting containment on AC power, both to provide compressed air and as well as
13 to provide an energy source to run motors.

14 In reevaluating the hardened vent design to assure a reliable
15 system, the task force anticipated that additional focus would be placed on the
16 complications of a long term station blackout scenario. Next slide please.

17 The second recommendation in this area that the task force made
18 had to do with a long term evaluation topic. The -- on the long term, the task
19 force believed that it was appropriate to go back and reevaluate, or reconsider,
20 the other types of containment designs that are used in the United States and
21 those include a boiling water reactor with a Mark III containment, as well as a
22 pressurized water reactor with an ice condenser containment and a pressurized
23 water reactor with a large dry containment.

24 These containment structures involve substantial additional volume
25 so they're less effected by increases in pressure, or let me say they have a

1 greater timeframe before increases in pressure become more significant for the
2 design of those structures. So it wasn't immediately clear to the task force that a
3 short term recommendation was appropriate in these areas, however, it did seem
4 appropriate to spend some time studying the question and making a decision
5 with respect to the other containment designs.

6 The recommendations that Dan went over regarding stationblack
7 out requirements would provide additional safety margins, which allow these
8 activities to proceed on a methodical path forward, involving modifications to the
9 facility and studying for the other designs. So there was no need for eminent
10 action in this area.

11 The next area I would like to focus on, next slide, please, is the
12 area of combustible gas control.

13 In severe reactor accidents, there's a phenomenon that occurs as
14 the reactor fuel is heated, where certain metals that are involved in the
15 construction of reactor fuel, it's a metal called zirconium, reacts with water and it
16 forms a zirconium oxide compound and liberates hydrogen gas. And the
17 hydrogen gas in the presence of oxygen gas is combustible. This type of
18 situation is not one that's desirable and that is what I'm talking about is the
19 combustion of hydrogen gas or a hydrogen gas explosion; that occurred in four of
20 the Fukushima units. It's unclear in Unit Four where the hydrogen gas came
21 from. But four of the units were affected by hydrogen explosions.

22 The task force spent quite a bit of time studying what we knew and
23 do know today about the situation with the hydrogen gas at Fukushima and
24 concluded that there really isn't enough information at this point in time to do
25 anything other than conclude that this is an issue that clearly requires focus, and

1 the task force recommended a longer term evaluation topic to gain more insights
2 as to how the hydrogen gas was transported, and to various different parts of the
3 facility, as well as what precipitated the hydrogen explosions and then determine
4 whether or not it's necessary in the United States, based on that additional
5 knowledge whether there's a need for changes in our regulatory structure or
6 safety programs. Okay, next slide, please.

7 The last area I'm going to address has to do with spent fuel pool
8 safety. And even today, it's not -- there's not clear knowledge of the exact
9 conditions of the spent fuel in all four spent fuel pools that were affected by the
10 events in those pools; in Units One, Two, Three, and Four. There's more
11 knowledge uncertain of the units and less knowledge on others.

12 During the course of the event, it was very difficult to understand
13 the conditions of the spent fuel pools and part of this is the fact that spent fuel
14 pools have substantial inherent safety features to them, they're passive
15 structures, they're very robust structures and consequently there's not a lot of
16 instrumentation on the spent fuel pools and the makeup and cooling systems are
17 not required to be safety grade. So that results in the operators having less
18 direct information in the control room on the conditions in the spent fuel pool.

19 It's believed, and there's significant evidence to believe, that the
20 fuel -- the spent fuel in the spent fuel pools was not significantly affected by the
21 events that precipitated or preceded at Fukushima. And the way you do that
22 analysis is you look at the isotopes that have been released and you can identify
23 whether those came from new fuel or spent fuel. So there's substantial
24 information available that indicates that the fuel in the spent fuel pools was not
25 significantly affected.

1 That being said, the operators were significantly challenged, and I
2 would say distracted, by their lack of ability to understand that in a real-time
3 basis; and it's likely that during the course of the events at Fukushima, that they
4 had to spend time focusing on the spent fuel pools when they might have spent
5 more time focusing on other issues that were more important at that time. The
6 next slide please.

7 To this end, the task force concluded that there are two areas of
8 focus that we should enhance with respect to the spent fuel pool, the way spent
9 fuel pools are operated in the United States. One of those is enhanced levels of
10 instrumentation regarding the condition of the spent fuel pool. Currently there's
11 instrumentation available to the operators that tells them whether or not the event
12 at will fuel pool is at its normal level, but beyond that the actual level in the spent
13 fuel pool is not available to the operators remotely. So consequently the task
14 force concluded that the NRC should issue an order to licensees to provide
15 instrumentation to monitor key parameters including level, temperature of the
16 spent fuel pool as well as area radiation levels. Next slide please.

17 In addition to instrumentation it's critical that the -- excuse me -- that
18 cooling water be available to the fuel in the spent fuel pools. The fuel that's in the
19 spent fuel pools that's one to two years old has substantially lower heat load. It's
20 generating -- those fuel elements are generating substantially less heat than are
21 the fuel elements that are placed in the fuel pools shortly after they're removed
22 from the reactor.

23 Those fuel elements that are removed from the reactor for a period
24 of a few years require cooling water. The heat load that they represent doesn't
25 necessarily require the dozens of feet of cooling water that are in the spent fuel

1 pools. The principle purpose of that water level is to provide shielding, radiation
2 shielding, as well as margins to be able to move equipment out. Spent fuel
3 element is roughly 12 feet long and if you are going to move one around you
4 need at least 24 feet, because you have to lift it up, move it around and then you
5 need additional feet of water above that for radiation shielding. So that amount
6 of water is not necessary for cooling. In fact, you can you cool the spent fuel with
7 simply a spray of water.

8 So, this recommendation specifically addressing having electrical
9 power for the equipment to provide makeup water; and that gives you the margin
10 if you can keep the fuel pool full then you're in good shape. The next slide.

11 We also provided additional recommendation at Fukushima as we
12 all watched on television, they were significantly challenged in providing water in
13 the spent fuel pools, at one point they were attempting to use helicopters and to
14 drop water on the spent fuel pools much like you would fight a forest fire here in
15 the United States, and for those of you that watched that was it a very
16 challenging, almost futile, activity because the water would disperse and how
17 much made it into the spent fuel pool was very difficult to understand.

18 They then -- and for quite some time used what are referred to as
19 water cannons and also hose nozzles that were attached to large booms and
20 you've seen this on TV, I would imagine to spray water. In this case, the
21 hydrogen explosion was an advantage, right, because the structure was
22 destroyed and you could spray water right into the spent fuel pools.

23 That was not intended to be that we need hydrogen explosions of
24 course, but this recommendation was intended to provide a set of piping that has
25 easy access at grade level outside of the building that would be available to

1 simply spray water into the spent fuel pool, so if there were no other means of
2 getting water into the spent fuel pool, as a last effort that would provide Defense-
3 in-Depth for assuring cooling of the spent fuel pool.

4 And finally, on a longer term would be licensing actions, a licensing
5 action to incorporate into the technical specifications, electrical power
6 requirements for spent fuel makeup and then a rulemaking actions to require the
7 instrumentation, the power supply and the spent fuel pool spray capability.

8 That completes these three areas of mitigation and I would like to
9 turn it over to Gary to talk about the last mitigation area.

10 MR. HOLAHAN: Thank you, next slide. Very good. I also have a
11 note from Lance, saying we should go faster to -- I presume he means we should
12 allow more times for questions. Okay. Good. So I will go quickly over
13 recommendation eight, which is a recommendation to strengthen and integrate
14 onsite emergency response capabilities. And this is reference, not to equipment,
15 but to operators in terms of the emergency operating procedures, severe
16 accident management guidelines and extensive damage mitigation guidelines
17 which I mentioned earlier.

18 So the EOPs are required severe accident management guidelines
19 are voluntary and extensive mitigation guidelines are required, and in a very
20 severe and challenging accident, the normal progression would be the operators
21 would use the emergency operating procedures first and probably at some later
22 time, based on the conditions in the plant, they would switch due to severe
23 accident management guidelines, or maybe use the extensive management
24 guidelines in parallel with that depending upon the situation.

25 So, the task force is recommending that there not be three entirely

1 separate programs, but that these three activities, which are by their nature,
2 related should be by our requirements more related. And that the NRC
3 requirements should facilitate the integration of those three activities.

4 In addition it was quite clear that in the Fukushima accident, there
5 were some difficulties associated with command and control and decision
6 making, there were some cases in which there were discussions at the
7 government, the utility management and even at the prime minister level while
8 decision making was going on.

9 In terms of emergency actions to be undertaken at the plant, we
10 want to reinforce that these are actions and decisions that should be made by the
11 -- by the facility, by the plant staff that they should have all the authority they
12 need to make decisions when they need to make them. That is relatively clear
13 within the U.S. but still the implementation of the sphere [spelled phonetically]
14 accident management guidelines likely would require them to violate some
15 existing requirements. It would require them to invoke a section of the
16 regulations called 50, 54 X and Y [spelled phonetically], which gives them
17 permission to do extraordinary things when it's needed, but even those
18 requirements call for certain procedural things to be done, in terms of getting
19 permission from their management and from senior operators and other things.

20 We would like to have all of those command and control and
21 decision making activities streamlined to the extent possible that they should be
22 preplanned, they should be in preapproved procedures so that when the situation
23 is necessary to take action that they can be immediately done. Could I have the
24 next slide.

25 I think on this one, I would just like to mention that task force is

1 recommending orders to implement the integration of these. The emergency
2 operating procedures are currently referenced in the technical specifications as
3 the mechanism for imposing them as a requirement on licensees, and if the
4 technical specifications were modified it would be done through an order and
5 that's the logic presented here. So, let me move quickly on to the last slide in this
6 area.

7 We did recommend a rulemaking element to this which is that we
8 think that the more realistic and hand- on training ought to be required for severe
9 accident management guidelines and for EDMGs [spelled phonetically] and that
10 those ought to be done through regulatory requirements in the rule making
11 process. And I think with that I'd like to move on to number nine.

12 MR. SANFILIPPO: Yes, thanks Gary. The next major section of
13 our report deals with emergency preparedness. While the task force believes
14 that the emergency planning basis in the United States provides radiological
15 protection to members of the public, the task force identified two aspects of the
16 Fukushima accident, which would warrant additional consideration in the U.S.
17 that has not been developed. These two aspects for emergency preparedness,
18 or EP for prolonged station blackout, as we previously described and emergency
19 preparedness for multiple unit events when more than one unit at a site is
20 experiencing an accident. Next slide please,

21 I'll just go into brief detail about the more detailed aspects of this
22 recommendation. The first piece of it is a rulemaking effort. This rulemaking
23 effort would require that EP enhancements are made to address prolong station
24 blackout and multiple unit events; it covers a number of different areas with
25 respect to multiple unit events, we ask that licensees would consider additional

1 need for personnel and staffing to be able to handle two or more events at the
2 same time. Currently it's based upon staffing for a one unit event.

3 Also to expand the dose assessment capability to a multiple unit
4 event, currently most dose [spelled phonetically] software programs are set up to
5 model a one unit release, and not multiple concurrent releases from cores and or
6 spent fuel pools.

7 Another element of that would be training and exercise with respect
8 to practicing these efforts, and then also with respect to multiple unit events, the
9 equipment and facilities. The current EP facilities are sized based on a single
10 unit event and they're also the amount of equipment for responses based on a
11 single unit event.

12 The other item of this rulemaking would be with respect to
13 prolonged station blackout. Several of the similar considerations with respect to
14 prolonged station blackout, include communications capability, whether the
15 communications equipment that the emergency response organization is using
16 would have power supplies that would last during the extended station blackout;
17 whether the licensees, emergency response data system which transmits data to
18 the NRC on plant conditions would be able to continue to provide that data during
19 a prolonged station blackout; and whether the equipment and facilities have the
20 necessary back up and supplemental power supplies that could allow them to
21 function in this situation. So we recommend rulemaking in this area to address
22 these additional concerns. Next slide please.

23 In the interim, a number of these items we have chosen to
24 recommend orders to the Commission to require them to be done in the mean
25 time. In the interest of time I won't particularly walk through these because

1 they're more or less the same items I mentioned, but to begin their
2 implementation prior to finalization of rulemaking. Next slide please?

3 EP also has two long term evaluation items; the first one has to do
4 with pursuing additional EP topics with respect to long term station blackout, and
5 with respect to multiple unit events. There are -- the sub-items that you see on
6 this slide are the areas that relate to these long term evaluations, one is
7 protective equipment, whether the amount of equipment at the site for protecting
8 employees, workers of the site is of sufficient type and quantity for these types of
9 events.

10 The second is whether the command and control structure, similar
11 to what Gary has mentioned, is the most effective command and control structure
12 for these types of events. Another item is the emergency response data system
13 and whether enhancement to that system need to be made to help insure
14 accurate data is being, not only transmitted to the NRC here in our operations
15 center, so that we can be involved in the response, but also to the local state
16 governments that often use that information as well. Next slide please.

17 The second long term EP item is with respect to other lessons that
18 were learned or insights from Fukushima. There are several additional areas
19 and these are long term items because they either require additional insight
20 based on what actually happened with respect to implementing protective actions
21 in Japan, or because of substantial stakeholder involvement would be necessary
22 involving federal partners like FEMA, state and local, government partners and
23 other members of the public.

24 The items on this slide, as you see there are four of them. The first
25 one deals with offsite emergency response and the ability to get response

1 equipment to the site during a catastrophic natural disaster, whether roads,
2 bridges, et cetera might be out and preclude the normal fire trucks, medical
3 support, being able to respond to the site that the site is expecting.

4 The second item has to do with EP decision making with respect to
5 a number of different protective actions decisions, with respect to what we call
6 recovery and reentry criteria, how to return following an evacuation et cetera.
7 Those are certainly major intergovernmental efforts that are -- go far beyond the
8 purview of just the NRC.

9 The third item has to do with radiation monitoring, whether there
10 should be requirements for enhanced real-time radiation monitoring around the
11 site, using permanent fixed monitors. You know we're aware of a number of
12 European countries that have this type of concept where members of the public
13 could view current radiation levels on a public website in real-time, and we want
14 to explore whether there's value to that in the United States for both public
15 confidence and increased knowledge for decision making during emergencies.

16 And then the final item is with respect to public education on both
17 radiation safety and confusion over the use of potassium iodide that occurred
18 after the events at Fukushima; and this is the recommendation to work with both
19 federal and state partners to do an outreach effort to all of the areas around each
20 nuclear power plant to help further educate the members of the public and
21 decision makers in those communities with respect to why these decisions are
22 made or not made during an emergency and what the appropriate use of
23 potassium iodide may or may not be.

