

**OVERSIGHT HEARING: THE NUCLEAR REGULATORY COMMISSION'S PRELIMINARY RESULTS OF THE NUCLEAR SAFETY REVIEW IN THE UNITED STATES FOLLOWING THE EMERGENCY AT THE FUKUSHIMA DAIICHI POWER PLANT IN JAPAN**

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**JOINT HEARING**  
BEFORE THE  
**COMMITTEE ON**  
**ENVIRONMENT AND PUBLIC WORKS**  
**UNITED STATES SENATE**  
AND THE  
**SUBCOMMITTEE ON CLEAN AIR AND NUCLEAR SAFETY**

**ONE HUNDRED TWELFTH CONGRESS**

**FIRST SESSION**

**JUNE 16, 2011**

Printed for the use of the Senate Committee on Environment and Public Works



Available via the World Wide Web: <http://www.fdsys.gpo.gov>

U.S. GOVERNMENT PUBLISHING OFFICE

21-145 PDF

WASHINGTON : 2017

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ONE HUNDRED TWELFTH CONGRESS  
FIRST SESSION

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**THURSDAY, June 16, 2011**

U.S. SENATE,  
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,  
SUBCOMMITTEE ON CLEAN AIR AND NUCLEAR SAFETY,  
*Washington, DC.*

The full committee met, pursuant to notice, at 10 a.m. in room 406, Dirksen Senate Office Building, Hon. Barbara Boxer (chairman of the full committee) presiding.

Present: Senators Boxer, Inhofe, Carper, Lautenberg, Sanders, Merkley, Barrasso, Alexander, Boozman.

**OPENING STATEMENT OF HON. BARBARA BOXER,  
U.S. SENATOR FROM THE STATE OF CALIFORNIA**

Senator BOXER. Good morning, everybody. The Committee will come to order.

Just to go over the way we are going to operate this morning, each of us Senators has 5 minutes to make an opening statement. And then we will go to the panel, and the Chairman will have 5 minutes and every other member three. So try to stick to it. There will be lots of questions. We will go back and forth from one side to the other. So your heads will be bobbing like a tennis match. But hopefully it will be as enjoyable as that and not too contentious.

So let me begin. It has been over 3 months since Japan was hit by a devastating earthquake and tsunami. It is expected to take additional time before cold shutdown of all reactors at the Fukushima Daiichi Nuclear Power will be achieved. The emergency in Japan serves as an important wake-up call for the United States and the rest of the world. We cannot afford to ignore it.

If there is one lesson to be learned, and this is the lesson I think is the most important, we must plan for the unexpected. Because as the Japanese told us, they planned for the expected, not for the unexpected.

I am pleased to see that the NRC is taking initial steps to re-evaluate current assumptions about the safety and the security of nuclear power plants in the U.S. in light of what has happened in Japan. And these are the things that I am pleased about. The

NRC's inspectors have inspected and issued reports on the 105 operating nuclear reactors and their readiness to address power losses or damage following extreme events. And the NRC is in the middle of a 90-day task force review of its processes and regulations in light of the events in Japan.

I want to talk a bit about the two nuclear plants in California, which I visited recently. The most recent inspections of California's two nuclear power plants turned up numerous problems that need to be corrected. Among other things, NRC's inspections at Diablo Canyon power plant found that State highways and access roads needed to reach diesel fuel and an alternative seawater source for cooling may be inaccessible after an earthquake. And hoses needed to get cooling water from the reservoir to the plant were blocked by a security fence.

Now, I want to correct myself. The Diablo, I haven't visited in a while. But San Onofre, I recently visited. And as a matter of fact, I met one of the commissioners there, who was extremely helpful.

NRC's inspections at San Onofre Generating Station, and this is a plant that is surrounded by millions of people within 50 miles, what did we say, 7 million? About 7.4 million within 50 miles. This is what you found. A lack of a written agreement for a fuel oil supply to support emergency diesel generators for more than 7 days. And you found that some firefighting equipment was stored in locations that could be impacted by an earthquake.

Now, firefighting equipment that is stored in a place that can't be located, if there is an earthquake, doesn't do us any good.

I have additional concerns about seismic issues at both California plants. Diablo Canyon has submitted its application to the NRC for license review. The 3D seismic studies need to be considered as part of the license renewal at Diablo. It is very important, I find it very strange that they would try to get a license before they have the latest information. And the latest information will be part of the 3D seismic study.

And also, 3D studies should be part of NRC's review of San Onofre's license renewal application, once it is submitted. They haven't submitted it yet, as you know. And I lauded them for that, because I think there is more work that needs to be done.

I expect the NRC to closely examine the results of these inspections in California and other States across the Country, as well as reexamine the current regulations, such as what is considered in the NRC's review of license renewal applications. And I expect the Commission to implement the task force recommendations. It doesn't help us to have these recommendations if you don't implement them. The health and safety of all Americans hangs in the balance.

I applaud the Commission for making the results of its inspections of the nuclear power fleet available to the public immediately after compilation by NRC staff in May and June. I believe it is critical for public confidence in the safety of our nuclear facilities that the results of the 90-day task force report be available to the public as soon as it is compiled by NRC staff in July.

To me, complete openness, transparency and prompt disclosure are vital to maintaining the Federal Government's credibility and the confidence of the American people. I want to thank all five

members of the Commission for being here today to provide us with preliminary results of the nuclear review that is underway. As Chairman of this Committee, I will continue to provide vigorous oversight to make sure that we learn all we can from the Fukushima emergency. The safety of the American people, above all, is our No. 1 priority. I look forward to working with each of you to make sure that the United States of American has taken every appropriate precaution to ensure our nuclear power plants are managed in the safest possible manner.

Senator Barrasso.

**OPENING STATEMENT OF HON. JOHN BARRASSO,  
U.S. SENATOR FROM THE STATE OF WYOMING**

Senator BARRASSO. Thank you very much, Madam Chairman. I appreciated especially your comments about the safety of the American people being a No. 1 priority. Madam Chairman, the storage of nuclear waste should be a top priority for Congress and the Administration in the wake of Japan's nuclear disaster.

As you know, spent fuel rods stored at Fukushima overheated, causing explosions, fires and radiation leaks. This occurred when the power was knocked out and backup generators failed at the plant. The American people who watched the coverage of the nuclear crisis in Japan are looking to Congress and to the Nuclear Regulatory Commission to prevent similar instances from happening here.

Congress took action years ago to begin addressing the problem of buildup of nuclear waste stored at nuclear plants throughout the United States. The Nuclear Waste Policy Act passed by Congress designated Yucca Mountain as the only candidate site for a national repository of nuclear waste. Congress has voted a number of times to retain Yucca Mountain as the national repository.

Fifteen billion dollars, \$15 billion has been spent on the project. But this Administration has seen fit to walk away from the project.

As the Washington Post points out in an article entitled, At Yucca Mountain, "At Yucca Mountain, money down a hole." This was in yesterday's paper, Wednesday, June 15th, 2011. At Yucca Mountain, money down a hole. This is what they said: "When Barack Obama ran for President and sought the five electoral votes of the swing State of Nevada, he vowed to kill Yucca. In early 2009," the article says, "Steven Chu, Obama's energy secretary, announced that his department did not feel that Yucca was a workable option." The article continues: "The Department of Energy terminated the jobs of several thousand Federal workers and contractors, while hastily abandoning offices in Las Vegas and transferring dozens of truckloads of furniture, computers and other equipment to local schools."

The article states: "The project dates back three decades." It goes on, "It has not solved the problem of nuclear waste, but has succeeded in keeping fully employed large numbers of litigators. Is that the Administration's idea of job creation?"

The end result of this saga is a five-mile long, 25-foot wide hole in the Nevada desert. It was meant to store America's nuclear waste. But instead, because of politics, it stands as a monument to bureaucratic waste of taxpayer dollars.

The Nuclear Regulatory Commission, which is before us today, has not officially resolved this issue. During his opening remarks at the meeting of the NRC's Japan Task Force, the chairman, who is here today, stated "I believe it is important that our safety review proceeds systematically and methodically, but with the appropriate sense of urgency given the important safety issues being examined."

I do not believe that the actions of this Administration or the Chairman have demonstrated the sense of urgency with regard to the issue of storing spent nuclear fuel. Thank you, Madam Chairman. I look forward to the testimony.

Senator BOXER. Thank you.

We are going to call on Senator Carper, because he chairs the subcommittee that oversees the NRC. And Senator Sanders was very kind to yield to him.

**OPENING STATEMENT OF HON. THOMAS CARPER,  
U.S. SENATOR FROM THE STATE OF DELAWARE**

Senator CARPER. Thank you very, very much. Thank you, Madam Chair.