24 And with that, that wraps up the EP section very briefly. Of course
25 we'll be happy to answer to questions and I'll turn it back to Jack for the final

1 recommendation.

2 MR. GROBE: Thanks, Nathan. So far you've heard 11
3 recommendations, 10 of those have addressed action to address the Defense-in-
4 Depth philosophy of protection, mitigation and preparedness. Gary presented
5 the recommendation in the framework was an action for the NRC regarding our
6 regulatory programs, and I'm going to present the final recommendation which is
7 also action for the NRC; and it's closely related to the framework.

8 Several decades, I won't talk about how many decades ago when I
9 started my career I was an inspector for the NRC. And I'm very familiar with the
10 evolution that the inspection program as gone through over the years. There's
11 been two very significant changes in the character of the inspection program, one
12 when we signed resident inspectors following the 3 Mile Island accident, and
13 then a second in the late '90s and early 2000s when we transformed our
14 inspection program into the current reactor oversight program that incorporated
15 into our inspection program a much stronger emphasis on utilizing risk
16 information in how we inspect our program and how we inspect the licensees and
17 how we assess their performance. That was a very significant enhancement and
18 has proven to be a successful approach for providing inspection and oversight of
19 the operating reactors in the United States.

20 One of the things that the task force learned through its study of the
21 Fukushima event and in particular looking at the regulatory programs that the
22 NRC has in place is that we can provide greater clarity and possibly enhance the
23 safety of our programs by providing additional focus and emphasis on the
24 guidance we provide to the staff in area of Defense-in-Depth. And Gary
25 described the framework for looking at severe accidents and beyond design

1 basis what are currently characterized as beyond design basis scenarios
2 particularly focusing on Defense-in-Depth and we've provided you with a variety
3 of recommendations and regulatory changes in the Defense-in-Depth character.
4 This recommendation, recommendation 12 specifically focuses on an annual
5 assessment that we do of our inspection program and we report it to the
6 Commission once a year. It typically happens in the spring and is reported out in
7 the early summer.

8 And we believe that based on everything that we've learned from
9 Fukushima we've provided a recommendation that during that next annual
10 assessment, those people that are more expert than the six of us in our
11 inspection program provide some thought into the inspection program and how it
12 balances risk perspectives, deterministic perspectives and Defense -in-Depth
13 and to evaluate whether or not there's a need to alter the inspection program in
14 any fashion to address what we've learned here from Fukushima. So -- and
15 then it has a direct relationship to the framework that Gary as described earlier.
16 So that completes the 12 recommendations. Charlie?

17 DR. MILLER: Well, thank you. So there you have it. There are 12
18 recommendations. As Gary pointed out earlier in the presentations, while I've
19 asked the various task force members to walk us through those
20 recommendations, every member of the task force has agreed upon these as our
21 recommendations for consideration by the Commission. And so with that Lance,
22 we'll turn it back to you so you get the main purpose of this meeting and that is to
23 get the stakeholders an opportunity to give us some feedback. Thank you.

24 MR. RAKOVAN: Thanks guys. We would like to take a short break
25 now so that Rick and Rebecca can organize the stakeholders who is wish to ask

1 questions from the phone lines and Jared and I can organize the stakeholders
2 here.

3 Again we want to stress that the purpose of this meeting is to get
4 clarity and have a dialogue with the task force. It's not to make comments. The
5 there will be time for you to make comments as part of the official process as we
6 move forward with this. So probably going to take five to 10 minutes depending
7 on how long it takes. If you're interested in making a comment here, just get my
8 attention somehow in the next couple minutes we'll get you on the list and get
9 you up there.

10 MR. HECK: You can get my attention on this side of the room.

11 MR. RAKOVAN: Yeah, Jared's going to take this side room; I'm
12 going to take this side of the room.

13 [break]

14 MR. RAKOVAN: Okay, let's go ahead and start with some Q&A
15 with the task force. If you didn't get to Jared or myself during the break, that's
16 fine, again get our attention while we're going through this session and we'll get
17 your name down and we'll get you in the queue.

18 We would ask that you keep it down to maybe a few questions to
19 start out with, give everybody a chance to ask some questions and once
20 everybody's had the chance, if we have time then we'll go ahead and open the
21 floor back up. Let's start with Paul Gunter from Beyond Nuclear please.

22 MR. GUNTER: Thank you, my name is Paul Gunter I'm with
23 Beyond Nuclear and I'm the director of the Reactor Oversight Project.

24 I'd like to address the task force on this particular issue of the
25 hardened vent. Let me first of all just start by going back to general design

1 criteria, particularly the draft in 1967 and the -- as it was redefined in general
2 criteria 16, and essentially it's saying that the containment should be leak tight.
3 And in fact, there is the New York Times article of may 17, 2011, if I could just
4 read into the record, it was an article by Matt Wald [spelled phonetically], who
5 quote, "The design is the result of conflicting schools of thought," this is being the
6 hardened vent, "among United States nuclear officials says Michael Freedlander
7 [spelled phonetically] a former senior operator at several American nuclear power
8 plants." Mr. Friedlander said, "Referring to the Nuclear Regulatory Commission,
9 you have the NRC containment isolation guys who is containment closed always
10 under every conceivable accident scenario and then you've got the reactor safety
11 guys who is need containment to be vented under severe accident scenarios, it's
12 a very controversial system."

13 So what we're presented with is the fact that there's a lack of
14 consensus, as we read this article. So in terms of your review in your task force
15 recommendation, are you immediately assume the position of the venting guys
16 so to speak. And the first question being: Why did you assume to go to take the
17 side of defeating containment despite general design criteria agreement, that this
18 should be a, essentially, leak type part of the Defense-in-Depth.

19 Why wasn't there a more extensive vetting of the fundamental issue
20 of Fukushima being that the containment was vulnerable, and just as the
21 containments are vulnerable for these Mark I's, we have now arrived at a policy
22 to defeat this last barrier, in the Defense-in-Depth philosophy, and it -- to date it's
23 been done without any independent review, the voluntary initiative that was
24 undertaken in generic letter 8916, you know basically provided the industry with a
25 cover that escaped even your own inspections and also evaded independent

1 review, a public hearing process, and quite frankly we're concerned that you
2 picking up the ball at the vent and doing it by an order, again, effective
3 circumvents that independent review and the opportunity to provide the public
4 with due process such as through a licensed amendment hearing that would give
5 this a full fair vetting on a particularly egregious piece of this problem that's now
6 demonstrated to have failed at Fukushima 100 percent of the time. Thanks Jack.

7 MR. GROBE: Thanks Paul. Let me start, I'm sure there's going to
8 be multiple others that want to jump in here and we need keep this fairly short
9 because there's a lot of folks that want to ask questions, but we're in neither of
10 those camps that you just described. The containment structure has many,
11 many penetrations and those penetrations are protected and tested to be leak
12 tight when they need to be.

13 So this is simply another penetration which provides you the
14 opportunity to insure that the containment remains intact and what I'm saying is it
15 gives the operators under very severe accident scenarios, way beyond the
16 design basis which is what happened at Fukushima, it gives the operators the
17 flexibility to control pressure inside containment in such a way that the
18 containment doesn't fail. Gary did you want to?

19 MR. HOLAHAN: Yeah, let me follow that. I think this is in fact is
20 very good, quite insightful question. And the task force didn't just stumble upon
21 supporting the idea of reliable containment vents. We did, in fact, discuss and
22 debate what it really means. And you're quite right. It does mean giving up the
23 containment function. And in fact, when you vent a containment, you are venting
24 exactly the material that you originally intending to keep inside.

25 And I think the concept of being quite clear as to the relationship

1 between design basis and extend design basis, those things that are beyond
2 design basis should ultimately bring perhaps some clarity to this issue. I mean, I
3 think the task force recognizes that within the design basis realm, and in fact,
4 general design criteria are specifying what it is that the design basis should call
5 for. You really do expect containment to be leak tight, you expect no design
6 basis event to lead to containment venting among other possibilities for
7 containment leakage.

8 But what the task force is supporting is beyond the design basis,
9 the general design criteria may not be viable. There may be rare circumstances
10 under which it is more desirable to vent a containment than to make every
11 attempt to keep it leak tight and reach the point ultimately of containment failure
12 which would produce an uncontrollable release as opposed to a venting scenario
13 which would allow you to reseal containment if and when the circumstances
14 allowed.

15 So what the task force is saying in is in a design basis context,
16 you're exactly right but when design basis -- when beyond the design bases
17 circumstances come about, it's -- fundamentally you're not trying to achieve all
18 the goals that are laid out in a general design criteria, preventing core damage is
19 the first goal and venting the containment and allowing depressurization and the
20 opportunity to inject water to prevent core damage is the most desirable among
21 those undesirable possibilities. I think that's where we are.

22 MR. GUNTER: And just in quick a follow up, if part of your
23 evaluation for recommendation 5, are filters on these vents included, and if not
24 why not?

25 MR. GROBE: The vents for the boiling water reactors are what are

1 referred as wet well vents, and that is the discharge from containment, if there is
2 a radioactive discharge within the containment structure it's already been
3 discharged through water so a significant portion of the particulate, as well as the
4 non-particulate materials could be scrubbed out. So these are referred to as wet
5 well vents.

6 There's also the capability to vent from the dry spaces in
7 containment, but these are all different kinds of scenarios, there was no
8 expectation of an external filter outside of the containment structure.

9 MR. RAKOVAN: Thank thanks Jack, we have Maria Corsnick
10 [spelled phonetically], chief nuclear officer of Constellation Energy Nuclear.

11 MS. CORSNICK: Thank you very much. Height challenged,
12 appreciate it.

13 I would just like to comment on the report and focus for a minute as
14 chief nuclear officer to acknowledge that it's very important that we remain
15 focused on the safe operations of our current fleet. And implementation of 12
16 resource intensive generic orders has the potential unintended consequence of
17 distracting, if not deluding both the NRC and industry focus on operational safety.

18 My question then to the task force is of the recommendations that
19 you made, did you identify a priority to these recommendations, and if so, how is
20 that priority determined?

21 DR. MILLER: In formulating the recommendations themselves, we
22 didn't rank them one through 12 with regard to priority, but if you look at the more
23 detailed recommendations which are really for implementation, we put them into
24 three categories; first category would be things that we would call interim
25 measures, and the orders fall under that category.

1 Recognizing that it takes time to do rulemaking, in many cases a
2 number of years, those interim measures we would like to see in place with
3 regard to our recommendations until such a time that rulemaking could be
4 achieved. So, doing the rule making would start but that would really fall into the
5 priority once the orders have been issued.

6 Thirdly, are issues for longer term evaluation, which need more
7 study before any type of recommendation or action could be taken.

8 MR.GROBE: Let me expand that just a little bit. Over the past 12
9 months or so, we've had an initiative regarding the accumulative effect of our
10 regulations. We always anticipate that our regulations will enhance safety, but
11 there is the possibility if we don't properly implement our regulations, sequence
12 them, that you could distract from the safety of the operating plants and for that
13 reason I fully anticipate that our cumulative effect of regulations has principally
14 focused on rulemaking, but I fully anticipate that there will be an opportunity for
15 public involvement which would include the industry to provide perspectives on
16 that particular issue before any implementation is done and this will be the
17 direction I'm anticipating that will be part of the longer term task force that will
18 come from the Commission of engagement with the public in considering these
19 kinds of questions. But it's not part of the task force's job to set that out.

20 MR. RAKOVAN: Okay if we could go to the phone lines for a
21 speaker, Rick and Rebecca, if you could let us know who we have in the
22 organization they're with.

23 MR. DANIEL: Randy, go ahead. This is Randy from Southern
24 Nuclear, go ahead Randy with your question.

25 MR. BUNT: All right, this is Randy Bunt [spelled phonetically]. The

1 question: We understand the importance of having operator information as Jack
2 mentioned earlier, but apart from the damage of the following debris, the fuel in
3 the [unintelligible] pool at Fukushima did not appear to have been damaged and
4 as stated, not a significant effect of the fuel in the pools at all. But it appears that
5 makeup water and coolant functions beyond the effort of cooling were not
6 available for about nine days, especially for Unit Four, then why are so many of
7 the proposed orders related to spent fuel pools which would normally be
8 associate wide adequate protection issues?

9 MR. GROBE: Hi, Randy this is Jack Grobe. One of the difficulties
10 that folks have had in reading our report is focusing on numbers of orders and
11 that's really not the way the task force thought about this. The agency has two
12 legal mechanisms to put requirements in place. One is through orders, and one
13 is through regulations. Regulations typically take two to three years to put in
14 place following the Administrative Procedures Act and extensive public
15 engagement, and then a number of years to implement, so putting a requirement
16 in place through regulation can take five to 10 years.

17 There were certain actions that we felt should be put in place and
18 were clear outcomes of the Fukushima event earlier than that; and those were
19 the ones that we proposed to be put in place by order.

20 We would anticipate that this would not be 12 orders, or 11 orders,
21 or any particular number of orders, but probably a fairly small number of orders,
22 maybe even one that would contain what the Commission decides is appropriate
23 to place in the very short term, and when I say short term I'm talking something
24 that would be implemented over a period of months to a year or two.
25 Specifically, with the spent fuel pool as the report provides a lot of detail, the

1 spent fuel pools at Fukushima were different than the spent fuel pools we have
2 here in the United States. Fukushima has six units and seven spent fuel pools
3 and the seventh spent fuel pool is in a separate structure. The number of
4 elements in the spent fuel pools at Fukushima were very small and I believe the
5 details of that are contained in the report.

6 As contrasted, none of our nuclear plants have onsite
7 supplementary spent fuel pools and there's anywhere between couple of
8 thousand to several thousand fuel elements in the spend fuel pools in the United
9 States. So, the design and use of spent fuel pools here in the United States is
10 different than at Fukushima, and the for those reasons and also for reasons of
11 insuring that the operators are not unnecessarily distracted during a casualty
12 situation, the task force concluded that it was appropriate to have this additional
13 instrumentation and capability in place.

14 MR. LAKOVAN: Okay, if we could go to Tom Cochran from the
15 NRDC please.

16 MR. COCHRAN: Thank you. First I think your report was good
17 within the time constraints and your self-imposed constraints of not talking to
18 experts outside of the nuclear industry.