I just want to come back to something that our colleague from Wyoming has said. You have heard me say, everything I do I know I can do better. I think that is true of all of us. I was not a member of the Congress in 1982, when the Congress voted basically to say we are going to have a repository, we are going to put it in one State. I was a Member of Congress later on when the vote was taken to designate Yucca Mountain in the State of Nevada.

I think originally the county, and even still the county in which Yucca Mountain was located was a willing host for the repository. Since that time, the State has turned against the idea, and for the most part, the elected officials, Governors and congressional delegation, as you know have opposed it. The delegation here in the Senate led for a number of years by Senator Reid and Senator Ennison, Democrat and Republican, have on a bipartisan basis strongly opposed the establishment of the repository.

When I say everything I know I do I know I can do better, if we had to do this all over again, if we had to do this all over again, we should be smart enough to do actually what they have done in France. What they have done in France is to incentivize communities in that country to be repositories and to provide really terrific economic opportunities, job opportunities for the communities, and for some of the people who work there.

If in this Country, we could actually have States standing in line to be prisons, sites for prisons, to take prisoners from Delaware or Tennessee or any other States, if we can do that and get communities to be willing to be host for inmates from all over this Country, we should be able to find or provide an incentive system so that States would willingly, unlike Nevada, would willingly say, please, put your nuclear spent fuel here in our State.

Meanwhile, we have, as you may recall, a blue ribbon Commission that has a lot of smart people, some of them the commissioners know, they have been working, they have been over to France to see what the French are doing in terms of reprocessing and recycling spent fuel. They are going to come back to us and



say, this is what we think we should do for a path going forward in this Country.

In the meantime, if you take all the spent fuel rods at 104 nuclear power plants, my recollection, and I am going to ask Senator Alexander to correct me on this if I am wrong, but if we took all the spent fuel rods in 104 nuclear power plants across the Country, I think if we put them on a football field, they would fit on a football field maybe about 20 feet high. Is that about right?

That is about right. So 104 plants is not a small amount of spent fuel. But for now, what the experts are telling us is we can safely store for 30, 40, 50, 60 years onsite the spent fuel. Does that mean we never need a repository, a place to recycle and reprocess this fuel? No. And when we are smart, I hope we are a lot smarter in siting those places than we were in siting the repository at Yucca Mountain. So there.

Now, having said that, let me find my place here. Let me just say to all of you here today, thanks a lot for coming. Thank you for your service. We are very anxious to hear what you have to share with us.

We have a great opportunity, you all have heard me say before, quoting Albert Einstein, in adversity lies opportunity. Heck of a lot of adversity in Japan, in Miyagi Prefecture with the terrible tragedy that they faced, also a great opportunity. And the great opportunity is for us and for the rest of the world to learn what they did wrong, so that we won't make that mistake in this instance.

And we have worked, as a bunch of you know, on this Committee, and George Voinovich and I worked for a whole lot of years before that to try to establish within those 104 nuclear power plants what we call a culture of safety. And commissioners have heard me say a million times, we want to not only establish that culture of safety, we have established it, we want to strengthen it and we want to make sure that if it isn't perfect in terms of adhering to safety, if it isn't perfect, we make it better.

And despite all the protections we have in place for nuclear reactors, the tragedy in Japan should serve as a clear warning that we can't be complacent when it comes to nuclear safety, and that a disaster like that could happen any time here as well.

Anyway, we have asked for a comprehensive review, Senator Boxer and I have, and we are pleased that we are getting that. We are going to make sure that every precaution is being taken to safeguard our people from a similar nuclear incident, similar to that of Japan. Today I am anxious to hear the first readouts from the Commission on this review. We look forward to working with you to incorporate the right lessons across our nuclear fleet in this Country.

Thank you, Madam Chair, and Senator Sanders, thank you so much for yielding to me.

Senator BOXER. Thank you so much, Subcommittee Chairman Carper.

And now it is Senator Alexander.

**OPENING STATEMENT OF HON. LAMAR ALEXANDER,  
U.S. SENATOR FROM THE STATE OF TENNESSEE**

Senator ALEXANDER. Thanks, Madam Chairman. First, let me thank, welcome the Commissioners and thank the Chairman and Senator Carper for having this hearing. I have said before, I think the more oversight hearings we have with the Commissioners, the better. The more Americans know about nuclear power, the better. Both from a safety point of view and how important it is to our future.

The subject in America today is jobs. We want jobs. We have to have large amounts of reliable, low-cost electricity. And we now have to add clean to that. So it is important to have a hearing so that Americans know that 20 percent of all our electricity comes from 104 nuclear plants. It is important that we have hearings so that Americans know that 70 percent of our carbon-free, sulfur-free, nitrogen-free, mercury-free electricity comes from nuclear plants.

It is important to have these hearings because it is important for Americans to know that there has never been a death at a civilian reactor in the United States, that there has never been a death in connection with a reactor in one of our 104 Navy reactors. It is important for Americans to know that even though Three Mile Island was our worst Nuclear accident in the United States at a civilian reactor, no one was hurt at Three Mile Island.

It is important for Americans to know this is complex, these big operations, these nuclear plants. And it is important for them to know that we taking very seriously, especially those of us who can't imagine a future for the United States without many more nuclear reactors than we have today, that we are taking very seriously the importance of continuing to make their operation safer and safer.

We have learned a lot from Three Mile Island, for example, even though no one was hurt there. The safety record is even better, as a result of those lessons. It will take months and years to learn from what happened in Fukushima. But we ought to do our best to do that.

Senator Carper's comments on the repository are important. We both are former Governors. I had the problem of locating prisons, we were stuck on prisons in Tennessee when I came in. Nobody would take one, until I announced I only had one and there would be a competition for it. Then we had a line of people who wanted it.

We are going to need repositories. We need to recycle used nuclear fuel. That means there will be even less of it. And then we will need to find, either reopen Yucca Mountain or find some other ones. We shouldn't keep collecting billions of dollars from rate-payers and not using it for its intended purpose.

I hope we learn from this hearing more about spent fuel storage. We have heard from Secretary Chu, a Nobel physicist, who is our Energy Secretary, and we have heard from the Chairman, who is here today, that spent fuel can be stored safely onsite for up to 100 years. It is important for Americans to know that and to hear that from the top two officials in our Country who know about such things.

But we need to bring to a close the discussion about whether spent fuel pools or dry cask storage or long-term repository is the right way to deal with the fuel that we have. And we need to take advantage of this distinguished panel the President has appointed to recycle used nuclear fuel in an even better way.

We need to explore and learn from our Commissioners how the next generation of reactors can improve safety capabilities, for example, with passive technologies. We need to learn how the small nuclear reactors, the ones that might be 125 megawatts and 150 instead of 1,140, how they might be a way for the United States to get back in the business of leading the world in developing a technology we invented, the peaceful use of atomic weapons, peaceful use of the nuclear process.

Then I would like to know more about how the Commission itself functions, the Chairman's use of emergency power, the gathering of information about reactors. So it is very useful, Madam Chairman, to have all of the Commissioners here. I would suggest that maybe every quarter is too often, but every so often, either the Subcommittee or the full Committee ought to hear from the Commissioners, the American people ought to listen and be assured not just of the safety of our 104 civilian reactors, but that we are on a track to begin to build more and to provide the low-cost, clean, reliable electricity that nuclear power does for this Country.

Thank you.

Senator BOXER. Thank you, Senator.

Senator SANDERS.

**OPENING STATEMENT OF HON. BERNARD SANDERS,  
U.S. SENATOR FROM THE STATE OF VERMONT**

Senator SANDERS. Thank you, Madam Chair. Welcome, Commissioners. Thanks for being here.

Madam Chair, I want to spend a moment discussing an issue of great concern to the people of the State of Vermont, and that is the Vermont Yankee Nuclear Power Plant, which is located in the very southern part of our State.

Madam Chair, Vermont Yankee is one of 23 plants in our Country with the same design, General Electric Mark 1, as the Fukushima plants that experienced partial or full meltdowns in Japan. As my colleagues may or may not know, the State of Vermont has a unique position in this Country with regard to nuclear power. As a result of an agreement signed between the State and Energy, the owner of the nuclear power plant in Vermont, this agreement was signed when Entergy purchased Vermont Yankee in 2002. Our State legislature and Public Utility Commission have a legal say of whether the Vermont Yankee plant is relicensed for operation beyond 2012, when its license expires. That is unique in the Country.

The plant is nearing 40 years of age. It is my firm view that 40 years is enough. But that is not just my view. Far more importantly, the Vermont State Senate, representing the people of the State of Vermont, voted on a bipartisan basis 26 to 4 not to grant an extension to Vermont Yankee. And in my view, that vote in fact represented the wishes of a vast majority of the people in our State.