19 In that regard NRDC in the last couple of days has provided you
20 with a petitions 62206 petitions -- 62208 petitions to initiate the rulemakings, six
21 of your rulemaking proposals and 12- 2206 petitions to initiate the orders, and if
22 you would quickly docket those petitions, then we could give you our formal
23 comments and recommendations not be constrained to keep our remarks to less
24 than those of the senator from Illinois.

25 Now with respect to specific concerns, on the initial protection

1 issue, it seems to me, one of the issues that you've overlooked, or considered
2 and rejected, is the issues related to hydrogen production and how to avoid
3 hydrogen production all together. You a petition before you, PRM 5093 by Mark
4 Lacey [spelled phonetically] November 2009, that says you're non-conservative
5 in the way you model hydrogen production under locus [spelled phonetically] and
6 it seems to me you would resolve that petition within the next few months
7 because it is certainly an issue raised by Fukushima and I would have thought
8 you would have flagged that and [inaudible] hydrogen production.

9 Also you did not -- and I'm -- would like to understand why, make
10 no observations of why we can't, or shouldn't, proceed with a requirements for
11 new fuels that don't produce hydrogen so we avoid this problem altogether. I
12 thought the biggest weakness in the report was in your emergency preparedness
13 --

14 MR. RAKOVAN: Can we take a moment to address that question?

15 MR. COCHRAN: Excuse me?

16 MR. RAKOVAN: Can we take a moment to address that question?

17 MR. GROBE: Yeah, petitions whether they're under any of our
18 various regulations which allow members of the public to petition the agency to
19 take action, their managed by our division of policy and rulemaking, and I think
20 you're aware of this, and there's opportunities to interact with the NRR, the Office
21 of Nuclear Reactor Regulation staff, on those petitions, it's a very structured
22 process, I don't think the petition have anything -- I don't think that we can
23 comment on those petitions and those actions should be preceded through the
24 normal process, through the contacts that you have in the division of policy and
25 rulemaking.

1 MR. HOLAHAN: Let me just add one thing that might not be
2 satisfying either but, I think, it's fact and that is we were asked by the
3 Commission to look at NRC regulations, policies, practices, their implementation
4 as they relate to the Fukushima event. That establishes the boundaries of what
5 we did, which means there were many things we looked at but clearly there are
6 many areas that we did not look at.

7 And I think hydrogen production during loss of coolant accidents
8 was outside the boundaries of what we looked at so we leave that to the process
9 that it's currently in and we did not consider that, as we did not consider many
10 other possible ongoing issues that do not have some nexus to the Fukushima
11 accident.

12 MR. COCHRAN: You must understand our frustration of not being
13 asked to participate in your analysis and not having any opportunity to participate
14 yet in the longer term analysis and having no response from the Commission on
15 how we will be able to participate in that longer analysis.

16 MR. GROBE: We certainly appreciate your frustration, but rest
17 assured your frustration is not unique. We were directed by the Commission to
18 be independent and we refer to the place where we did our work as the cave.
19 They put us in a cave for several months and we worked very hard there and
20 collected information and we did not interact with the industry other than to gain
21 some information regarding what they were doing, but we did not share our
22 information with the industry, we did not even share it with the NRC executives
23 before the report was finalized, it went directly from us to the Commission and
24 now comes forward the opportunity for external stakeholders outside of the task
25 force to engage in these issues.

1 MR. COCHRAN: You have two quantitative safety goals and two
2 subsidiary quantitative goals. With respect to the two main safety goals, have
3 you asked yourself whether Fukushima passed or failed with respect to those two
4 goals? When I analyze those two safety goals, Fukushima was a safe reactor
5 even after the accident because it didn't have any prompt fatalities and the
6 number of latent fatalities that you would expect is less than your safety goal
7 permits. So that strongly suggests that you should have recommended you go
8 back and rethink your safety goals.

9 MR. HOLAHAN: I think that's a very interesting observation and I
10 think the -- not inconsistent with what the task force recognized. You'll see quite
11 early in the report, I think it's in the introduction, it says that an event like
12 Fukushima with no fatalities, no likely identifiable latent fatalities, we considered it
13 unacceptable. It's -- and we treated it as unacceptable so that our
14 recommendations are based not on the assumption that Fukushima meets the
15 safety goals and therefore you don't need to do anything about it. It's clear that it
16 would -- that our recommendations are meaning to deal with the safety issues
17 associated with it and not to take any -- and that such an interpretation of the
18 safety goals.

19 MR. COCHRAN: Well, your safety goals are based on individual
20 risk. You have no safety goals based on collective dose, no safety goals based
21 on socioeconomic impact. They are entirely deficient and one of the lessons
22 learned from Fukushima is that deficiency and you need to go back and
23 recommend rulemaking to establish criteria for population density, you are
24 extending -- you meaning the Commission -- extending licenses for reactors with
25 no thought given to population density or socioeconomic impacts of these

1 accidents. Now, you recognized in this particular case that you're deficient with
2 respect to accidents beyond the design basis, but when it gets to the emergency
3 preparedness, your recommendations are deficient because you do not look at
4 things like how can I minimize the consequences of an accident like this by not
5 citing reactors where the population density is five times larger than at
6 Fukushima.

7 MR. GROBE: Let me make one more observation before we move
8 on to another question. The safety goals at this -- at the highest level are very
9 conceptual. They have numbers in them, you know, a tenth of one percent of
10 this and that, but they're very high level conceptual goals and it's not the kind of
11 thing that you can use for actual day to day decision-making. And we've reduced
12 those down -- and this is described in quite a bit of detail in the report to actual
13 day to day decision-making kinds of metrics that we can use. And one of those
14 metrics that we use is that the probability of damaging the reactor core from
15 accidents should be lower than one in 10,000. And sometimes those numbers
16 are hard to understand, but we can probabilistically calculate many of the
17 accident scenarios, and I have to tell you clearly that the design of the flood
18 protection, that Fukushima did not meet that safety goal, that aspect of the safety
19 goal, in the likelihood of a tsunami at the Fukushima Daiichi site exceeding the
20 protective features that they had which were slightly less than six meters
21 protection, could have been one in 100 and certainly were not less than one in
22 1,000 for core damage. So that design feature that the plant had did not meet
23 the safety goals that we have and would not have been found acceptable here in
24 the United States.

25 MR. COCHRAN: I just have a few comments [spelled phonetically]

1 [unintelligible] --

2 [talking simultaneously]

3 MR. RAKOVAN: [unintelligible] closing comment please, or a
4 closing question, we really need to move on other to the speakers.

5 MR. COCHRAN: Well, Gary can relay my thoughts on the
6 definition of "core damage event," because the definition you have on your
7 website is inconsistent with the definition that you're using in these PRAs and my
8 analysis of these events is that on a worldwide basis, the core damage frequency
9 worldwide is greater than one in a 1,000, over 10 times your safety goal and --
10 which leads me to wonder how you could jump so quickly to the conclusion at
11 each of your public meetings that the reactors in the United States are safe; it
12 implies that you think your reactors are more than 10 times safer than those
13 worldwide. Thank you.

14 MR. HOLAHAN: Let me just follow up, just finish this line of
15 thinking. I accept your comment on the need for more clarity and the definition or
16 the use of the words "core damage frequency" because if my understanding of it
17 and your understanding of it is not the same and we both can read the same
18 words, maybe we should do something about it. Going back to your earlier point
19 that the safety goals are related to individual risk and individual risk doesn't
20 address collective dose, doesn't address land contamination, doesn't address
21 overall social economic impact of an accident, I think we have to recognize that
22 the safety goals themselves refer to the individual risk, that's how they're judged,
23 but the subsidiary goal of keeping core damage frequency, you know, what that
24 means to us anyway, it -- which perhaps needs some clarity -- but keeping core
25 damage frequency down to a low value in fact eliminates -- right -- addresses

1 land contamination, you know, social effects and collective doses. So, I mean,
2 it's not absent from the process, it's just buried in one part of the process.

3 MR. COCHRAN: You believed in Defense-in-Depth, why don't you
4 keep your population density down to a fixed level as well? Why is it that you are
5 willing to --

6 MR. RAKOVAN: Guys, I got to move us along, I'm sorry. Jared,
7 can we go with someone from your list, please?

8 MR. HECK: Thanks, Lance, and if we have time, of course, we can
9 circle back. We do have a number of people to get through, so thank you for
10 your patience. Next is Adrian Heymer [spelled phonetically] from the Nuclear
11 Energy Institute.

12 MR. HEYMER: Dr. Miller and members of the panel, thank you for
13 giving us the opportunity to give questions. As Gary -- as you said a few
14 moments ago, sometimes we have a different understanding of things and for
15 some time, the industry's been working on developing a timeline of what occurred
16 at Fukushima. And we've been working, we met a team down in Atlanta working
17 on that, we have a team in Tokyo working with TEPCO, the Tokyo Electric Power
18 Company, trying to put together that timeline, and what we realize is there's more
19 to perhaps we don't know about the specifics than we actually know. And I note
20 that the NRC, we understand, is about to start work or has just started working in
21 partnership with DOE to develop a timeline here. So I guess when you think
22 about that and some of the statements that have been made here that aren't
23 quite consistent with our understanding of what went on, isn't there a potential
24 that we might identify some things in those timelines that may change the
25 conclusions as regards [spelled phonetically] to the need to go forward with an

1 order? Rulemaking is perhaps on a different timeline and can you adjust, but if
2 you move forward with orders where there's no opportunity for input from the
3 public, that may change things after the orders have been issued.

4 So, can you just go through how much confidence you have and
5 why have you that confidence in the orders when we're still trying to establish
6 what really happened? An example of that is the venting and pathway of
7 hydrogen, I think, Mr. Grobe, you pointed out that, you know, we're not quite sure
8 what the pathway was or where it came from necessarily, but -- or how did it get
9 to where it got to cause the explosions, so .

10 MR. HOLAHAN: Let me try first. Yeah, the task force obviously
11 had the same difficulties that everyone trying to understand the Fukushima event
12 -- right -- that necessarily, you know, the information even available to the
13 operators, much less to the utility, to the Japanese government, and to the rest of
14 the world is just quite limited. It's not entirely satisfying, but there are many
15 things that we're quite sure about. Right? We're quite sure there was an
16 earthquake, and a tsunami, and loss of offsite [spelled phonetically] power, you
17 know, and hydrogen explosions. We're quite sure that they attempted to vent
18 containment and I think we know pretty well that they had quite a few difficulties
19 in attempting to do so.

20 So I think that we're quite confident in the recommendations, you
21 know, they're not dependent upon a lot of the detail that comes out. I think
22 perhaps the area in which we sort of tempered our thinking based upon the lack
23 of information was really the spent fuel pool. I think, you know, we're pretty sure
24 that the cores were damaged in units one, two, and three. And it was a question
25 to -- you know, the task force was working for three or four months and during

1 that period of time, I think the information evolved. I think it's not 100 percent
2 clear at the moment, but it -- that was certainly an area in which we felt we had
3 imperfect knowledge of what was going on and what actually had happened in
4 the spent fuel pools and I think that that tempered our judgments about what we
5 should do in a short-term, what should be a short-term, and longer term item.

6 MR. DORMAN: You used the example of hydrogen and where
7 hydrogen got to before it detonated and I would note that the recommendation
8 that we had relative to combustible gas control is a longer term review for that
9 very reason. The recommendation relative to venting was not focused on the
10 hydrogen, it was focused on maintaining core cooling in the severe accident
11 condition to -- ultimately our goal was to prevent getting to the severe core
12 damage in the first place in the venting recommendation.

13 MALE SPEAKER: If I could -- sorry, sorry.

14 MR. GROBE: Yeah, let me just -- you said that there's no
15 opportunities for input on the recommendations that we made and certainly today
16 is the first opportunity and I expect there will be more. Each of us I'm sure has
17 visited probably well over a dozen or more countries in the regulatory programs
18 in those countries and by far the United States has the most open of those and
19 we place a very high priority on gaining public input before we take action unless
20 there's some immediate need for action, and we've concluded -- the task force
21 has concluded in this case that there is not a need for an immediate action, so
22 we will gain insights and information from the public before actions are taken.

23 The -- you know, I'll just highlight one of Amy's -- the
24 recommendations that Amy discussed a few minutes ago and that is that the --
25 the reanalysis by current methods for seismic and flooding. Those methods are

1 well-established and they're used today in the analysis of the new reactor license
2 applications that are being processed in our Office of New Reactors. Those are
3 methods that have gone through extensive vetting and peer review and
4 engagement with the industry, and other experts and stakeholders. So these --
5 the particular actions going forward in many cases are actions that utilize
6 methodologies that are well-established.

7 MR. HEYMER: So I take it from that comment, Mr. Grobe, that
8 there's going to be the opportunity to provide written input on the 90 day report of
9 this task force --

10 MR. GROBE: The Commission has not yet provided us direction.
11 Go ahead, Charlie.

12 DR. MILLER: The task force has completed our activities, so our
13 task was to provide recommendations to the Commission. Our report is before
14 the Commission as we speak, the Commission will provide guidance back to the
15 staff as to how they want us to proceed on that, but that won't be part of this task
16 force's activities. That will be part of a longer term effort as the Commission so
17 directs the staff.

18 I think what Jack's saying is, there's a high degree of expectation
19 that that's likely to involve a public process as we go forward. But that will be
20 determination by the Commission as to how they want us to proceed.

21 MR. HEYMER: Thank you.

22 MR. RAKOVAN: Okay, if we could go ahead and go to our next
23 caller on the phone lines, please.

24 MR. DANIEL: Mr. Roy Brosi [spelled phonetically]. Roy, you want
25 to go ahead and ask your question.

1 MR. BROSI: Yes, thank you Dr. Miller and members of the task
2 force this, is Roy Brosi with FirstEnergy. My question concerns the proposed
3 rulemaking to amend 50.63 which would require licensees to take the necessary
4 steps to assure an eight-hour station blackout coping duration with minimal
5 operator action, and then to further establish equipment procedures and training
6 to assure a 72-hour station blackout coping duration with operator action and
7 with the use of pre-staged equipment to assure that that extended duration can
8 be achieved. Can you help us more clearly understand the rationale for the 72-
9 hour extend coping duration?

10 MR. DORMAN: Roy this, is Dan Dorman, I'll take a shot at it. The
11 notion there was that ultimately, if you get into a situation like Fukushima found
12 themselves in, where you have essentially an unrecoverable loss of on-site and
13 offsite AC power sources that ultimately you're going to be relying on resources
14 coming from offsite. So the notion with the 72-hour extended coping period was
15 that you would be able to gain those resources if they're preplanned and pre-
16 staged and you've thought through how you're going to get them there under
17 transportation conditions associated with the underlying event. And so the
18 extended coping period was conceived to buy time to get that offsite resource to
19 the site and maintain the core and spent fuel pool cooling capability during that
20 period.

21 And the notion in terms of the eight hours and the 72-hours, the
22 eight hours was the operator should be focused on first getting AC back in kind of
23 the normal historical perspective of a station blackout, but failing that, to get the
24 coping capability in place to cool the core and spent fuel pool for the 72 hours.
25 And our thinking on that was that the actions that were put in place under the

1 B.5.b of the 2002 Interim Compensatory Measures order and then ultimately
2 under 50.54(hh), provides a substantive coping capability to cool core and spent
3 fuel pool under those circumstances. And so that would -- that was kind of a
4 starting point for our considerations of what does the operator need to get in
5 terms of time to get that equipment out of storage, get it hooked up and running?
6 And our thinking was that that could be done within that eight hour period.

7 MR. RACKOVAN: Okay, Rick, can we take another caller from the
8 line if you have one ready?

9 MR. SHADIS: Good afternoon, everyone. Yes, I want to say first
10 this may be a little bit naïve, but members of the public are pretty much limited to
11 what is reported in the press with respect to Fukushima. I was surprised to hear
12 you all say that the fuel in the spent fuel pools was not damaged. Press reports
13 indicate that fuel particles up to a centimeter or more in size had been found a
14 mile or more from the spent fuel pools and that's my first question. Can you
15 address the disparity here?

16 MR. GROBE: These are the kinds of details that are going to be
17 evolving over the next months and years and maybe even more than a decade.
18 The -- there's nothing particularly that focuses any deposition on the spent fuel
19 pool, in fact, most of the deposition that has been reported to date appears to
20 have come from the reactors. There are -- there's great difficulty in units one,
21 two and three in actually observing the fuel that's in the spent fuel pools and what
22 I said earlier was that there's some level of confidence that the fuel in the spent
23 fuel pools has not been damaged based on looking at the ratios between various
24 radionuclides and by looking at that, you can determine the age of the fuel. And
25 when I say age, I mean the amount of time that it's been out of the reactor. You

1 can you evaluate the various isotopes and determine whether that fuel was
2 actually being irradiated in the reactor at the time that it was melted and released
3 or whether or not it was in the spent fuel pool and was older fuel.

4 So it -- these are -- these details have not been definitively
5 identified, but there is information that indicates that the fuel in the spent fuel
6 pools was not damaged. I don't think any of that influences our
7 recommendations regarding the spent fuel pools. Our recommendations are
8 that should you have instrumentation that tells you what's going on, that you
9 should have electrical power to make sure that you can run the systems to
10 provide makeup water [spelled phonetically] and if those are not available to you,
11 you should have an alternate means that doesn't involve dropping water from
12 helicopters to spray water into the spent fuel pools.

13 MR. RAKOVAN: Sir, if you're still on the line, can we get your
14 name and your organization? I don't think we got that at the beginning of your
15 comments.

16 MR. SHADIS: I'm sorry, I'm sorry. Well, my name was announced
17 at the beginning. My name is Raymond Shadis and I'm calling on behalf of New
18 England Coalition at this point.

19 MR. RAKOVAN: Thank you, sir.

20 MR. SHADIS: And the last name for the transcriber is S-H-A-D-I-S.
21 Well, you know, following on that question, are you then -- is it your preliminary
22 assessment that these large particles of fuel were somehow ejected from the
23 reactor?

24 MR. GROBE: I need to say that the task force did not evaluate this
25 issue or render a conclusion on this issue. What it did was recommend the 12

1 overarching recommendations and the subordinate implementation details, and
2 that is the extent of our conclusions at this point.

3 MR. HOLAHAN: Yeah, this is Gary Holahan. You know, although
4 the -- we don't consider this a technical report on the details of what happened at
5 Fukushima. I think, you know, a very reasonable working hypothesis -- I don't
6 want to get too definitive on it, but, you know, ascribing these dispersed
7 radioactive materials in various forms on the site, you know, it most likely
8 appears they were from the reactor cores rather than spent fuel pools. I think we
9 have to wait for a definitive answer, but things like the amount of iodine in the,
10 you know, in the radiological material that was dispersed are generally indicative
11 of core damage as opposed to spent fuel pool damage.

12 MR. GROBE: Again -- I'm sorry, again, just emphasize, these
13 technical details are the kinds of things that are going to be sorted out over the
14 next months to years and really do not impact on the recommendations that the
15 task force has made.

16 MR. RAKOVAN: All right, I'd like to take some questions from in
17 house again. If I could have Arjun Makhijani, please, from IEER. And for those
18 of you on the phone lines, just to let you know, I know you gave your name and
19 your organizations when you called into the call, but we did not hear that
20 information here in the room. So just to let you know when do you talk, if you
21 could reintroduce yourself so that those of us in the room and our transcriber can
22 get your name and organization. Thank you.

23 MR. MAKHIJANI: I'm Arjun Makhijani. I can give you the spelling
24 later. I took down a note when you said something in response to Tom and I just
25 wanted to make sure, you said that you did not look at hydrogen production

1 because it was outside the boundaries for us to look at. That surprised me a
2 great deal, there were four hydrogen explosions, you've commented on the
3 vents, you've commented on the explosions --

4 MR. HOLAHAN: If I had that, it would have surprised me too. I
5 think that what I said --

6 MR. MAKHIJANI: Well, look at the transcript when it comes out.

7 MR. HOLAHAN: I think I said we didn't look at hydrogen production
8 associated with Mr. Lacy's [spelled phonetically] petition which is associated why
9 -- with emergency core cooling systems and most [spelled phonetically] coolant
10 accidents.

11 MR. MAKHIJANI: Yeah, there were two components to that
12 question, I would like to pursue that a little bit. I understand that you didn't
13 pursue the petition, I totally understand that, it was in that context that the
14 question of zirconium and hydrogen production came up. You didn't answer the
15 question about hydrogen production. Why did not consider the question of the
16 fuel rod material that creates the hydrogen and the steam and the eutectic
17 [spelled phonetically] that's essential -- that's central in the meltdown? We've
18 had four hydrogen explosions and four core meltdowns in light water reactors so
19 far. That's a probability of one in 100 for every -- one out of 100 reactors that
20 have been built have melted down. It wasn't reflected anywhere in your
21 assessment, in your confidence and probability of risk assessment. It is way
22 beyond the design goals for light water reactors, the number of core meltdowns
23 that have happened. There was no reflection that the number of meltdowns that
24 have happened is way beyond the design goals, and the central factor in those
25 meltdowns and five hydrogen explosions, actually, including Three Mile Island,

1 small one, contained. Why did you not consider the fuel rod material?

2 MR. HOLAHAN: I think if you look at this section of the report, we
3 did obviously consider hydrogen control.

4 MR. MAKHIJANI: Yes.

5 MR. HOLAHAN: And -- right -- and we did look at the existing
6 requirements and measures to prevent and control hydrogen in a severe
7 accident if it is produced so we looked at, we looked at boiling water reactors,
8 we looked at, you know, those that use inerdent [spelled phonetically]
9 containments that use hydrogen igniters --

10 MR. MAKHIJANI: Right, I have read your report, by the way --
11 [talking simultaneously]
12 I have read your report.

13 MR. HOLAHAN: Okay, very good, thank you.

14 MR. MAKHIJANI: You did not consider the fuel rod material.

15 MR. HOLAHAN: But we did not consider [inaudible] --

16 MR. MAKHIJANI: And I'm asking why you didn't do that. Was it an
17 oversight -- it's okay, I mean, you know, you worked under great pressure, I think
18 you -- many parts of your report are unexceptionable, they're very good, I agree
19 with them, but why did you not consider the fuel rod material? I consider it to be
20 a central issue.

21 MR. HOLAHAN: We looked -- I think we did -- obviously, we
22 recognized that zirconium is a material for a severe accident that will produce
23 hydrogen, in fact, other metals will too. I mean, they used to use stainless steel
24 which is obviously not a solution, it can produce hydrogen in such cases. What
25 we were looking at is recommendations, I think if you get past our first

1 recommendation -- our first insight which is there is sufficient protections in place
2 so that there's no need for an immediate action to shut down reactors. And just
3 accept that that was at least our conclusion, we don't ascribe it to anyone else. If
4 that's the case, it means we're looking at 100 operating reactors which in fact do
5 have zirconium fuel of some sort. And the recommendations were then
6 generated in light of the fact that we have already decided that zirconium fueled
7 reactors were not an immediate risk, that they were inherently adequately
8 protected today.

9 MR. MAKHIJANI: I don't under -- that's not an answer. It's not in
10 your report. It doesn't seem to have been considered. There are -- there could
11 be alternatives as a long-term. I'm not saying we're going to shut down the
12 reactors and magically produce a new material that's already been tested, but it's
13 not even a recommendation for the long-term that there should be some R&D. I
14 mean, people have talked about silicon carbide, you know, and so this is not a --
15 this is not an unknown problem and I'm just mystified that you evaded Tom's
16 question and if it fell through the cracks, it would be good to say it now so at least
17 it can be put on the table.

18 DR. MILLER: Okay, let me see if I can address your question in a
19 different manner to at least bring resolution to your question, hopefully in a
20 satisfactory way. I don't want to leave the impression that the task force didn't
21 think about hydrogen. We spent an awful lot of time --

22 MR. MAKHIJANI: No, I'm not saying that, please. You don't waste
23 time --

24 DR. MILLER: All right. Bear with me. Bear with me on my
25 response.

1 MR. MAKHIJANI: [inaudible] hydrogen -- what about the fuel rod
2 [inaudible] --

3 DR. MILLER: Okay, it seems to me, it seems to me --

4 MR. RAKOVAN: Sir, please let him speak.

5 DR. MILLER: And I want to make sure I understand what you're
6 saying. It seems to me you're going more towards why didn't we consider
7 alternative materials that might better protect against hydrogen production --

8 MR. MAKHIJANI: No, I didn't say that.

9 DR. MILLER: I want to make sure. All right.

10 MR. MAKHIJANI: I did not say that. You're not listening to me.

11 DR. MILLER: Okay, let me see if I can listen better.

12 MR. MAKHIJANI: I want to know why you at least -- why there's no
13 comment on the fact that the central mechanism of these hydrogen explosions
14 involved hydrogen generation that involves zirconium, and why there's -- A, why
15 there's no discussion of that in your report, which is a technical important central
16 fact of the accident mechanism, and secondly, why there's at least not a long-
17 term consider this because it's been central to four core meltdowns, partial or full,
18 and four or five hydrogen explosions? Why is there not any mention, any
19 discussion of this technical fact and should there not be now?

20 DR. MILLER: I think we're just going to have to conclude this
21 interaction with an acknowledgment that the report doesn't address the issue that
22 you're interested in. The report clearly addresses zirconium reactions in water
23 and hydrogen production from that and mitigation issues associated with that and
24 it does not address fuel design. And that was not in our opinion within the scope
25 of where we should go. As Gary tried to articulate a moment ago, we're dealing

1 with 104 reactors that utilize fuel that is clad in zirconium oxide -- excuse me -- in
2 zirconium metal. And that was context in which we were operating, so I don't
3 know we're going to answer your question to your satisfaction; the report does
4 not address the issues that you are focusing on. So I think we should move on to
5 a different topic.

6 MR. MAKHIJANI: You indirectly have. Yeah, you -- okay. You
7 indirectly have because I take away that you did not consider any issues that
8 could involve putting the nuclear fleet into question. I have --

9 MR. RAKOVAN: Just one more question, please. We really need
10 to move on.

11 MR. MAKHIJANI: -- one more comment which involves your idea
12 that the NRC should have public comment. You said something about -- you
13 complained about quote, "misinformation and hysteria" during a nuclear
14 emergency challenge, the agency's goal of public confidence. I've studied
15 radiation quite a bit. The NRC has on its website a comment that 620 milliram
16 [spelled phonetically] averaged over the U.S. population annual dose, quote,
17 "has not been shown to cause any harm to humans." Presumably based on the
18 blunt tool of epidemiological studies, completely contradictory to the findings of
19 BR7 [spelled phonetically], and completely contradictory to the NRC's own basis
20 of radiation protection regulation. By my calculation, 620 milliram average over
21 311 million people is associated with more than 200,000 cancers per year in this
22 country, about half of which would be fatal. Now when the NRC has this kind of
23 information on the website, does it deserve to have public confidence, and why
24 did you complain about a supposedly public that is in hysteria, quote unquote,
25 without actually looking at how the NRC is informing the public about these

1 questions where [spelled phonetically] the first thing is it's safe, it's okay, don't
2 worry.

3 And there's quite a bit of radiation misinformation about this, not
4 just from the NRC, but from other agencies as well. The DOE has -- is repeating
5 the same thing. I don't -- I think the NRC has to earn public confidence on
6 radiation and I think you should have commented on it instead of complaining
7 about public hysteria. And I really think that's a very offensive way in which to
8 talk about the -- about public concerns on radiation, and part of the problem that
9 the NRC has in dealing with the public. If you're going to talk about public
10 hysteria, shouldn't there not be a little bit of a mirror in why the public doesn't
11 have confidence?

12 MR. RAKOVAN: Sir, can you give the panel a chance to address
13 your question? And then we're going to need to bring another speaker up.

14 MR. GROBE: I'd just like to make it clear that we did not conclude
15 or make any recommendations regarding public hysteria, but --

16 MR. MAKHIJANI: But you talked about it.

17 MR. GROBE: Excuse me, please. The -- we do find the need for
18 additional education for decision makers that have to deal in the context of
19 something that's very unusual for them and that is dealing [spelled phonetically]
20 the context of responding to radiation incidence. There is an opportunity for
21 more education and that was our conclusion. But I think regarding any
22 information that's on our website, I think that's far beyond the scope of this
23 meeting and I don't think we should probably get into those issues at this point.

24 MR. MAKHIJANI: I think it was most unfortunate that you talked
25 about public hysteria.

1 MR. RAKOVAN: Jared, can you bring up our next speaker,
2 please?

3 MR. HECK: Sure, Lance. Our next speaker is Chuck Manteaux
4 [spelled phonetically].

5 MR. MANTEAUX: Good afternoon, thank you for this opportunity of
6 public comment. I'd like to make, first of all, just an invitation and then I have a
7 question. Does this need to be a little closer?