We know that Vermont Yankee has had serious problems in the last number of years, including a collapse of its cooling towers in 2007 and radioactive tritium leaks in 2005 and 2010. The tritium leaks came from pipes plant officials claimed, under oath, did not exist. Which did not, by the way, further the confidence of the people of the State of Vermont in Entergy.

In support of the Vermont legislature, the Vermont congressional delegation has been clear that Entergy should respect Vermont's laws. We understand that Entergy's well-paid corporate lobbyists and lawyers have been pushing for the Federal Government to get involved in the lawsuit Entergy filed against Vermont. We have seen the class letter from Entergy's CEO, Wayne Leonard, who is among the best-compensated electric energy CEOs at \$18 million a year, saying that if Vermont successfully defends its rights to decide whether Vermont Yankee is relicensed that we will see States opting out of, among other things, the Voting Rights Act.

He could not be more wrong or out of touch. That is why the Vermont congressional delegation was heartened to learn that Chairman Jaczko, who I believe is a fair-minded and diligent public servant, even if we occasionally disagree, told Vermonters publicly that the NRC should not intervene in any legislation between Entergy and Vermont. I believe his position is the right one. The NRC regulates safety. That is what your job is. It is a difficult job. It is an important job. And in fact, many people in the State of Vermont think you are not doing that job very well.

But the NRC is not an arbiter of political or legal disputes between a huge energy company like Entergy and the people of the State of Vermont. Frankly, that is not your business. You have enough on your plate to deal with the very complicated and important issue of maintaining safety.

There was a story in the New York Times today of great concern, raising issues that maybe we are not doing a good job in this Country in protecting people in the event of a shutdown of all electric power. Pay attention to that. Do not get involved in telling the people of the State of Vermont what they should be doing or should not be doing.

In that regard, I was extremely disappointed to learn that the NRC voted yesterday on whether to recommend to the Justice Department that the NRC take Entergy's side in this litigation and that the result of that vote was not public. I want to know today that you will make the result of that vote public. If you voted to have the DOJ, the Department of Justice involved, then at least you should tell the people of the State of Vermont how you voted and what that vote was. We would like the relevant materials associated with that vote.

Thank you very much, Madam Chairman.

Senator BOXER. Thank you, Senator.

And now my Ranking Member, Senator Inhofe.

**OPENING STATEMENT OF HON. JAMES M. INHOFE,  
U.S. SENATOR FROM THE STATE OF OKLAHOMA**

Senator INHOFE. I am going to apologize in advance to this Committee, this is a very significant hearing we are having right now.

But it is also the markup in the Senate Armed Services Committee, and I am the second ranking there. So I apologize for being late.

Let me start by thanking you and honoring your commitment to act on the renomination of Commissioner Ostendorff for a full 5-year term. Our Country is best served when we have a complete commission, and I am hoping this will happen soon.

I just want to thank you for having this hearing. It has been over 3 months since the earthquakes and the tsunami that devastated Japan and resulted in the world's second largest nuclear accident in history. I am pleased that we will finally hear from all five Commissioners on the agency's actions to ensure the safety of our nuclear plants, based on lessons learned from the Fukushima accident.

But first, I want to take a moment to acknowledge a report by the NRC Inspector General into the NRC Chairman Jaczko's conduct with regard to the Yucca Mountain license application. I was concerned about this very situation in 2005, when he appeared before this Committee for the first time, that his prior work in opposition to Yucca Mountain would impair his ability to act fairly as a Commissioner. So I asked him to recuse himself. His conduct has clearly damaged the credibility of the agency and warrants oversight hearings by this Committee.

However, what I find most disconcerting in the IG's report is an image of a Chairman who withholds information from his colleagues, acts unilaterally and rules by intimidation. While the IG may have focused on the chairman's involvement with Yucca Mountain, I believe misconduct extends beyond that. This first became apparent to me while preparing for our last hearing on April 12th, when I heard that the majority was breaking with the Committee precedent of having a full Commission testify. I was surprised to learn that we would only hear from Chairman Jaczko because he was exercising his emergency powers under Section 3 of the Organization Plan of 1980.

Even more unbelievable was that he had not only failed to inform me of this decision on the last two occasions, but he had also failed to inform his colleagues. Furthermore, in exercising this emergency authority, he acted unilaterally without a firm legal basis, failed to keep his colleagues fully informed and prohibited them from entering the operations center where much of the agency's post-Fukushima work was conducted.

These actions are strikingly similar to some of the IG's conclusions regarding the Chairman's conduct on Yucca Mountain. More importantly, he chose not to utilize the expertise of his fellow commissioners when confronted with the world's second largest nuclear accident. A true leader, when facing such extraordinary challenges, would marshal all resources at his disposal and seek out the best expertise that he can.

That would be my expectation of any chairman responsible for ensuring nuclear safety. Instead, we have a chairman who, under statute, "shall be governed by general policies of the Commission," and yet selectively ignores Commission procedures, discounting them as merely guidelines when questioned by the IG.

In the nuclear industry, procedures exist to ensure nuclear safety. The Chairman should show the same respect for procedures

governing his actions that he would expect from licensees. The public deserves nothing less.

I thank you, Madam Chairman.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR  
FROM THE STATE OF OKLAHOMA

Ranking Member, Senate Committee on Environment and Public Works Full Committee and Subcommittee on Clean Air and Nuclear Safety joint hearing entitled, "Oversight Hearing: the Nuclear Regulatory Commission's Preliminary Results of the Nuclear Safety Review in the United States following the Emergency at the Fukushima Daiichi Power Plant in Japan."

Thursday, June 16, 2011 10 o'clock am Chairman Boxer, I'd like to begin by thanking you for honoring your commitment to act on the re-nomination of Commissioner Ostendorff for a full, 5-year term. Our country is best served by a complete Commission with each member contributing their diverse views and acting as a collegial body. Commissioner Ostendorff's expertise is invaluable and given the unanimous vote in this Committee, I hope he will be confirmed immediately.

I also want to thank you for having this hearing. It has been over 3 months since the earthquake and tsunami devastated Japan and resulted in the world's second largest nuclear accident in history. I am pleased that we will finally hear from all five commissioners on the agency's actions to ensure the safety of our nuclear plants based on lessons learned from the Fukushima accident.

But first, I want to take a moment to acknowledge a report by the NRC Inspector General (IG) into NRC Chairman Jaczko's conduct with regard to the Yucca Mountain license application. I was concerned about this very situation in 2005 when he appeared before this Committee for the first time: that his prior work in opposition to Yucca Mountain would impair his ability to act fairly as a commissioner and so I asked him to recuse himself. His conduct has clearly damaged the credibility of the agency and warrants oversight hearings by this Committee.

However, what I find most disconcerting in the IG's report is the image of a Chairman who withholds information from his colleagues, acts unilaterally, and rules by intimidation. While the IG may have focused on the Chairman's involvement with Yucca Mountain, I believe misconduct extends beyond that. This first became apparent to me while preparing for our last hearing, on April 12th, when I heard that the Majority was breaking with the Committee precedent of having the full commission testify. I was surprised to learn that we would only hear from Chairman Jaczko because he was exercising his emergency powers under Section 3 of the Reorganization Plan of 1980. Even more unbelievable was that he had not only failed to inform me of his decision on at least two occasions, but he had also failed to inform his colleagues.

Furthermore, in exercising this emergency authority, he acted unilaterally without a firm legal basis, failed to keep his colleagues fully informed, and prohibited them from entering the Operations Center where much of the agency's post-Fukushima work was conducted. These actions are strikingly similar to some of the IG's conclusions regarding the Chairman's conduct on Yucca Mountain. More importantly, he chose not to utilize the expertise of his fellow commissioners when confronted with the world's second largest nuclear accident.

A true leader when facing such extraordinary challenges would marshal all resources at his disposal and seek out the best expertise he can. That would be my expectation of any Chairman responsible for ensuring nuclear safety. Instead, we have a chairman who, under statute, "SHALL BE GOVERNED BY GENERAL POLICIES OF THE COMMISSION" and yet selectively ignores Commission procedures, discounting them as merely "guidelines" when questioned by the IG. In the nuclear industry, procedures exist to ensure nuclear safety. The Chairman should show the same respect for procedures governing his actions that he would expect from licensees. The public deserves nothing less.

Senator BOXER. Thank you. If I could just say, I am going to put into the record the statement made by the Chairman on the report. I just, there is a disagreement between the Ranking Member and myself and the characterization that he has put forward. Because my understanding clearly that the IG found that the actions that the Chairman took were consistent with the law, guidance and his authority.

So there is just a difference here on that.

Senator INHOFE. Sure.

Senator BOXER. And I think that is, I have to put that in the record.