8 First of all, the invitation would be to the task force to NRC and the
9 industry. I'm involved with a group called InfraGard; it's a 40,000 member
10 organization of critical infrastructure stakeholders that are vetted by the FBI and
11 it's an interesting group because all of them signed mutual nondisclosures with
12 each other and the FBI and in fact are checked out with their databases to make
13 certain you can have confidence in your confidential discussions. And so from
14 the standpoint of emergency planning and also information dissemination
15 because we've just created a nationwide special interest group on high impact,
16 low frequency threats, we would welcome your participation or those you are
17 involved with to the extent you would like to, and I would be glad to discuss it
18 afterwards with any of your members.

19 The question is something that I and others in a number of
20 organizations, I know some are here from a group called NPACT [spelled
21 phonetically] America, and the question regards some reports that came out of
22 NERC [spelled phonetically] and FERC spelled phonetically] about the energy
23 assumptions that might be behind some of your recommendations and it's a very
24 simple question. In the event that we may have a blackout in a region or across
25 the country that would last months, maybe perhaps a year, what would you

1 recommend that nuclear power plants be able to do perhaps with their own
2 energy resources to be able to provide the emergency power they need for
3 things like managing, cooling, and emergency communications in that event
4 where months of power is unavailable? And had you considered those NERC
5 and FERC reports in your deliberations and do your current recommendations
6 address a month's long power outage?

7 DR. MILLER: Could I ask for a clarification on your question to
8 make sure that we understand it in responding?

9 MR. MANTEAUX: Sure, sure, absolutely.

10 DR. MILLER: Are you referring to power to keep the plant safe or
11 power production for electricity for the public?

12 MR. MANTEAUX: I'm sorry, thank you. I'm more interested in the
13 safety considerations. For example, if power is needed to keep spent fuel rods
14 cooled, as an example, and if you are primarily depending on the grid for that
15 power or replenishment of, say, fuel supplies to, say, diesel generators. And if
16 you have a scenario -- and obviously it's a rare event that something like that
17 would happen, that's why it's addressed as a high impact, low frequency event
18 like the hundred year solar storm -- if there's no power and coming from the grid
19 and society around you is incapable of delivering, say, fresh fuel for your now
20 backup generator, what would you be able to do in those events locally to
21 maintain safety and communications?

22 MALE SPEAKER: Well, I think the question is have you considered
23 the potential for long-term power loss to the plant and how that would affect
24 safety?

25 MR. DORMAN: Yeah, and --

1 MR. MANTEAUX: Thank you.

2 MR. DORMAN: I think the question really gets to the heart of the
3 dependencies and the dependencies that exist within the existing infrastructure
4 and dependencies that would exist in potential scenarios related to the prolonged
5 station blackouts. And in the context of Fukushima, we focused on the kind of
6 external natural phenomena that we saw or that were related to what we saw. I
7 think you're -- I could extrapolate your question out, you mentioned solar flares, if
8 you get into a situation where you have that kind of external event that has a
9 significant impact on the electrical systems to the point that that switch gear in
10 the facility may also be impacted, then the ability of the system to feed itself
11 would probably suffer from similar impacts.

12 I could extrapolate it even further to say we have dependencies on
13 fuel, you mentioned the fuel for the diesel generators. Yes, at some point we had
14 a dependency, we don't have an infinite supply of hydrocarbon fuels at the
15 plants, so we would hit a dependency for that sort of infrastructure. So
16 depending on how far you extrapolate that low likelihood event out, we're going
17 to hit a limit somewhere.

18 MR. HOLAHAN: Let me just try another version of this. Certainly
19 our concerns I think overlap your -- to express concern, at least for the first 72
20 hours, the first three days, and our [spelled phonetically] recommendation would
21 basically change the existing situation in which in some way, the plant needing
22 external resources in an event like Fukushima, it would in fact be dependent
23 upon the society to support the plant. I think the idea of a 72-hour on-site self-
24 sustained situation, I think -- at least for the first three days -- removes the needs
25 of the plant and its safety systems from society as a whole.

1 But ultimately, I think and even as we call for AC independent
2 systems, [unintelligible] turbine-driven systems, or a diesel-driven pump, which
3 ultimately is going to need another, you know, supply of diesel fuel, I think we
4 were not envisioning a situation in which the plant became self-sufficient,
5 completely independent of outside sources. Even a diesel-driven -- excuse me -
6 - even a turbine-driven system which runs off the steam generated by the reactor
7 itself, so for some period of time, it's entirely self-contained, ultimately a water
8 supply has to be replenished for that system and it probably takes some diesel
9 driven pump at some point to do that. So I think we were envisioning that three
10 days could -- would be less of a catastrophe than you're suggesting. A three
11 days of self-sustained protection, but then after that point, there would be some
12 point at which it would be -- a plant would need offsite support.

13 MS. CUBBAGE: I would just like to add that in a normal situation
14 with a loss of offsite power that the onsite diesels would be assumed to be
15 available and they have a seven day supply of fuel oil.

16 MR. MANTEAUX: I guess then that if we're going to discuss
17 something that would be a month's long power outage, that would be subject of
18 another conversation, beyond the scope of what you're doing right now. So,
19 thank you.

20 MR. RAKOVAN: Thank you. Okay, Rick, if we could go to the
21 phone lines and go to a couple of questions, please?

22 MR. DANIEL: All right, we have Doug True on the phone. Go
23 ahead, Doug, why don't you state your question.

24 MR. TRUE: Thank you. This is Doug true from Erin Engineering.
25 Noticed under Recommendation 4.1 that talks about station blackout, it refers to

1 some external flooding changes, and the external flooding hazard is very site
2 specific and the nature of the potential scenarios induced by this flooding can be
3 very unit specific, but the requirement provides a specific recommendation that
4 SBO-related equipment should be 15 or 20 feet above the design basis flood or
5 located in watertight enclosures, I was wondering if you could elaborate on the
6 rationale for that specific generic requirement in light of the in fact that it's a
7 variable design basis challenge.

8 MR. HOLAHAN: Hi, Doug, this is Gary Holahan. I think in that
9 section of the report, there are really two thoughts going on. One is if you have a
10 flood beyond a design basis and you are going to rely on some equipment to see
11 the plant through, to provide cooling to the core, the spent fuel pool, the logical
12 thing is to make sure that that equipment is also protected from the flood that's
13 beyond the design basis. And I think that section of the report discusses, you
14 know, two possibilities. One is that you do extensive plant specific analysis and I
15 think -- I think, you know, it -- not only an analysis of the plant, but a site specific
16 probabilistic flooding analysis. You know, which I think clearly would be the most
17 technically satisfied -- satisfying approach, but it would be quite a difficult matter.

18 And the suggestion that you simply rely on equipment that's either,
19 you know, flood protected, you know, watertight doors or in that manner, or rely
20 upon equipment that's at a level of the plant that seems pretty clearly out of
21 harm's way from beyond design basis flood. So what we're suggesting in the
22 report is a practical and much simplified approach that says rather than do all the
23 analysis, just make sure the equipment is, as you say, 15 to 20 feet away. And
24 so, you know, I don't doubt that you have a good point, but we were looking for
25 something that's implementable in the near term as opposed to perhaps a more

1 intellectually satisfying answer which would take substantially more time to get to.

2 MR. RAKOVAN: Okay, if we go to one more speaker on the phone
3 line, please, and get your question.

4 MR. DANIEL: Okay, we have Mr. Veecee, Bob Veecee? Go
5 ahead, Bob.

6 MR. VEECEE: Thanks, I want to make it fast, Tom Cochran
7 [spelled phonetically] covered most of my points. The additional thing I came
8 after listening to the senator at the beginning talk about Lake Michigan. My
9 hometown way back was Kiwanis [spelled phonetically], Wisconsin, recently
10 ACRS and others said, "Okay, you can have a life extension." I might be wrong,
11 but I think the plant sold off after that to someone else, Point Beach is up for a 13
12 percent increase and I note that the committee in its deliberations found that
13 business as usual is okay regarding these matters. So that's the end of what I --
14 my additional comment. I e-mailed in mine and I also feel my areas were
15 covered by Tom Cochran regarding PRM-50-93 and also urban siting, so I'm
16 finished.

17 MR. DANIEL: Okay, thank you very much, Mr. Veecee.

18 MR. RAKOVAN: Yes, thank you, we'll go back to the room now.
19 And I'll note the meeting is scheduled to run until 4:00, but if the task force
20 members are willing to stay a little longer, I'm sure we'll be able to get through all
21 the questions. Those of you who may have other appointments, of course we
22 would understand if you need to excuse yourselves. Our next questioner is
23 Audin Really Awatona [spelled phonetically], from the University of
24 Massachusetts at Boston.

25 MR. AWATONA: My question actually relates to Recommendation

1 11, public education. Did the task force actually consider how public education,
2 especially on radiation, radiation safety could be effectively delivered at
3 grassroots, low income community levels? And the involvement of
4 nongovernmental organizations, I know you talked about partnerships with FEMA
5 and other government agencies, but I think that you need to perhaps also
6 elaborate on the possible involvement of nongovernmental community-based
7 organizations and perhaps universities in this educational process.

8 MR. SANFILIPPO: Yeah, I think you're absolutely right on a lot of
9 areas with respect to, you know, we didn't specifically note universities and other
10 educational partners. We did just mention appropriate federal partners in the
11 language of the recommendation itself, but I think the idea behind that
12 recommendation was that it's a recognition that it's not just the job of the NRC
13 alone or would we have the requisite scope of experts to speak comprehensively
14 to radiation safety and health physics at an appropriate level to members of the
15 public or as you mentioned low income population and whatnot. So, you know, I
16 think it's a good note and as -- if our Commission endorses this recommendation
17 to go forward, I would presume that our Office of Nuclear Security and Incident
18 Response that's responsible for our emergency preparedness programs and
19 working with FEMA and the other partners would consider a wide range of
20 stakeholders that would likely be, you know, a good partnership, you know, to
21 work on a project such as this. So I think it's a very good concept.

22 MR. GROBE: Yeah, I just wanted to add, I -- you're getting into an
23 area that has lots of governmental boundaries in it, you know? I mean, schools,
24 for example, are governed locally, very locally, by towns and school districts and
25 I think the principal focus of our recommendation and our first area that we would

1 focus on would be education for decision makers that have to provide advice to
2 the public. And that would be the first place that we start. And getting into
3 educational programs for schools and things like that, currently on our website,
4 we have extensive materials available for teachers. If they want to do a unit on
5 radiological safety or nuclear power, there's lesson plans and teaching materials
6 that are already available on our website.

7 But you're getting into an area that has a lot of interesting
8 governmental boundary issues associate with it. So I think the principal focus
9 and why we focused on federal partners was to gain alignment not only in our
10 federal partners but also our states and local governments, making decisions
11 associated with radiological safety and advising the public on moving forward.
12 And that's one of the lessons that we learned from Fukushima.

13 MR. AWATONA: Thank you very much indeed.

14 MR. RAKOVAN: Okay, I actually have a question here from Patrick
15 O'Brien from Mitsubishi Nuclear. Were dry cask storage structures considered
16 under the recommendations similar to spent fuel concerns such as damage to
17 dry cask by flood, and natural disasters?

18 MR. SANFILIPPO: I think the -- with respect to looking at
19 independent fuel spent storage facilities or dry casks, it was specifically not part
20 of the -- our charter or the responsibilities of our near term task force. It was
21 specifically noted when we were directed by the Commission that that would be
22 part of the longer term effort. We were just looking at operating nuclear power
23 plants and their spent fuel pools. So that's more of an administrative item that
24 was an area that we didn't specifically address because it was directed to be
25 addressed by the longer term review.

1 MR. RAKOVAN: Okay and also, how much did -- oh, sorry.

2 MR. GROBE: Just quickly. We did make a conclusion to not make
3 a recommendation in one area with respect to dry cask storage and in the
4 section in spent fuel pools, we evaluated the relative safety of storage of older
5 fuel in spent fuel pools as contrasted with dry casks and as articulated in the
6 report, the conclusion is that both methods of storing spent fuel are safe and that
7 there isn't any driving safety-focused issue that would cause you to direct fuel to
8 be stored in one -- using one methodology in lieu of another. So Nathan's right,
9 we didn't go into detailed study of storage in dry casks, but we did study it at the
10 level of whether or not fuel should be stored -- required to be stored in fuel pools
11 or required to be stored in dry casks and concluded that either mechanism is
12 safe.

13 MR. RAKOVAN: Okay, also how much did Fort Calhoun flooding
14 impact this report and recommendations?

15 DR. MILLER: The event at Fort Calhoun certainly heightened the
16 sensitivity to flooding and what flooding could do, and how you have to be
17 protected against it, but we were well into our deliberations at the time of the
18 flooding at Fort Calhoun. It was another example that gave us insights of the
19 importance of protection against flooding. And the fact that while Fukushima, the
20 flooding at Fukushima happened as a result of a severe earthquake and a
21 tsunami, Fort Calhoun demonstrated how there could be other flooding scenarios
22 that have you make sure that you're protected against because water's not
23 prejudicial with regard to how it might affect the plant once it gets there.

24 MR. RAKOVAN: All right, Rick, let's go ahead and take a few from
25 the phone.

1 MR. DANIEL: Catherine Barns [spelled phonetically], you want to
2 go ahead, Catherine, and ask your question?

3 MS. BARNS: Yeah, I have some comments and also some
4 questions. First off, I appreciate you having your conference on the Internet
5 where people can watch it; I think that's good to have an open transparent
6 government. And -- can you hear me?

7 MR. DANIEL: Yes, we can.

8 MS. BARNS: Okay, I did want to make comments though. For one
9 thing I live in Michigan and we're very concerned because we have a nuclear
10 reactor near here, Davis-Besse which is also the same design as the Fukushima
11 plant. And they've had some serious accidents there, including a recent one
12 where they had some spillage. We also have aging nuclear reactors Palisades
13 [spelled phonetically] being one of the 10 worst in the United States, and that has
14 had serious nuclear accidents including one there was a multi-ton cask just
15 dangling for a long period of time which would have crashed and caused a
16 meltdown.

17 The plant itself is embrittled, it's older and they've run out of core
18 samples to do any adequate testing, they have a lack of security there and there
19 are repairs that Consumers Energy promised, but when they got relicensed, they
20 sold the plant and the present owner has not done the -- most of the repairs. In
21 fact, the only repairs I know that they said they did at all, was a few snuffer
22 [spelled phonetically] belts. But the dome that they promised to the reactor
23 vessel and et cetera, et cetera, et cetera are undone. Also --

24 MR. RAKOVAN: Miss, do have you a question for the task force,
25 please?

1 MS. BARNES: Pardon?

2 MR. RAKOVAN: Do have you a question for the task force?

3 MS. BARNES: Well just wait a minute, wait a minute, just one more
4 thing. That the casks which store the radioactive wastes are built not on bedrock
5 like they said before, but just on compacted soil and there is sand underneath.
6 And just recently Monday there was an earthquake here in Michigan, you could
7 feel it. The whole building shook, I was at the college. So there are earthquakes
8 under here, and if there was an earthquake at Palisades, there would be -- what
9 do you call that? -- liquefaction of the soil and the sand, it's built on sand dunes.
10 And we could potentially have a Fukushima right here because of that.

11 Is -- one of my questions is will the NRC do any kind of security
12 measures to tighten security at nuclear power plants and will they do anything
13 about the potential risks of earthquakes and internal leaks, tritium leaks, aging
14 nuclear reactors, and I can't understand why they're relicensing nuclear reactors
15 years ahead of time. They don't even know what a nuclear reactor's going to be
16 like in 10 years, yet they're relicensing them way ahead. And also, a friend of
17 mine wants to know what's the average background rad count? You know, like is
18 it nine or what is it? And how -- and how we, the public, can know the current
19 count per minute.

20 MR. GROBE: Wow, you've got a lot of questions and let me try to
21 take a few of them, if I can remember all of them. First off, I think you asked a
22 question regarding security, and I don't believe there were any lessons learned
23 from Fukushima in the security arena that the task force determined were of
24 appropriate importance to make recommendations on. As Gary Holahan
25 addressed earlier, there are many, many areas that we could have addressed

1 and security was not one of those that we felt was sufficiently important based on
2 the lessons learned from Fukushima to spend time focusing on and making
3 recommendations on.

4 Regarding license renewal, there's a very public and well
5 understood process for doing the license renewal evaluation and those
6 evaluations should be done in a methodical and well thought through way, and
7 they are well ahead of when the license should be renewed. And they're
8 predicated on ensuring continued maintenance of passive equipment in the plant
9 and that's the focus on the license renewal.

10 With respect to background radiation, the number that you
11 mentioned is not a clear or well understood number. Background radiation
12 anywhere in the United States is different. It depends on the soils that you live
13 on and the elevation of your home and quite honestly, many of the behaviors that
14 we all engage in changes that background level of radiation. For example, if you
15 do extensive flying, your level of radiation that you're exposed to is higher or
16 lower. And I would suggest that you contact your state or local environmental
17 health officials or public health officials and they may be to help you with the
18 specific background radiation in your area where you live. I think I've captured a
19 couple of the questions. Amy, do you have some more?

20 MS. CUBBAGE: Yeah, one of your questions was directly related
21 to the scope of our task force, and that was with regard to looking at the potential
22 risks from earthquakes, and we did generate a recommendation in that area and
23 we're recommending that plants be required to go back and reanalyze their
24 seismic risk.

25 MR. RAKOVAN: Rick, if you could, can you get the next question

1 from the line, please?

2 MR. DANIEL: Sure. We have Glenn Carroll [spelled phonetically]
3 on the phone. Go ahead, Glynn.

4 MS. CARROLL: Thank you. Can you hear me?

5 MR. DANIEL: Yes, we can hear you very well.

6 MS. CARROLL: My name is Glenn Carroll and I represent Nuclear
7 Watch South. We have traditionally been around 500 members, but we got over
8 5,000 new members last year. I have a couple of questions. Since Fukushima is
9 still in a state of crisis or at least unstable, what mechanism are you
10 recommending for a continuance of review and recommendation?

11 MR. GROBE: I think the only statement that the task force made in
12 its report in this area is simply a recognition that in the tasking memorandum that
13 came from our Commission regarding the review of Fukushima, it specifically
14 acknowledges as part of the longer term review, that additional study and
15 awareness of the evolving information that becomes available at Fukushima
16 should be collected and analyzed. And we acknowledge that aspect of the
17 longer term review. Beyond that, the near term review was not focused in
18 framing what the longer term review should entail. It was simply looking from the
19 -- looking for actions that can be gleaned in the near term from the lessons that
20 are learned at Fukushima.

21 MR. SANFILIPPO: And in addition to, I mean, the agency
22 continues to monitor the actions that are ongoing in Japan both here at
23 headquarters and by NRC staff that is embedded at the U.S. embassy in Tokyo,
24 so we're still very, you know, immediately aware of ongoing, you know, late
25 breaking items with respect to what's going on in Japan.

1 MR. RAKOVAN: Rick, can we take another caller from the phone
2 lines, please? We can't hear you guys out here. Okay, we're going ahead and
3 take somebody from in here, then. Frank Gillespie [spelled phonetically] from
4 Mitsubishi, please.

5 MR. GILLESPIE: Thank you. I'm going to kind of hopefully ask a
6 going forward question. In Recommendation 4, in the text to it -- and I'm not
7 going to go through every single paragraph -- but there's a lot of, I'll call them
8 criteria, that are kind of outlined in there for coping equipment. Including -- and
9 Gary, you know, an extended event, however you determine, you know, 20
10 percent more than the current flood, 50 percent more, or tornado or earthquake
11 that -- you could put a margin in there for protection of the equipment. There's
12 also an interesting criteria in the report that's about --and it really does make
13 sense -- that you want to the operators to use as much of the normal procedures,
14 processes and equipment as they can. And -- which now gets to my question.
15 Also in the report it emphasizes and kind of comes across this way, and I don't
16 know if it's intended, so my real question is, did you intend this?

17 And I'm a new reactor guy, so remember I'm dealing with a paper
18 reactor that I can still augment the design a little bit on. It says no AC sources
19 allowed. Is that independent of the fact that an AC source might actually be
20 better protected than the station batteries, yet you allow DC sources. And in fact,
21 if you could get that AC source including protected switch gear to run, you could
22 use more of your normal equipment and in unit six -- at five and six at Fukushima
23 that air cooled diesel, which was high enough, that's your margin, was actually a
24 positive kind of lesson learned out of it. So my question is, did you really mean
25 independent of what you do, an AC alternative is not allowed, or did you really

1 mean that given all this criteria that if you could meet the extra margin and
2 everything else in the protection?

3 MR. DORMAN: Yeah, I think --

4 MR. GILLESPIE: Clarification is what I'm really looking for on that.

5 MR. DORMAN: Yeah, I think if you have a vulnerable distribution,
6 then the alternative that you're going to rely on needs to be independent of that
7 distribution as well, so I think we've -- when we talk about station blackout from
8 our historical perspective, we tend to focus on the source of the power and less
9 on the -- how it gets to the loads. What we found at Fukushima was not only did
10 the sources get inundated, the distribution networks were also shorted out. And
11 so if you were relying on a -- as they [spelled phonetically] say in units one
12 through four, if you had a diesel that was higher, but the switch gear was still
13 down in the water, that diesel would not avail you. On units five and six, the
14 facilities were higher and they were able to cross connect and get that one diesel
15 to support unit five. So I think the key is being independent of the systems that
16 were lost in the underlying event.

17 MR. GILLESPIE: Okay, so -- no, that's good because
18 [unintelligible]. What I said is if I could meet all the other criteria outline including,
19 you know, the criteria for an independent distribution which means I've got a
20 separate wire protected from common cause failures with two breakers, and a
21 protected source, would AC be okay then? It's just kind of a blanket no AC
22 independent of what I do.

23 MR. HOLAHAN: Okay, but let me try one version and then we'll try
24 [unintelligible]. Okay, the task force put forward a recommendation, okay? And
25 that recommendation will go through some process, certainly rulemaking aspects

1 of it will open it up to, you know, exactly what is the range of what the regulation
2 would call for, and then frankly, that regulation would probably have a guidance
3 document, so I think the recommendation lays out a concept, okay? And not
4 necessarily a hard and fast set of requirements. I would say the task force did
5 look at the practicalities, okay. So, to make a turbine-driven system waterproof,
6 all right, of flood resistance is one thing, a diesel-driven system, it seems
7 reasonably practical. And, you know, you can even have a system in which
8 there's a generator, a motor and a electric-driven pump that's all in -- encased in
9 a single area, so in that sense there is AC power involved, but the issue that we
10 were trying to avoid is the practical one of dependence upon AC power doesn't
11 just mean the diesel and the generator. You know, it's the cabling, the switch
12 gear, the motor control center, the various motors, we saw it as a -- as an
13 extraordinarily difficult thing to protect the whole range of AC equipment.

14 That doesn't mean that there might not be some plant in which that
15 was possible, or that it might not be possible to design some plant in which it's
16 possible to protect all of the AC equipment. So I don't think the recommendation
17 was meant to completely eliminate that possibility, but as a practical matter, it
18 seemed that core and spent fuel cooling without AC power is a simpler
19 articulation of what we're trying to achieve.

20 MR. RAKOVAN: Okay, did we get the situation with the phone
21 lines worked out? Rick? Speak, can we hear you?

22 MALE SPEAKER: Yes, yes, yes.

23 MS. WILLIAMS: Yes.

24 MR. DANIEL: We have Mary Jane Williams [spelled phonetically]
25 on the line. Go ahead, Mary Jane. Let's hear your question.

1 MS. WILLIAMS: Can you hear me?

2 MR. DANIEL: Yes, we all can hear you

3 MS. WILLIAMS: Okay, my name's Mary Jane Williams, I
4 cofounded a group in Concord, Massachusetts called Citizens Research and
5 Environmental Watch. I'm now speaking as a public citizen though. I have a
6 quick comment; someone on your panel said -- made a comment earlier about
7 relicensing, something like we the public should know that there is a well-
8 established process for relicensing and we should have faith in the NRC about
9 that, but until the NRC starts actually denying the occasional relicense, I don't
10 think that the -- we the public will have any faith in the NRC.

11 Now, here's my question though about this. It has to do with the
12 evacuation zones. I want to know why you're only recommending that it be
13 enlarged to 12 and half miles from 10, the current 10? Because my information
14 from Fukushima is that the offsite contamination seems to be going all over,
15 some of it many miles beyond the -- any current evacuation and also it's not in a
16 general semicircle. It's just random spotting here and there, so, number one,
17 how does it make any sense to have any rounded sort of semicircular [spelled
18 phonetically] evacuation [unintelligible], and number two, if have you that, why
19 shouldn't it be about 50 miles?

20 MR. SANFILIPPO: Just to clarify the -- with respect to the
21 comment on 12.5 miles, that was a comment that was made by the Senator Kirk
22 from Illinois in his opening comments and was not related to our task force
23 efforts. With respect to what we actually discuss in the report, we speak to the
24 10-mile and 50-mile emergency planning zones that we have surrounding the
25 plants and then we do not have a specific recommendation in the report to

1 change the size of either one of those zones. The events at Fukushima certainly
2 as we've observed have necessitated what the Japanese government chose to
3 do, which was to evacuate the population beyond -- I believe they ended up
4 evacuating out to about 30 kilometers, which is about 18 miles equivalent by --
5 and that wasn't -- you know, I believe we have the timeline in the report with
6 respect to when those evacuations were made. On March 12, the day after the
7 event, they evacuated out to 20 kilometers which is about 12.5 miles, and then
8 several days later they evacuated out to 30 kilometers which is 18.6 miles.

9 The way that the U.S. framework has set up for consideration and
10 protective actions is recognizing that the most immediate need for protective
11 actions would take place within that 10-mile emergency planning zone, but when
12 the U.S. developed the emergency planning basis, it recognized that for certain
13 severe accidents, there could be a need to take protective actions beyond that
14 10-mile zone. It's been part of our program ever since it was -- its inception
15 around 1980. The recognition is that need to take action beyond 10 miles would
16 some time until you needed to implement that, and it was most important to
17 implement protective actions within the first 10 miles.

18 Those additional protective actions, should it be evacuation in a
19 particular direction farther than 10 miles, would then be decided by the state and
20 local government decision makers that make those decisions in your community.
21 So the premise is that the U.S. emergency planning zones provide the basis for
22 being able to allow the state and local decision makers to conduct evacuations
23 beyond those zones. I mean, we -- one of the recognitions when we've looked at
24 this topic over the years has been that every community periodically, most
25 certainly every community has evacuation plans, but they're for events that are

1 non-nuclear related. You know, look at hurricanes or hazardous, you know, if a
2 gas line breaks or whatnot, your community local responders are prepared to
3 evacuate people and that's purely on a -- sort of an ad hoc basis based on the
4 conditions and as they necessitate.

5 So there's -- you know, it's a lot of basis and in talking with local
6 emergency managers in particular, they feel pretty strongly, at least the ones that
7 I've particularly talked to over the years, about they feel that, you know, they're
8 prepared to protect their -- the local population around plants or around anything
9 from any type of disaster and not just a nuclear one. And so we as the task force
10 in this effort, having not learned any particular new insights with regard to
11 challenges that they had at Fukushima with respect to evacuation, indications
12 actually show that the evacuation went fairly smoothly. We didn't have any basis
13 for recommendation that would suggest expanding those zones here in the U.S.
14 I mean, we do have detailed preplanning out to 50 miles around every plant. It's
15 what's called the ingestion exposure pathway, meaning that there's plans in
16 place to help protect food and other items from being consumed that may have
17 contamination in that larger area, but there's no basis based on what we learned
18 at Fukushima that would need some change in that emergency planning zone in
19 the U.S.

20 MR. RAKOVAN: Before we go to the phones, I just want to remind
21 people since we are over time at this point, if you do have questions, you can
22 always send them to opa.resource@nrc.gov. So that's opa.resource@nrc.gov.
23 Just in case you need to drop off or leave before you have a chance to ask your
24 question. Let's take one more question from the phone line, please, Rick?

25 MR. DANIEL: Mark?

1 MR. LEESY: Yes, Mark Leesy [spelled phonetically].

2 MR. DANIEL: Go ahead.

3 MR. LEESY: Oh, thank you. Yes, first I want to say I appreciate
4 that you've extended the meeting beyond 4:00 p.m. I just want to point out some
5 observations; this was from a paper published a decade ago, OECD Nuclear
6 Energy Agency. Okay --

7 MR. RAKOVAN: Sir, do have you a question for the task force? Or
8 that -- we're trying to stick to questions.

9 MR. LEESY: Yes, this is a question. But first, it says that re-
10 flooding and quenching of the uncovered core is the most important accident
11 management measure to terminate a severe accident transient, and if the core's
12 overheated, re-flood can lead to increased oxidation of the zircloid [spelled
13 phonetically] colladian [spelled phonetically] which can trigger a temperature
14 escalation and that relatively short period of re-flood can yield high ox -- high
15 hydrogen rates, actually up to 300 kilograms per minute can be produced. And
16 this report also points out that the available zircloid steam oxidation correlations
17 were not suitable to determine the increased hydrogen production in the few
18 available tasks including the LOFT LPFP2 [spelled phonetically] experiment
19 which the NRC --

20 MR. RAKOVAN: Sir, please, I'm going to have to ask you to get to
21 your question.

22 MR. LEESY: -- spent \$55 [spelled phonetically] million on in
23 [inaudible] --

24 MR. RAKOVAN: Sir, I'm going to have to ask you get to your
25 question, please.

1 MR. DANIEL: I think we lost him, Lance.

2 MR. RAKOVAN: All right, we'll see if we can get him back. Can --
3 Jared [spelled phonetically], do you want to go to the next person that you have,
4 please?