[The referenced information follows:]

Reorganization plan no. 1 of 1980, section 3

Sec. 3. (a) Notwithstanding sections 1 and 2 of this Reorganization Plan, there are hereby transferred to the Chairman all the functions vested in the Commission pertaining to an emergency concerning a particular facility or materials licensed or regulated by the Commission, including the functions of declaring, responding, issuing orders, determining specific policies, advising the civil authorities and the public, directing, and coordinating actions relative to such emergency incident.

(b) The Chairman may delegate the authority to perform such emergency functions, in whole or in part, to any of the other members of the Commission. Such authority may also be delegated or redelegated, in whole or in part, to the staff of the Commission.

(c) In acting under this section, the Chairman, or other member of the Commission delegated authority under subsection (b), shall conform to the policy guidelines of the Commission. To the maximum extent possible under the emergency conditions, the Chairman or other member of the Commission delegated authority under subsection (b), shall inform the Commission of actions taken relative to the emergency.

(d) Following the conclusion of the emergency, the Chairman, or the member of the Commission delegated the emergency functions under subsection (b), shall render a complete and timely report to the Commission on the actions taken during the emergency.



Senator INHOFE. And that is the first time we have ever had a difference.

[Laughter.]

Senator BOXER. I know. And it won't be the last.

But I just feel it is important, because it was just such an attack. I was a little taken aback by it.

Senator Merkley.

Senator MERKLEY. Thank you, Madam Chair. I would like to yield my time to Senator Sanders to complete his comments.

Senator BOXER. OK. Senator Sanders has an additional 5 minutes.

Senator SANDERS. I am not going to take the whole 5 minutes, and I thank my friend from Oregon very much for yielding.

Madam Chair, the point I am going to stay on this morning is an enormously important issue for my State. In the State of Vermont, people have been extremely dissatisfied with the role that Entergy has been playing. They do not have confidence in that nuclear power plant, for a whole lot of very valid reasons.

When Entergy purchased Vermont Yankee, an agreement was reached with the State that the State could be involved, and would be involved, as to whether or not a 40-year old plant would be relicensed. That was the agreement, Madam Chair. That is unique in America.

And then the State legislature recently voted by a 26 to 4 vote to say no, we do not think it is in the best interest of the people of Vermont to extend that contract. We want Vermont Yankee shut down. And in doing that, I believe they were reflecting the wishes of the people of our State. Vermont wants to move in a new way in terms of energy. We are No. 1 in the Country in terms of energy efficiency. We are moving aggressively in sustainable energy.

Now, you may disagree with us, but that is the direction the State of Vermont wants to go.

Now, the issue is, what is the role of the NRC in that discussion? Is it appropriate for the NRC to get involved with one of the largest utility companies in the United States of America, Entergy, a \$14 billion company, pays its CEO \$18 million a year, to get involved in a legal case between the State of Vermont and Entergy? Entergy wants to stay open. They want to make more money. I understand that. People of Vermont want to shut it down. I believe in that. I agree with the people of my own State. Why should you be involved in that?

What disturbs me very much, and I want to pursue this later, is my understanding is that yesterday, by a three to two vote, this Commission decided to urge the Department of Justice to get involved in that fight. Now, I don't care what your view is on what Vermont Yankee should or should not be doing. In my very strong opinion, it is not your business to get involved in that fight. You have to worry about the safety issues of nuclear power. It is not your business to tell the people of Vermont that they have to keep open a nuclear power plant that they don't want. That is not your business.

So I am going to pursue, during my questioning period, and I am going to ask each of you how you voted on that issue, I want to thank Chairman Jaczko, he has been public in the past in saying,

and he is a strong advocate of nuclear power, he does not believe it is the NRC's business to be involved in that debate.

So Madam Chair, this is an issue that is very disturbing to the people of the State of Vermont. We have enough on our hands taking on one of the large powerful utilities in America. We do not need the NRC to get involved in this debate.

So I want to thank my colleague from Oregon, and I yield back to him.

Senator BOXER. The remaining 2 minutes? You are welcome. Three minutes.

**OPENING STATEMENT OF HON. JEFF MERKLEY,  
U.S. SENATOR FROM THE STATE OF OREGON**

Senator MERKLEY. Thank you, Madam Chair.

I would just briefly note that I would like, if anyone has any comments about why the hydrogen, when it was vented, why it exploded. Obviously the venting process is intended to avoid a situation where the plant is damaged. Obviously that didn't happen in Japan with at least three hydrogen explosions.

I also wanted to note that I think it is very important that a lot of research be done on different models of nuclear reactors, and in particular, modular systems, systems that employ passive measures, the types of passive measures that would have made it irrelevant whether power had been knocked out to a plant or irrelevant whether it was flooded with a tidal wave.

I have a lot of doubts about nuclear power, being able to be competitive, by the time you take in costs, by the time you take into account addressing potential terror threats, natural disaster and human error. But I also think it is very important to look at all options as we wrestle with ways to generate non-carbon power. So any comments in that vein would be helpful.

Thank you.

Senator BOXER. Thank you very much.

Senator Lautenberg, we haven't heard from you.

**OPENING STATEMENT OF HON. FRANK LAUTENBERG,  
U.S. SENATOR FROM THE STATE OF NEW JERSEY**

Senator LAUTENBERG. Thanks very much, Madam Chairman. I am pleased that the Nuclear Regulatory Commission is here to present the preliminary results of its safety review.

Since Japan's nuclear disaster began unfolding in March, Americans have asked with a good deal of trepidation, could it happen here. This ongoing safety review is intended to give them the answer, and that is why we have to make sure that the final product is complete, comprehensive and thorough. The NRC's top priority has to make sure that our Country's nuclear facilities are safe and secure, and that means leaving no stone unturned during the review.

And that is especially important to the people in my home State. New Jersey's four nuclear power reactors provide our State with half of its electricity. And one of those reactors, located in Oyster Creek, is the Country's oldest, and shares the same design as the damaged reactors in Japan.

So we need the NRC to let us know what risks, if any, are present in American communities with the older nuclear reactors, and what we have to do to reduce these risks and protect the public. We also need the NRC to do a better job of making sure that Americans know what to do in the case of a nuclear emergency.

Now, I was deeply troubled in March when our Country was told that American citizens in Japan should stay at least 50 miles away from the site of the meltdown. We have had this discussion before. Here in the United States, the NRC's emergency guidelines only require plants to evacuate people to an area 10 miles from a plant. And it is confusing and we ought to not be sending mixed signals to the public. Stakes are too high.

At the same time, we shouldn't lose sight of the fact that nuclear power has the qualities that we like to see, emissions-free energy source, providing one-fifth of our Country's electricity. And we have a pretty good nuclear safety record. There have been few nuclear accidents and few injuries here in the United States. The bottom line is that nuclear power can be part of an energy future.

But as the tragedies in other countries have taught us, nothing can be taken for granted where nuclear power is concerned. Japan, a world leader in technology, and it believed that the Fukushima plant was strong enough to withstand a worst case scenario. And now we know it wasn't. Likewise, Chernobyl demonstrated the effects of a single nuclear accident that can linger for generations.

We have to pay attention to these lessons, learn from others' mistakes, and each one of you, as members of the Nuclear Regulatory Commission, has a responsibility to ask the hard questions, but to make sure that the American public gets the answers that we deserve. I have to say that I think on balance, a great job has been done.

But I think as we find these new circumstances that come up as a surprise, when in Japan, the accident happened as it did. Regardless of the elements that created it, the fact of the matter is, we shouldn't permit it to happen.

So Madam Chairman, I thank you for holding this hearing.

Senator BOXER. Thank you so much, Senator.

Now we go to our distinguished panel. We are going to start with the Chairman, 5 minutes, then each of you has three. Go right ahead, Chairman.

**STATEMENT OF HON. GREGORY B. JACZKO, CHAIRMAN, NUCLEAR REGULATORY COMMISSION, ACCOMPANIED BY: THE HONORABLE KRISTINE L. SVINICKI, COMMISSIONER; THE HONORABLE GEORGE APOSTOLAKIS, COMMISSIONER; THE HONORABLE WILLIAM D. MAGWOOD, IV, COMMISSIONER; AND THE HONORABLE WILLIAM C. OSTENDORFF, COMMISSIONER**

Mr. JACZKO. Thank you, Chairman Boxer, Ranking Member Inhofe, Chairman Carper and Ranking Member Barrasso and members of the Committee.

On behalf of the Commission, I appreciate the opportunity to appear before you to provide an update on the response of the NRC to the nuclear emergency in Japan.

At the current time, the Japanese utility and the Japanese government are still in an active accident mitigation phase at the Fukushima Daiichi site. Plant conditions are slowly stabilizing. At this time, the reactors and spent fuel pools do not appear to be changing in a way that creates additional concerns.