5 MR. DANIEL: Yes, next we have Michele Boyd [spelled
6 phonetically] with Physicians for Social Responsibility.

7 MS. BOYD: I'm freezing. It is really cold in here and I think we
8 probably could turn off a couple of nukes if we would turn down the air
9 conditioning a bit. My question seems [spelled phonetically] are a little bit
10 laughable, I just learned that Commissioner Ostendorff has voted to punt your
11 report, so you now have a majority of commissioners who are looking to put your
12 report back to staff for indefinite review. So I'm sorry to hear that, because I think
13 there's a lot of really important recommendations in there that need to be acted
14 on immediately.

15 So my question is -- well, it's been by two people, but there hasn't
16 been an answer, so I would like to get an answer on this. Why do -- does the
17 task force recommend continuing relicensing, licensing of new reactors and
18 design certification before safety improvements are even decided, much less
19 implemented? From -- you know, for [unintelligible] TMI, the Commission paused
20 licensing for a year and half. From a public perspective, this appears to be
21 business as usual and looks like the NRC has zero intention of actually making
22 real safety changes. The backfit argument is really not sufficient, considering
23 that we're talking about new designs and new licenses, so that wouldn't really
24 work for that. And in terms of relicensing, it appears to be an effort to close
25 public participation in the process. The public has, as you heard from an earlier

1 speaker, has zero confidence in the relicensing process, it's extremely difficult to
2 participate, and the issues are very, very limited. It is absolutely mindboggling
3 that the NRC would relicense nine reactors after Fukushima before lessons can
4 be even determined. So I'd really like a clear answer on to what was your
5 thinking was when you wrote that. Thank you.

6 MS. CUBBAGE: Sure. Well, we're not here today to discuss the
7 specifics of the license renewal process, but I can assure you that our
8 recommendations, if acted upon by the Commission, we intend them to be
9 applied to all reactors whether they have been renewed, whether they're in the
10 process of being renewed, or they haven't been renewed yet. So, if we have a
11 safety concern, we have the process to apply those decisions to any reactor.

12 MR. RAKOVAN: Okay, I have --

13 MS. BOYD: That's the backfit argument that just doesn't hold water
14 from the public perspective.

15 MR. RAKOVAN: Okay, I've got a question from the audience with
16 respect to long-term evaluation topics. What are the respective roles of the NRC
17 and utilities in undertaking these evaluations? Which will be industry-led and
18 NRC-led? Can any of you speak to that, or --

19 MR. DORMAN: Well, I think the specific topics that the task force
20 recommended for long-term evaluation are targeted to the staff for long-term
21 evaluation. There may be other topics that come up in the long-term evaluation
22 that I can't speak to.

23 MR. RAKOVAN: Okay. I'd like to go to Cynthia Harris [spelled
24 phonetically] from Impact [spelled phonetically] America, please, and then we're
25 going to go to the phone lines and hopefully get through the rest of the callers

1 that we have waiting.

2 MS. HARRIS: Thank you for this opportunity. I appreciate it. As a
3 recently retired threat analyst for the government, I was wondering if you had the
4 opportunity or if you did actually think about the terms of what -- think about what
5 a long-term outage it would be if we were hit with an electromagnetic pulse as we
6 have been threatened by four different countries. These four different countries
7 not only have threatened us, but at least three of them have the capability now
8 and one of them is on the way. The EMP [spelled phonetically] Commission of
9 2008 suggested -- they stated that if we were attacked with an EMP, we would
10 be down -- our electric grid would be down for four to 10 years as opposed to
11 only a few days or 72 hours. It would mean the decimation of our population, 66
12 percent, and some experts say up to 90 percent of our population would be dead
13 within 365 days. I was wondering if you took any of that into account.

14 MR. GROBE: The electromagnetic pulse has been a subject of
15 discussion and research at the NRC for quite some years, but there isn't anything
16 associated with the electromagnetic pulse as a lesson to be learned from
17 Fukushima and that was the focus of this task force.

18 MS. HARRIS: Power outage.

19 MR. GROBE: The descriptions that Dan provided on station
20 blackout, the -- I thought Charlie tried to answer this a little bit a few minutes ago,
21 but the level of power needed to continue to cool the reactor core in the spent
22 fuel pool is extraordinarily small and it doesn't need to depend on the electric
23 grid. And, for example, extended core cooling can be provided simply with a very
24 small generator providing recharging to a battery bank for a very long time -- and
25 the kind of generator that you and I can purchase very locally. So the electric

1 grid impacts of an electromagnetic pulse are not necessarily directly related to --
2 and the societal impact of that, from losing a grid, an electrical grid, are not
3 necessarily associated with the needs, the power needs to provide continued
4 safety at a nuclear power plant that's shut down.

5 MS. HARRIS: I -- could I make one request, then, that you contact
6 Congressman Trent Franks for his own estimation of the Palo Verde nuclear
7 power plant and how that would react -- how that would be affected in the event
8 of an EMP attack. Thank you very much.

9 MR. RAKOVAN: Thank you. Rick, can we go back to the phones?

10 MR. DANIEL: Sure. Next caller, Thomas Poppy [spelled
11 phonetically]. You want to state your question to the task force, please?

12 MR. POPIK: Yes, this is Thomas Popik [spelled phonetically] from
13 the Foundation for Resilient Societies. I think the report had many excellent
14 recommendations, but most of the recommendations were centered around the
15 operation of nuclear plants or around the NRC regulatory process. You folks
16 previously examined some of the station blackout risks in NUREG-6890. I'm just
17 reading from the forward of that, it says, "Our current results show that the grid
18 contributes 53 percent to SBO core damage frequency," and it goes on to say
19 that severe and extreme weather events, which are generally related to grid
20 events, contribute another 28 percent. So it seems that the commercial electric
21 grid really is the primary source of risk for nuclear power plants. And I wonder
22 what the thinking the task force was in not recommending that the electric grid be
23 more -- made more reliable. It seems that a risk-informed approach would
24 concentrate on how to make the grid more reliable and also some degree of
25 inner agency coordination with the Federal Energy Regulatory Commission. I

1 wonder if you could just explain your thinking on that.

2 MR. DORMAN: Yeah, this is Dan Dorman. The -- first off, the --
3 our charter was to look at NRC regulations and programs and to the extent that,
4 as you noted, we don't regulate the grid, so we did not expend a lot of energy on
5 that, but we do in our normal -- the agency does in its normal line [spelled
6 phonetically] process, maintain active engagement with NERC [spelled
7 phonetically] and FERC on grid reliability issues. But it -- as you noted, those are
8 not things that are within our regulatory authority or programs and so it was not
9 something that the task force focused on.

10 MR. GROBE: Let me just expand on that just a little bit since the
11 subject's been raised. This is Jack Grobe. We have daily interactions with
12 FERC and NERC. We get daily reports on the status of the grid around the
13 United States and areas where there are challenges on grid reliability. In
14 addition to that, we have regular interactions at a management level and I believe
15 semiannual meetings at the commission level where our commissioners meet
16 with the FERC commissioners to discuss issues of mutual interest and concern.
17 As Dan pointed out, we don't regulate the grid, FERC does, but we coordinate
18 very closely with FERC because of the close relationship between the grid and
19 nuclear power.

20 MR. RAKOVAN: Okay, can we bring up the next caller from the
21 phones, please?

22 MR. DANIEL: Yes, we have another caller on the line. Caller, you
23 want to identify yourself and ask your question, please?

24 FEMALE SPEAKER: Okay, we have Muhammad Ali [spelled
25 phonetically].

1 MALE SPEAKER: Hi, this is Muhammad Ali. You've probably
2 heard that name before, but, you know, it used to be Cassius Clay [spelled
3 phonetically]. And before that, it was Ray [unintelligible] --

4 MR. DANIEL: All right [spelled phonetically].

5 MR. RAKOVAN: Okay, let's bring up the next caller, please.

6 FEMALE SPEAKER: Go ahead. Next we have David Lochbaum
7 [spelled phonetically].

8 MR. DANIEL: Go ahead, David.

9 MR. LOCHBAUM: Good afternoon, this is David Lochbaum with
10 the Union of Concerned Scientists. Today's call is just for external stakeholders
11 to ask questions of the near term task force about their report rather than to
12 provide comments on that report. My question is when will the opportunity come
13 for public comment and will that be before the near term task force morphs into
14 the not so near term task force and before the orders are issued?

15 DR. MILLER: Hi, David, this is Charlie Miller. The delivery of the
16 task force report and of course our subsidiary responsibilities is to try to answer
17 questions, will complete our activities in the near term. Our recommend
18 anticipations are before the commission as we've said, and the commission will
19 provide the staff guidance as to how to proceed from here with the regard to get
20 further public input. Participation will be that that's likely to happen before any
21 further action would be taken by the agency. But that's a question that the
22 commission will have to answer.

23 MR. LOCHBAUM: -- so it's set up that it just might happen.

24 MR. RAKOVAN: David, we disconnected with you for a second.
25 Go ahead and state that again for us.

1 MR. LOCHBAUM: With this many multiple hour conference there
2 are many people from the NRC said there would be opportunities later for public
3 comment, I lost track of how many time it was said, now you're saying that's not
4 guaranteed, that that just might happen but there's no real definite plan for
5 making that happen, is that correct?

6 MR. GROBE: Yeah, Dave, this is Jack, that a number of us have
7 commented that the Commission has expressed in several meetings that we
8 have had with them that they are a very strong interest in public engagement and
9 industry engagement, all of our various stakeholders and we anticipate that that
10 will be the direction that the Commission provided but we have not yet received
11 direction from the Commission in the form of a staff requirements memorandum
12 and we look forward to that in the next, I would expect, couple of weeks.

13 MALE SPEAKER: And in addition we've alluded to, by definition,
14 the rulemakings that we've recommended would all involve the normal public
15 process with respect to getting stakeholder input on rulemakings. So, I think
16 we've also alluded to it in that regard and that, you know, if the Commission were
17 to endorse moving forward with these rulemakings, they would [inaudible].

18 MR. GROBE: And just more fundamentally it's part of our fabric to
19 get public engagement. It's part of our fundamental principles of good
20 regulations, so I don't think there's any question that there will be opportunities to
21 provide public involvement and engagement.

22 MALE SPEAKER: Rebecca?

23 MR. RAKOVAN: Rick, if we've got any more questions.

24 We're done from the floor at this point, so. No, we're not?

25 FEMALE SPEAKER: I'm sorry, Tom Clemens, your line is open.

1 MR. DANIEL: Go ahead, Tom.

2 MR. CLEMENS: Okay, thank you for taking my questions. This is
3 Tom Clemens with the environmental organization Friends of the Earth in
4 Columbia South Carolina. and I had two questions: one related to the public
5 process and the second one, the AP1000, just following on the questions by
6 David Lochbaum and the responses. I just wanted to be clear because I know
7 that a number of people on the line have seen the road map for Commission
8 decision making and obtaining stakeholder input, and let me just ask you where
9 this came from? Is this just a document from Chairman Jazcko how things are
10 going to pursued or does this have greater status than that, but I'm also
11 concerned that there's nothing outlined about how stakeholders can have input at
12 this point.

13 MR. GROBE: We're not aware of this roadmap that you speak of,
14 but the direction of the Commission comes in the form of staff requirements,
15 memoranda, their memoranda to the staff, the executive director from the
16 Commission and they contain the direction that the Commission has provided to
17 us. And we have not yet received that and we anticipate receiving it in the near
18 future. So I don't know that we can provide you any more direction.

19 MR. DANIEL: Good afternoon Mandy, we're ready for your
20 question. Hello? Mandy?

21 FEMALE SPEAKER: I'm sorry, I'm a back-up for Sarah Barzak,
22 who had trouble connecting, could you please defer to her?

23 MR. DANIEL: Say that again?

24 FEMALE SPEAKER: I'm a backup for Sarah Barzak, who is also
25 on the line, she had trouble connecting before, so I would like to defer to her

1 please.

2 MR. DANIEL: Okay.

3 FEMALE SPEAKER: [Inaudible] Sarah Barzak. One moment.

4 MR. DANIEL: Okay.

5 FEMALE SPEAKER: Sarah, your line is open.

6 MS. BARZAK: Hi, thank you. My name Sarah Barzak with the
7 Southern Alliance for Clean Energy. Thank you for your work today and having
8 this public meeting open and for everyone's patience. Our talks continue to be
9 with the Japanese people. Given that we're located in the Southeastern United
10 States, where there's a heavy reliance on nuclear power and many now reactors
11 proposed we have several concerns. We will limit the questions to just two for
12 now and we will submit the rest.

13 First, the proposed completion of [unintelligible] in Tennessee and
14 the abandoned Bellefonte reactors in Alabama were specifically mentioned in the
15 task force report, specifically at least several of those recommendations could be
16 adopted or addressed for operating license are issued. Could the task force
17 members please elaborate on the reasoning behind the recommendations and
18 discuss any measures the NRC may take including perhaps [unintelligible] the
19 issue and some operating license. And then I'll put the second one out there, and
20 you can cover that at the end or defer, it appears that there were cultural issues
21 that led in part to the severity of the accident at Fukushima, including a regulatory
22 body that got too close to the nuclear industry. Our question is, when will this be
23 evaluated and then incorporated into the NRC's continued investigations on the
24 Japan disaster in terms of the NRC taking a hard look, its own relationships with
25 the industry and the inherent conflicts of interest often found in those

1 relationships. Thank you and I'm sorry I spoke so fast.