Some structural conditions have recently been identified that are receiving increased attention, such as the structural integrity of the Unit 4 spent fuel pool, which is being shored up to strengthen its resistance to earthquakes. There are radioactive release paths that are continuing at various degrees in the three reactors that were operating at the time of the event.

The Japanese utility is working to install reliable closed loop cooling system for the reactors and spent fuel pools, improving environmental conditions inside the plant and installing a treatment system to clean up the contaminated water that currently exists at the site.

Many challenges in the recovery activities include the high radiation fields and humidity levels inside the reactor buildings, which make it challenging for the workers to operate, large amounts of radioactive water in the turbine building basements and a considerable amount of contaminated debris across the site.

The rainy season is underway in Japan, and the immense clean-up challenges resulting from the tsunami itself add to the difficulties of dealing with the radioactive contamination area. But overall, the Japanese are certainly making significant progress in moving forward in what is a very difficult and challenging situation. On behalf of the Commission, we continue to express our sympathies for the people of Japan who are dealing with a very significant crisis.

As you know, the decision to recommend a 50-mile radius evacuation of U.S. citizens near the Daiichi site has been a topic of much discussion. The concerns about the spent fuel pool in Unit 4, which have received attention recently, were only one element of the dynamic situation in which information was scarce, sketchy and uncertain.

The more reassuring recent assessments of the situation in the Unit 4 spent fuel pool is countered by the confirmation of significant core damage to Units 1, 2 and 3, and ultimately does not invalidate our earlier decision. This decision was based on limited information and the best assessment of conditions as we understood them at the time. We are, however, continuing to reevaluate and review the 50-mile recommendation.

Now, turning to the actions here in the United States, since the events of Fukushima Daiichi began to unfold in early March, the NRC has been relaying information to our Country's nuclear power plants. We issued instructions to our inspectors calling for immediate independent assessments of each plant's level of preparedness. The instructions covered extensive damage mitigation guidelines, station blackout and seismic and flooding issues, as well as severe accident management guidelines.

We also issued a bulletin which was a communication to our licensees to provide information on a broad range of issues. Once receiving this information, the agency will determine whether additional actions are necessary.

We have also convened a senior level task force made up of a number of the agency's experienced and expert staff. Their review is proceeding on a short-term and a longer-term timeframe. This task force is examining issues including seismic events, flooding and other natural hazards, how to maintain power during these types of extreme events, how to mitigate the potential losses of power and emergency preparedness.

The time constraints of the short-term review have limited stakeholder involvement. But during the longer-term review we will engage the public, licensees and other key stakeholders to a greater extent. The final report will be reviewed by the Advisory Committee on Reactor Safeguards.

In terms of accident prevention, we are evaluating the requirements and safety margins for seismic and flooding events and other external events that might inflict widespread damage to a plant and lead to an extended station blackout. In addition to prevention, we are re-examining effective mitigation strategies for severe accidents. We are also examining cross-cutting considerations related to a plant's ability to mitigate a long-term station blackout event.

As part of our review, the NRC is also examining implications for emergency preparedness, especially in possible situations involving widespread infrastructure damage.

[Interruption to proceedings.]

Senator BOXER. I am sorry to interrupt you. I am sorry, we understand that you care about nuclear safety, but we really ask you to put down your signs. You could either put them down and stay or you can leave with the signs. It is up to you. Whatever you wish to do is fine with us. Oh, you are leaving. OK. We are sorry to lose you.

Mr. Chairman, you have 30 seconds more.

Mr. JACZKO. Thank you. As part of our review, as I said, the NRC is also examining the implications for emergency preparedness, especially in possible situations involving widespread infrastructure damage, multi-unit events at a single site, and long-term station blackouts. The NRC is committed to proceeding as openly and as transparently as possible. It is holding a series of three public meetings at the 30-day, 60-day and 90-day marks. We just had the 60-day meeting yesterday to discuss the progress of the near-term review.

The third public meeting is scheduled for July 19th, when the 90-day report will be presented. This report will provide important recommendations and outline the strong vision for the longer-term review. It will also begin that longer-term component of our safety review, which we expect to be completed within an additional 6 months.

Chairman Boxer, Ranking Member Inhofe, Chairman Carper, Ranking Member Barrasso, and members of the Committee, this concludes my formal testimony. Thank you for the opportunity to appear before you, and we would be pleased to answer any questions that you may have.

[The prepared statement of Mr. Jaczko follows:]

**WRITTEN STATEMENT**  
**BY GREGORY B. JACZKO, CHAIRMAN**  
**UNITED STATES NUCLEAR REGULATORY COMMISSION**  
**TO THE**  
**ENVIRONMENT AND PUBLIC WORKS COMMITTEE**  
**AND THE**  
**CLEAN AIR AND NUCLEAR SAFETY SUBCOMMITTEE**  
**UNITED STATES SENATE**  
**JUNE 16, 2011**

Chairman Boxer, Ranking Member Inhofe, Chairman Carper, Ranking Member Barrasso, and Members of the Committee, I appreciate the opportunity to appear before you to provide an update on the response of the United States Nuclear Regulatory Commission (NRC) to the nuclear emergency in Japan.

First, I would like to give you a brief summary of the current situation in Japan, and then I will move into our agency's response and our activities to ensure the continued safety of our domestic nuclear power plants in light of the tragedy in Japan.

At the current time, TEPCO and the Japanese government are still in the active accident mitigation phase of their activities at the Fukushima Daiichi site. Plant conditions are slowly stabilizing and the reactors and spent fuel pools do not appear to be changing in a way that creates additional concern at this time.

Some structural conditions have recently been identified that are receiving increased focus and attention, such as the Unit 4 spent fuel pool, which is being shored-up to strengthen

its resistance to earthquakes. Also, the approach that the Japanese are using to control cooling inside the reactor primary containment vessels requires constant monitoring and periodic adjustment.

There are radioactive release paths that are continuing at various degrees in the three reactors that were operating at the time of the event. The NRC staff's understanding of the plant conditions has been challenged by the availability and questionable reliability of plant instrumentation, which was badly damaged during the accident.

TEPCO has initiated a multi-phase effort and recovery plan. They are working to install reliable closed-loop cooling systems for the reactors and spent fuel pools, improve environmental conditions inside the plant, and install a treatment system to clean up contaminated water.

They are facing major challenges in their recovery activities, including high radiation fields and humidity levels inside the reactor buildings, large amounts of radioactive water in the turbine building basements, and a considerable amount of contaminated debris spread across the site.

In addition to structural and reactor safety issues, TEPCO faces a substantial challenge in what to do with the radioactive liquid material that is currently being held in tanks and various locations around the plant. The rainy season is underway, providing further complications. The immense cleanup challenge resulting from the tsunami itself only adds to the difficulties of dealing with a radioactive contamination area. Overall, the Japanese are making progress on addressing these issues and are moving forward.

As you know, the decision to recommend a 50-mile radius evacuation of U.S. citizens near the Fukushima Daiichi site in Japan has been a topic of much discussion. That decision was based on limited information and the best assessment of conditions as we understood them at the time. Four of the six plants at the site were facing extraordinary challenges, including hydrogen explosions and the possibility of overheating in a spent fuel pool containing a recent full core offload of fuel. In addition, radiation monitors were showing very high levels of radiation on the plant site, which would impede workers trying to stabilize the reactors.

Calculations performed by NRC experts indicated that EPA protective action dose guidelines could be exceeded at a distance of 50 miles from the site if the situation continued to deteriorate – as seemed possible - and a large-scale release occurred. These calculations were considerations for the NRC in making a prudent, conservative input for a travel advisory, to the White House and Department of State, to evacuate American citizens out to 50 miles from the affected nuclear site. We are continuing to review and re-evaluate the 50-mile recommendation.

The NRC is systematically and methodically evaluating the lessons being learned at Fukushima Daiichi as they might apply to the safety of reactors in the United States, and the adequacy of emergency planning guidance and policy will be an important part of our review.

In the United States, a 10-mile radius emergency planning zone (EPZ) is established around every power reactor, within which state, and local officials have detailed plans to determine appropriate measures to protect public health and safety in the event of a radiological release. A 50-mile radius ingestion pathway for emergency planning is also established to protect individuals from radiological material that could be ingested or concentrated in the food chain, if a major nuclear accident were to occur.



The 10-mile EPZ was based on research showing that the most significant impacts of an accident would be expected in the immediate vicinity of a plant and therefore the capability for prompt initial protective actions, such as evacuations or sheltering in place, should be focused there. The sizes of the established EPZs are not limits, but provide for an emergency planning framework that would allow expansion or contraction of response efforts based on actual and projected radiological conditions.

During a radiological event at a U.S. nuclear facility, the NRC resident inspectors—who are stationed at every nuclear power plant in the United States—and the plant staff would provide information to the NRC on conditions as they evolved. In addition, we have the capability to access “real time” plant parameters and radiation measurements during an event at a U.S. plant. The NRC would analyze release paths including meteorological conditions from a power reactor, and would provide input to appropriate state and local governments on our assessment results, as requested. We have measures and equipment in place to obtain information regarding the licensees that the NRC regulates.

At this time, the agency considers that the existing emergency preparedness framework and regulations provide reasonable assurance of adequate protection of public health and safety in the event of a radiological emergency at a U.S. power reactor facility. But if there are lessons from Japan that indicate we need to make improvements to our regulations, we will do so.

Since the events at Fukushima began to unfold in early March, the NRC has been working to understand the events in Japan and relay important information to our country's nuclear power plants. In communicating this information to licensees, we sought to assist them

in considering the ramifications of a similar event for their facilities and to take site-specific actions, as appropriate.

In addition to communicating information to licensees, the NRC also focused and enhanced our oversight on issues highlighted by our observations of the events at Fukushima. We issued instructions to our inspectors, calling for immediate, independent assessments of each plant's level of preparedness. The instructions covered Extensive Damage Mitigation Guidelines, station blackout, and seismic and flooding issues, as well as Severe Accident Management Guidelines. Our resident inspector program, which stations NRC inspectors at all operating U.S. nuclear plants, enables the NRC to take prompt oversight action.

As a follow-up to the Extensive Damage Mitigation Guidelines inspections and our other routine oversight activities, we issued a Bulletin on licensee mitigation strategies. In response to the Bulletin, plants will provide information on a broad range of issues, including whether they have the people and equipment in place to carry out their mitigation strategies. Licensees are also required to provide information on how they will keep their strategies and plans updated to reflect changing conditions. Once we receive this information, the agency will determine whether additional actions to ensure compliance or other improvements are necessary.

We have undertaken a systematic and methodical review of our nuclear safety program. To spearhead this effort, the Commission established a senior-level Task Force, made up of several of the agency's most experienced and expert staff. Their review will proceed on both a short- and a longer-term timeframe. The Task Force's efforts will assist the Commission as we work to better understand the events in Japan and determine the implications for domestic nuclear safety.

In line with our overall agency approach to nuclear safety, the Task Force is taking a defense-in-depth approach focused on prevention, mitigation, and emergency response. We are examining a broad range of issues, including seismic, flooding, and other natural hazards, how to maintain power during these types of events, how to mitigate the potential loss of power, and emergency preparedness. In working through these issues, the Task Force is relying on information and analysis from the NRC Operations Center and our site team in Japan, as well as dozens of other agency experts.

Although the time constraints of the short-term review have unfortunately placed limitations on the extent of stakeholder involvement, we are doing our best to be as open and transparent as possible. In addition to holding three public meetings on the progress of the short-term review, we also will make public the final reports for both the short- and longer-term reviews. During the longer-term review, we will engage the public, licensees, and other key stakeholders to a greater extent. In addition, the report emerging from the longer-term review will be reviewed by the Advisory Committee on Reactor Safety.

Our safety review remains at an early stage, but I'll briefly review a few of the important considerations we have identified. I'll do so by discussing them through the framework of our defense-in-depth philosophy and its tenets of prevention, mitigation, and emergency preparedness.

In terms of accident prevention, the NRC is examining a broad range of events and risks. Those include hazards specifically contemplated in the design basis and others beyond the design basis. Specifically, we are evaluating the requirements and safety margins for seismic and flooding events, and other external events that might inflict widespread damage to the plant and lead to an extended station blackout. Our review is not limited to the type of

seismic/tsunami event experienced by Japan. We are also looking at risks posed by other types of flooding (including dam failures and river flooding), fires, and combinations of different events.

In addition to prevention, we are reexamining effective mitigation strategies for severe accidents. The Fukushima event has highlighted the challenges of coping with long-term station blackout and underscored the importance of mitigating its consequences. In moving forward with this part of our review, we are guided by two main goals: (1) to prevent core damage and containment failure, and (2) to prevent spent fuel damage and mitigate releases. Among the considerations being examined are: (1) the effectiveness of containment venting strategies; (2) the fuel inventory of spent fuel pools; and (3) hydrogen control measures for the reactor building.

We are also examining a number of cross-cutting considerations related to a plant's ability to mitigate a long-term station blackout event. Our current approach is a robust, multi-layered framework. It includes regulatory requirements for emergency operating procedures to address design basis events, requirements under the station blackout rule for coping and recovering from beyond design basis events, guidelines for responding to extensive plant damage from fires or explosions, and voluntary guidelines for mitigating severe accidents. Because these various regulatory requirements and voluntary guidelines are not currently integrated, we are assessing whether changes should be made that might better ensure a seamless response to severe accidents.

As part of our review, the NRC is also examining implications for our approach to emergency preparedness. The Fukushima event has demonstrated the challenges in implementing emergency response plans in the context of widespread infrastructure damage, multi-unit events, and long-term station blackout. Although we will soon complete a revised

emergency preparedness rule, we are taking a fresh look at these issues to see if there are other possible improvements.

In line with our national approach to emergency preparedness, the NRC recognizes that this is a shared responsibility with other federal agencies, state and local authorities, and the private sector licensees. As we examine these issues more closely, we will work with those entities to ensure that we have a full appreciation of their roles and perspectives and make the best decisions for nuclear safety.

As I hope my testimony has made clear, the NRC has already taken a number of actions to ensure nuclear safety, in light of the Fukushima event. We recognize, however, that our work is far from done. We will continue to evaluate the results of the post-Fukushima inspections to determine if there are additional short-term actions we need to take. As we receive the information in response to the Bulletin on mitigating strategies, we will evaluate that information and take the appropriate actions.

The NRC remains committed to keeping the public and other stakeholders informed of our progress. Toward that end, the Commission held a public meeting on May 12 for the 30-day report from the Task Force, and held the second of three public meetings yesterday, on June 15, to begin to examine the findings of the short-term review. The third public meeting will be held on July 19, when the 90-day report will be presented. I am confident that the Task Force's near-term final report, which will be made publicly, will provide important recommendations and outline a strong vision for the longer-term review.

Chairman Boxer, Ranking Member Inhofe, Chairman Carper, Ranking Member Barrasso, and Members of the Committee, this concludes my formal testimony today. On

behalf of the Commission, thank you for the opportunity to appear before you. We look forward to continuing to work with you to advance the NRC's important safety mission. We would be pleased to respond to any questions you may have. Thank you.

**Questions from Senator Boxer**

**QUESTION 1.** It has been reported that in April the Japanese government raised the legal limit for radiation exposure for children from 1 to 20 millisieverts a year (mSv/yr). Have any studies been done showing that such a high level is safe for children? What levels of radiation have been recorded in the areas near Fukushima, but outside the evacuation zone?

**ANSWER.**

There have been reports that the permissible radiation exposure level for children in the Fukushima prefecture was raised to 20 mSv/yr. For perspective, 20 mSv/yr is applied in many countries as a radiation dose limit for occupationally exposed workers. This level of radiation exposure is usually well below exposures that would be harmful. Health effects research compiled by committees, such as the International Commission on Radiation Protection (ICRP), establishes recommendations for radiation protection of workers and the public (including children). In its latest recommendations ICRP recommended a range of 20 to 100mSv as an appropriate level to protect the public *during* an emergency situation. For protection of the public from exposure due to contamination *after* an accident, the recommended range was 1 to 20 mSv/year.

Children are, in general, more sensitive to radiation than adults because more of their cells are dividing and there is a greater opportunity for radiation to disrupt the process. As a reference, Protective Action Guides (PAGs) developed by the United States Environmental Protection Agency (EPA) provide radiological criteria for the early, intermediate, and late phases of a domestic nuclear accident. During the development of the intermediate (relocation) phase PAGs, consideration was given to the higher risk

of effects on health to children and fetuses from radiation dose and the higher risk to some other population groups from relocation. To avoid the complexity of implementing separate PAGs for individual members of the population, the relocation PAG was established at a level that provides adequate protection for the general population. Currently, this value is 20 mSv/yr for the first year and 5 mSv/yr for subsequent years, with a maximum of 50 mSv for 50 years.

In current radiation protection practice, there are no data to directly indicate that there are any deleterious effects of radiation, principally cancer, at these relatively low dose levels.

With respect to doses to the public outside the evacuation zone, the NRC expects to receive data and studies from the Japanese agencies in the future.



QUESTION 2.        **Following the tragic events of September 11, 2001, the NRC took decisive actions, including the ordering of so-called “B-5-b” strategies and equipment to help cool down reactor cores and spent fuel pools after large explosions or fires. We are more than 60 days into NRC’s Task Force review of U.S. nuclear plants post-Japan. Can you assure me that the NRC is prepared to take similarly decisive actions to address deficiencies identified by the Task Force?**

ANSWER.