2 MR. GROBE: Let me start with Watts Bar and Bellefonte. Those
3 are two plants that are being licensed under 10 CFR Part 50, and the task force
4 observed that its belief that the recommendations presented in this report should
5 be addressed by those facilities before they're licensed to operate. We also
6 made some observations regarding new reactors and design certifications, and
7 because those are licensed under 10 CFR Part 52, the recommendations are the
8 observations we made with respect to how the recommendations should be
9 addressed are different for those different kinds of licensing processes.

10 But the recommendation of the task force was that these issues be
11 addressed in the licensing process at some point in time before the plants
12 operate. Those observations and directions are being considered by the
13 Commission and we have not yet gotten direction from the Commission.

14 MR. HECK: There was a second part to that question. Did anyone
15 at the task force wish to respond to the second question being, whether there
16 would be any effort to look at NRC relationship to industry?

17 MR. GROBE: I left that one for Charlie.

18 DR. MILLER: I apologize because I was talking to Lance.

19 MR. RAKOVAN: Unfortunately I distracted Charlie while that
20 questions was being asked, so --.

21 DR. MILLER: I didn't hear the full question.

22 MR. GROBE: The specific question was regarding whether or not
23 there was any influence on what happened to Japan associated with the
24 relationship that their regulator has with their industry and whether we're looking
25 at similar relationship issues between the NRC in the industry and lessons

1 learned in that area.

2 DR. MILLER: Yeah, I guess the way I would answer that question
3 was, there have been various accounts with regard to the relationship of the
4 regulator and the industry in Japan. The task force itself of course has passed
5 no judgment on that, nor did we do a detailed focus on that. We were more
6 concerned about internally looking at the United States. From our perspective
7 we want to make sure that our relationship with the industry is such that the
8 agency maintains its independence as we've been legislated to do.

9 It's demonstration for that, regardless of what individuals feel about
10 the task's force report, and as can you see from this meeting, there are many
11 passions and many directions. And there's different perspectives even amongst -
12 - internal to NRC.

13 This task force was given complete independence to do their job,
14 and I think that we were not influenced by any outside forces and/or conclusions
15 are our conclusions on our own without any internal interference or without any
16 external interference and I think that that's an a tribute, at least from my
17 perspective, to the values of the agency. We greatly appreciated the opportunity
18 to be able to do that.

19 And so we formulated our recommendations on that regard. So
20 from the task force's perspective, we wanted to make sure we continued to
21 manifest the charter that we were given and continue in what we believe is our
22 mission and we did not focus on any changes with regard to our relationship with
23 industry.

24 MR. RAKOVAN: Okay, when have you a chance, Rick, can you
25 please bring up the next person?

1 FEMALE SPEAKER: We do. We have Rich Janati [spelled
2 phonetically].

3 MR. DANIEL: Okay, Rich, go ahead. Let's hear your question for
4 the task force.

5 MR. JANATI: Good afternoon, can you hear me?

6 MR. DANIEL: Yes, we can all hear you.

7 MR. JANATI: Okay, I have quick comment and also a quick
8 question: My comment is regarding NRC's proposed supplement three to
9 NUREG-0654.

10 MR. RAKOVAN: Sir, that's completely out of the scope of this
11 meeting. Can you please stick to your question?

12 MR. JANATI: Yes, the question, actually the quick comment is that
13 we recommend for NRC to delay the publication of this document until we learn
14 more about the protective action recommendation measures taken in Japan and
15 the effectiveness of stage evacuation which has been recommended by NRC
16 through NUREG-0654 supplement three. Quick comment.

17 Now the question is related to containment venting. We know that
18 the plants in Japan had hardened vents and question, did the system function as
19 designed? If not, why not? And do you know if the venting process, whether the
20 venting process was delayed because operators in Japan may not have been
21 empowered to initiate the process on their own and unless they receive
22 concurrence from either the utility [unintelligible] management or the regulatory
23 agency. I guess the question is, what happened with the venting process?
24 Because there's a lot of focus and lot of discussion on this issue and there's a
25 recommendation related to that. Do we have the facts or not?

1 MR. GROBE: I think it's clear we don't have the all the facts and all
2 the issues, but there's a number of reports that have been made public, including
3 the report from the government of Japan that was provided to the International
4 Atomic Energy
5 Agency that goes into quite a bit of detail on activities that transpired, and I'm
6 sure there will be more detail that emerges in the future.

7 But the detail that we know to date is that the operators attempted
8 on many occasions to vent primary containment. It's not clear that they were
9 successful. The containment vent system at Fukushima was significantly
10 challenged by the long-term station blackouts, since it depended substantially on
11 AC-operated equipment to pressurize air and to operate valves. So the
12 operators attempted on multiple occasions to do that, with that we are aware of.

13 MR. DANIEL: All right, Rebecca?

14 FEMALE SPEAKER: Question from Linda Motica [spelled
15 phonetically]. Your line is open.

16 MR. DANIEL: Go ahead Linda. Do you have a question for the
17 task force?

18 MS. MOTICA: Yes this is Linda Motica from the Sierra Club's
19 National Nuclear Issues team. But also I'm calling as a mother of college student
20 who lives nine months of the year a little too close, I think, to nuclear reactors
21 operated by the Tennessee Valley Authority.

22 My questions arise from some of the statements that had been
23 made early on in the, this conference, which I do appreciate as someone who's
24 not able to get up to Washington as often as I like, to be able to participate in. So
25 first let me thank you. A couple of comments that I heard by NRC staff, one of

1 them safe enough, another cost benefit analyses that were going to be done with
2 respect to some of the recommendations of the task force. And I'm wondering, in
3 part because I have read, many of the articles regarding Fukushima and
4 regarding -- and one of which stated that the agencies of our own government
5 place different values on human life when they're doing these cost-benefit
6 analyses, so I'd like to know what is the value that -- and I'll take my Sierra Club
7 hat off right now, what's the value you're placing on the life of a 21-year-old
8 prospective physician, namely my daughter, who lives too close, in my opinion, to
9 reactors that are poorly run by the TVA? And if you don't have a dollar figure for
10 that, I understand if you can get back to me on that answer that would be great.

11 And another -- and just one other thing that I want to bring up, when
12 reading the task -- this report, I understand completely what you folks were
13 saying that you were huddled up in a cave, you were focused, you were careful,
14 and that's all terrific. But then I read -- and I guess I'm taking this more as a
15 mom, also, so, I hope you will understand. When you're -- when I read, for
16 example, the first sentence of the clarifying the regulatory framework executive
17 summary where it says, that the task force recommends establishing a logical
18 systematic and coherent regulatory framework, in my mind and my notes and
19 margins say that this implies that the current framework is [unintelligible] and
20 incoherent.

21 Same thing with the enhancing mitigation recommendation number
22 five, where you say that the task force recommends requiring reliable hardened
23 vent designs. That implies that those existing hardened vents are unreliable, so I
24 hope you could address some of those issues -- oh, and one -- third question,
25 though, and this is I'm sure off the subject, but it is because I work mostly on fuel

1 chain issues for the Sierra Club, I have a question regarding what happened
2 during the blackout in Fukushima that, in Northern Japan rather, that -- and what
3 -- how did that blackout affect the reprocessing plant in Japan? When is the
4 NRC going to give us a lessons learned report on what happened there? Thank
5 you.

6 MR. RAKOVAN: Okay, I caught three questions there. Do the
7 members of the task force want to nibble on any of those?

8 MR. HOLAHAN: Let me start with the cost-benefit question. I think
9 the recommendations in the report are being made consistent with the framework
10 section which is discussed in the early part of our report and leads to
11 recommendation number one. So the recommendations in this report, you know,
12 which would be, by our recommendation process through this suggested
13 framework, would not use a cost-benefit approach. So the suggestion is that for
14 these recommendation in this framework, we would say, we would recommend
15 considering the plants safe enough as they would implement these
16 recommendations. So these recommendations would be part of a long-term
17 vision that these plants would be, you know, made safe enough not by --
18 because the costs of these recommendations is low, but because they're
19 important to implement.

20 So I think that's how the cost-benefit concept relates to these
21 recommendations. Separate from that I have to say that the existing regulations
22 and the structure and in fact our implementation of the Atomic Energy Act
23 includes two concepts, one adequate protection which means those things
24 necessary to keep the public safe around a plant and those things are always
25 required independent of cost.

1 The regulations now have a cost-beneficial concept which says,
2 plants which are safe enough could be required to be even safer if something is
3 identified which is both substantial improvement and would be cost justified. And
4 the way those costs would be estimated is included under what's called a
5 regulatory analysis guidelines and large handbook and it's a rather complicated
6 thing.

7 But under that process there is -- and I think it doesn't directly
8 answer your question, but there is a process which ascribes a value of \$2,000
9 each person-rem that is averted. Now recognizing a person-rem means one
10 rem, one dose of radiation to one member of the public. And it takes quite a lot
11 of rem to have a health effect. So it's difficult to convert this into an individual
12 value of life. But the point I'm trying to make is, is that process is -- is not being
13 used with respect to these recommendations, at least, that's not what we're
14 suggesting.

15 Now with respect to the words coherent and reliable, I think a
16 number of people have said, when you call for something to be coherent, it must
17 be currently incoherent. Well, in fact that isn't necessarily true. Might be true,
18 might not be true.

19 The point is, you know, the existing requirements have a certain
20 level of coherence, there are certain logical bases for them. The design-basis
21 events have been well established and well used. We're suggesting an approach
22 could be made more coherent, more easily understood, certainly the current
23 hardened vents have some level of reliability. We're not suggesting that it's zero.
24 But calling for a reliable system means we want a high level of reliability to be
25 associated with a redesign of such a system.

1 And with respect to the last item, I think it's completely out of the
2 scope of this report to look at the reprocessing facilities in Japan and I don't think
3 NRC has a role in that matter. I'm not sure what the Japanese government's
4 doing, so.

5 MR. DORMAN: Yeah this is Dan Dorman. I think as you know,
6 Linda, we have a technical basis under development for a potential rulemaking
7 on reprocessing and I think that's the closest we would get to looking at any
8 lessons from the reprocessing facility in Japan would be in that rulemaking
9 process. But my understanding at this point is that the processing facility in
10 Japan was -- their diesel generators operated, they rode through the earthquake
11 and related event without a significant safety concern, but to the extent that there
12 are general lessons learned from the Great East Japan earthquake, those will be
13 rolled into any rulemaking that we would do in reprocessing.

14 MR. RAKOVAN: Okay, I believe we have one last caller on the
15 phone lines to ask questions.

16 MR. DANIEL: Yeah, Gwen Dubois [spelled phonetically]. Go
17 ahead, Gwen, you want to state your question for the task force, please.

18 MS. DUBOIS: Yes, can you hear me?

19 MR. DANIEL: Yes, you -- we can.

20 MS. DUBOIS: Okay, I'm a physician and internist Gwen Dubois
21 with Physicians for Social Responsibility in [unintelligible] Alliance. And
22 notwithstanding what you said about reprocessing, I understand that the -- at
23 Fukushima, reactor number three used MOX [spelled phonetically] fuel and there
24 was concern because plutonium was aerosolized and it's ability to cause fatal
25 lung cancers. And in addition, I understand that this fuel burns at a lower

1 temperature which is certainly of a concern. And the use of MOX fuel seems to
2 be something that may be more driven politically than driven by, you know, good
3 practices. So I was wondering if there was a review of what the consequences
4 were or might be of the MOX fuel in one of the reactors.

5 MR. GROBE: Yeah, I -- just -- this is Jack Grobe. Like many of our
6 questioners, I would like to make a comment before I answer the question. I
7 have been singularly impressed with the level of knowledge and the
8 sophistication of many of these questions and the subtle nature of many of the
9 questions and I just want to congratulate all of you.

10 All fuel once it's in a reactor operating becomes mixed oxide fuel.
11 Part of the process of fuel being exposed in a reactor is that uranium 238 can
12 absorb a neutron and has a certain probability of absorbing a neutron and
13 becomes plutonium 239. It's been the policy of our country for a number of years
14 to not reprocess fuel for that specific reason, that the fuel contains plutonium.
15 The fact that there were some fuel elements in the reactor in Japan that had
16 plutonium in them before they went into the reactor really doesn't have a
17 significant safety ramification and did not pose a significant -- or did not result in
18 a significant thought process on the part of the task force as far as driving our
19 recommendations in any particular area, because every reactor contains mixed
20 oxide fuel, just as part of the nature of how fuel is burned in reactors. And
21 "burned" we use in a nuclear sense, not a chemical sense.

22 MR. RAKOVAN: Okay, I think we've gone through one round of
23 everyone who wanted to ask a question. Since we're creeping up on 5:00, I
24 would rather just go ahead that we move to close. We go ahead and let people if
25 they want to send a question in, it's opa.resource@nrc.gov. I hear your

1 objection, sir, but unfortunately, if -- we really need to close. If I open it up to
2 everyone, we could be here for another hour or two. If have you a question for
3 the task force, I'm sure they'd be more than happy to speak with you one on one
4 as -- after we close. So, Jared, I think you've got -- okay, it's on the record, sir,
5 that you protest. Thank you. Jared, please.

6 MR. HECK: Thanks, Lance. During the meeting, a few questions
7 were posed to me just about how they -- people can get more information. The
8 webcast of this meeting should be available soon on the NRC's public website at
9 www.nrc.gov. The task force report itself is also available on that website on the
10 main page. On the left side, you'll find a link to the report. And the transcript of
11 this meeting will be made publicly available within the next 30 days on the NRC's
12 website, along with a summary of the meeting.

13 MR. GROBE: And, Jared, I would recommend one other
14 document, and I believe it's publicly available, and that is a document that is
15 commonly referred to as the Hosannah [spelled phonetically] report. It's the
16 report from the government of Japan to the International Atomic Energy Agency
17 that was provided in middle of June, just prior to the international conference in
18 Vienna on Fukushima. It's probably the most comprehensive and definitive
19 compilation of information regarding Fukushima that you can get in one place.
20 So I would highly recommend people that are motivated to -- thank you, Gary.
21 Gary just mentioned that it's available on the IAEA website. It should be easy to
22 find.

23 MR. RAKOVAN: And IAEA stands for --

24 MR. GROBE: International Atomic Energy Agency.

25 MR. RAKOVAN: Thank you. Charlie, do you want to close us out?

1 DR. MILLER: I'd just like to say thank you for your participation,
2 especially those who hung in here until the end. We made an attempt to try to let
3 a broad spectrum of people have an opportunity to ask a question. As Lance
4 mentioned, we're always open to -- anyone who sends questions in, we promise
5 that we'll get back to you with answers. So, with that, I'd like to thank everybody
6 for your participation and I'm sure there will be future opportunities.

7 [Whereupon, the proceedings were concluded]