After the attacks of September 11, 2001, the Commission issued new security guidance in a letter dated October 6, 2001, followed by formal orders requiring the B.5.b strategies on February 25, 2002. After the events in Japan on March 11, 2011, the NRC staff took swift action to perform inspections at all commercial U.S. reactors to determine the readiness of the facilities to implement severe accident management guidelines. The staff also inspected those facilities to assess readiness to implement the B.5.b strategies, now codified in Title 10 CFR 50.54(hh). In addition, on May 11, 2011, the NRC issued *Bulletin 2011-01, Mitigating Strategies*, to require U.S. reactor licensees to provide a comprehensive verification of their compliance with the regulatory requirements of 10 CFR 50.54(hh)(2) and provide information associated with licensee mitigating strategies.

On March 23, 2011, following a unanimous Commission vote, NRC Chairman Jaczko issued *Tasking Memorandum-COMGBJ-11-0002-NRC Actions Following the Events in Japan*. This memorandum directed the staff to establish a senior level agency task force to conduct a methodical and systematic review of NRC processes and regulations. The

Task Force was directed to determine if improvements to the regulatory system are necessary, and also suggest policy recommendations to the Commission, if warranted. On July 12, 2011, the Task Force submitted a report entitled *Recommendations for Enhancing Reactor Safety in the 21<sup>st</sup> Century*, to the Commission.

The NRC staff has engaged with licensees and external stakeholders to review and assess the recommendations of the Near-Term Task Force (NTTF) in a comprehensive and holistic manner for the purpose of providing the Commission with fully-informed options and recommendations. On October 18, 2011, the Commission directed the NRC staff to initiate actions to be implemented without delay stemming from the NTTF report. These actions include the development of orders to require reliable hardened vents for certain boiling water reactor facilities, the initiation of rulemakings to strengthen mitigation capability for the loss of all A/C electrical power, and to strengthen onsite emergency response capabilities and procedures, and reviews of seismic and flooding hazards, emergency equipment and plant staff training. Additionally, in the notation vote paper submitted to the Commission on October 3, 2011, the staff provided its proposed prioritization of the NTTF recommendations to (1) reflect regulatory actions to be taken by the staff in response to the Fukushima lessons learned; (2) identify implementation challenges; (3) include technical and regulatory bases for the prioritization; (4) identify additional recommendations, if any; and (5) include a schedule and milestones with recommendations for appropriate stakeholder engagement and involvement of the Advisory Committee for Reactor Safeguards. Action on this paper is currently pending before the Commission.

QUESTION 3.        **Recent NRC inspections turned up numerous problems that need to be corrected at the two plants in California. For example, Diablo Canyon Power Plant is relying on state highways and access roads to reach an alternative seawater source for cooling and diesel fuel that may be inaccessible after an earthquake; and, at San Onofre, the storage locations for some firefighting equipment could be impacted by a seismic event. What is the NRC doing to immediately address issues like these that were identified through inspections conducted after the nuclear emergency in Japan?**

ANSWER.

For the examples noted above, NRC inspectors have verified that those issues have been resolved by the licensees for these facilities (Diablo Canyon and San Onofre). The NRC's process for issues identified during inspections requires our inspectors to verify that they are entered into the licensee's corrective action program for resolution, commensurate with their safety significance. Our inspection program follows up on completion of those corrective actions. The timing and resources for NRC follow-up will be proportionate to the significance of the issue.

QUESTION 4.        **The NRC's recent inspections have found inconsistencies in how licensees meet the requirements of the voluntary initiatives that the nuclear industry has undertaken to improve safety, when contrasted with the regulatory requirements established and enforced by the NRC. As a result of the Task Force review, will the NRC consider new regulations to provide increased safety and more consistency across nuclear plants in the United States?**

ANSWER.

The NRC staff has engaged with licensees and external stakeholders to review and assess the recommendations of the Near-Term Task Force (NTTF) in a comprehensive and holistic manner for the purpose of providing the Commission with fully-informed options and recommendations. On October 18, 2011, the Commission directed the NRC staff to initiate actions to be implemented without delay stemming from the NTTF report. These actions include the development of orders to require reliable hardened vents for certain boiling water reactor facilities, the initiation of rulemakings to strengthen mitigation capability for the loss of all A/C electrical power, and to strengthen onsite emergency response capabilities and procedures, and reviews of seismic and flooding hazards, emergency equipment and plant staff training. Additionally, in the notation vote paper submitted to the Commission on October 3, 2011, the staff provided its proposed prioritization of the NTTF recommendations to (1) reflect regulatory actions to be taken by the staff in response to the Fukushima lessons learned; (2) identify implementation challenges; (3) include technical and regulatory bases for the prioritization; (4) identify additional recommendations, if any; and (5) include a schedule and milestones with recommendations for appropriate stakeholder engagement and involvement of the

Advisory Committee for Reactor Safeguards. Action on this paper is currently pending before the Commission.

**QUESTION 5. A recent GAO report (GAO-11-563) recommended that the NRC evaluate whether the nuclear power industry's voluntary Groundwater Protection Initiative has resulted in prompt detection of leaks and, based on these evaluations, determine whether the agency should expand groundwater monitoring requirements. Does the NRC intend to undertake an assessment to ensure that the Groundwater Protection Initiative leads to prompt detection of leaks as nuclear power plants age? If so, please describe what such an assessment will entail.**

**ANSWER.**

The NRC agrees with the referenced GAO recommendations and has activities underway to address them. GAO recommended that the NRC Chairman direct agency staff to "periodically evaluate the extent to which the industry's voluntary Groundwater Protection Initiative will result in prompt detection of leaks and, based upon these evaluations, determine whether the agency should expand its groundwater monitoring requirements." The NRC routinely inspects nuclear power plant licensees using NRC Inspection Procedure 71124.06, "Radioactive Gaseous and Liquid Effluent Treatment." This procedure requires qualified NRC staff to inspect and verify continued implementation of licensee Groundwater Protection Initiative programs, to review records of identified leakage and spill events, to assess whether the source of the leak or spill was identified and mitigated, and to review any remediation actions taken for effectiveness. Through NRC's inspections of licensee programs, the agency is able to regularly review the status of industry implementation of the Groundwater Protection

Initiative and determine if there is a need to expand groundwater monitoring requirements.

In a recent decision, the Commission directed the staff to monitor industry's voluntary initiatives and present information to the Commission if they find that voluntary initiatives are not conducted in a committed and enduring fashion.

QUESTION 6.        **The Associated Press (AP) recently published a series of articles critical of the NRC's oversight of the nuclear power industry. The NRC said it disagreed with many of the AP investigation's observations and conclusions. To what extent has the NRC taken actions to address specific concerns raised in the AP reports?**

ANSWER.

As an independent regulatory agency, the NRC has a robust and comprehensive approach to holding U.S. nuclear power plants to strict safety standards. The AP article fails to recognize that the NRC's own inspection and maintenance requirements have led plants to detect and repair, replace or otherwise fix the equipment, systems, or address other issues that were described in the article and in other instances which were not highlighted. For example, the NRC's inspections last year at the Fort Calhoun plant in Nebraska showed that the plant needed to correct deficiencies in its flood response plan. The NRC increased its oversight of Fort Calhoun while the plant responded, and as a result, the plant was well positioned to maintain public health and safety during the extreme Missouri River flooding.



**Questions from Senator Baucus**

**QUESTION 1. The Fukushima incident on March 11<sup>th</sup>, 2011, and its aftermath, demonstrated that nuclear facilities with damaged spent fuel pools on-site posed a threat to Japanese public safety. It seems to be counterintuitive to store domestic spent fuel in liquid form for longer than necessary when there are viable alternatives. What is keeping us from expediting the process of converting this form of radioactive material to a safer, solid form?**

**ANSWER.**

The spent fuel stored in the spent fuel pools at commercial reactor sites is always in a solid form. While there are differences between fuel designs, all have similar general characteristics. During manufacturing and before use in a reactor, the nuclear fuel itself is formed into solid pellets. The pellets are then enclosed in metal tubes generally referred to as cladding. When the fuel pellets are sealed within the metal tubes, this combination constitutes a fuel rod. While the number of fuel rods varies depending on the design, the fuel rods are grouped together and held in place by a metal frame structure. The combination of fuel rods and metal frame structure is a fuel assembly. It is these fuel assemblies that are stored in the spent fuel pools.

As the fuel is used in the reactor, various radioactive materials are produced in the fuel. As those materials decay they produce radiation and heat. When the fuel assemblies are stored in the spent fuel pools, they are covered with water. The water provides shielding for the site workers from the radiation and a means to keeping the spent fuel cool.

The fuel assemblies can eventually be moved out of the spent fuel pool and placed into casks. The casks are dry internally and externally. This means the radioactive material in the spent fuel must have decayed away sufficiently to allow storage in the cask, with respect to both the radiation and heat being generated by the fuel assemblies. The current typical practice is to load the casks with fuel assemblies that have been out of the reactor for five years or more, and that only enough casks are loaded to accommodate the next refueling cycle. To load fuel assemblies that have been out of the reactor less than five years would require significantly more casks.

The NRC considers both spent fuel pools and dry cask storage as safe means of storing spent nuclear fuel, and both are currently necessary. There are pros and cons to moving as many fuel assemblies into casks as quickly as possible. Currently, the NRC is evaluating whether or not implementing such an idea would result in a net increase in safety.

QUESTION 2.        **According to the Blue Ribbon Commission’s recent report, “local, state, and tribal governments need access to sound, independent scientific and technical expertise” before they commit themselves to a proposed waste site. How can we make the information and the process more transparent to locals to help them make informed decisions? In the event that a community decides to withdraw the offer to host a site, it is important they be able to do so without penalization. What kind costs do you expect to incur if such back outs were made?**

ANSWER.

The NRC has an active public outreach program to explain its regulatory program and processes. The NRC will keep the public informed by continuing to make information available on its public website and will hold public meetings and workshops to seek input from a range of stakeholders.

It is difficult to speculate on the costs that would be incurred by NRC if this situation occurred; any such costs would be dependent upon when withdrawal occurs in the regulatory process. If withdrawal occurs after the NRC staff has started its review of a license application, the costs would be greater compared to if withdrawal occurs before a license application is received. The NRC’s costs associated with the review of an application are billed to the applicant pursuant to the Omnibus Consolidated Appropriations Act of 1990, as amended, and NRC implementing regulations.

QUESTION 3. **Regardless of the location for permanent deep burial, it appears that dry cask storage will be required to meet shipment regulations and for eventual permanent storage. What are the technical and regulatory challenges to storing dry casks on-site until cooling safety standards are met and a permanent location has been established?**

ANSWER.

The Commission has determined through its 2010 update to the waste confidence rule that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life for operation of that reactor (which may include the term of a revised or renewed license) in a combination of storage in its spent fuel pool and either onsite or offsite independent spent fuel storage installations. Further, the Commission found that there is reasonable assurance that sufficient mined geologic repository capacity will be available to dispose of the commercial high-level radioactive waste and spent fuel generated in any reactor when necessary. While the NRC staff does not believe that there are any insurmountable technical or regulatory challenges for transporting or storing spent fuel, pursuant to Commission direction, staff has begun investigations into extended storage (>120 years) and subsequent transportation.

QUESTION 4. **Currently there is a substantial amount of money in the Nuclear Waste Fund. How could Nuclear Waste Fund dollars be used to expeditiously transport fuel for large scale storage?**

ANSWER.

As an independent safety regulator, it is not within the purview of the NRC to make recommendations on such matters. The Department of Energy, which manages the Nuclear Waste Fund would be in the best position to make such recommendations.

QUESTION 5.      **What is the NRC's view of the Blue Ribbon Commission's conclusion about what agency should be responsible for the search for a permanent storage location?**

ANSWER.

The NRC, as an independent safety regulator, takes no position on which agency should be responsible for the search for a permanent spent fuel storage location.

QUESTION 6.      **Some nuclear safety advocates have focused on the potential for re-entry and reversibility of buried dry cask sites. Given the delicate balance between safety and accessibility to materials in the future, can you comment on the level of accessibility to dry casks after sealing an underground facility and possible proliferation threats upon re-entry?**

ANSWER.

The Nuclear Waste Policy Act and current NRC regulations require that a geologic repository be designed to preserve the option of waste retrieval prior to permanent closure. Retrieving high-level waste might be necessary if, during the operational phase of the repository, monitoring and performance assessment analyses determine that the repository may not comply with EPA standards or NRC regulations. After permanent closure, NRC assumes that waste will not be retrieved and that the repository will not be reopened (i.e. sealing is viewed as a permanent condition). Once a decision has been made to close a repository, the method used to seal the repository should prevent access to the buried waste and pose a minimal proliferation threat.

**Questions from Senator Inhofe**

**QUESTION 1.** Please provide a list of all dates when the NRC Operations Center was activated in a response mode since 1980. Please include the basis for its activation, the duration of its activation, which mode it was in, and a description of the various response modes.

**ANSWER.**

Please refer to the answer to this question provided to the Committee by letter dated October 13, 2011.



**QUESTION 2.** Please provide a list of all the occasions since 1980 that an NRC Chairman has exercised emergency authority granted under Section 3 of the Reorganization Plan of 1980. Please indicate the basis for and duration of the exercise of emergency authority.

**ANSWER.**

A list of the times and the associated duration in which the NRC has responded to an emergency situation is contained in the response to the previous question, which was provided to the Committee by letter dated October 13, 2011.

**QUESTION 3.** Please provide a list of the fees billed under 10 CFR 170 to license renewal applicants currently under review and the 20 most recently issued license renewals.

**ANSWER.**

Please refer to the answer to this question provided to the Committee by letter dated October 13, 2011.

Question 4. **Please describe the documented public health impacts due to tritium leaks from NRC regulated facilities.**

ANSWER:

We are not aware of documented public health impacts due to tritium leaks from NRC-regulated facilities. The tritium concentrations resulting from leaks at power reactors have not reached levels that would cause adverse health impacts to the public. Only a small percentage of these leaks have been detectable outside of the nuclear sites. For the few leaks where tritium was detected off site, all had groundwater concentrations significantly below any regulatory limits.

QUESTION 5.        **When will the NRC issue the Yucca Mountain Technical  
Evaluation Report?**

ANSWER.

The technical evaluation report on the "Repository Safety After Permanent Closure" was issued on July 21, 2011. The technical evaluation report on pre-closure activities was issued on September 1, 2011, and the technical evaluation report on administrative and programmatic activities was issued on September 13, 2011.

**QUESTION 6. In keeping with your commitment in the hearing, please provide a comprehensive account of all actions you have taken under your emergency authority since March 11<sup>th</sup>.**

**ANSWER.**

**Summary of Chairman's Response to  
Japan Earthquake, Tsunami and Nuclear Emergency**

The following constitutes a summary of actions taken in response to the emergency in Japan. An overview of the communications to my Commission colleagues during this time period is included at the end of the narrative summary.

On Friday, March 11, when the earthquake and tsunami struck, the NRC's headquarters Operations Center began operating on a 24-hour basis to monitor and analyze events at the nuclear power plants in Japan. At the request of the Japanese government, and through the United States Agency for International Development (USAID), the NRC sent a team of its technical experts to provide on-the-ground support, and we maintained continual contact with them. And, within the United States, the NRC worked closely with other Federal agencies as part of our government's response to the situation.

I traveled to Japan over the weekend of March 26-27 to convey a message of support and cooperation to our Japanese counterparts and to assess the current situation. During the time I was there, I also met with senior Japanese government and TEPCO officials, and consulted with our NRC team of experts who were in Japan as part of our assistance effort.

The decision to recommend a 50-mile radius evacuation of U.S. citizens near the Fukushima Daiichi site was based on limited information and the best assessment of conditions as we understood them at the time. Four of the six plants at the site were facing extraordinary challenges, including hydrogen explosions and the possibility of overheating in a spent fuel pool containing a recent full core offload of fuel. In addition, radiation monitors were showing very high levels of radiation on the plant site, which would impede workers trying to stabilize the reactors.

Calculations performed by NRC experts indicated that EPA protective action dose guidelines could be exceeded at a distance of 50 miles from the site if the situation continued to deteriorate - as seemed possible - and a large-scale release occurred. These calculations were considerations for the NRC in making a prudent, conservative input for a travel advisory, to the White House and Department of State, to evacuate American citizens out to 50 miles from the affected nuclear site.

The NRC began to systematically and methodically evaluate the lessons being learned at Fukushima Daiichi as they might apply to the safety of reactors in the United States and relay important information to our country's nuclear power plants. In communicating

this information to licensees, we sought to assist them in considering the ramifications of a similar event for their facilities and to take site-specific actions, as appropriate.

In addition to communicating information to licensees, the NRC also focused and enhanced our oversight on issues highlighted by our observations of the events at Fukushima. We issued instructions to our inspectors, calling for immediate, independent assessments of each plant's level of preparedness. The instructions covered Extensive Damage Mitigation Guidelines, station blackout, and seismic and flooding issues, as well as Severe Accident Management Guidelines. Our resident inspector program, which stations NRC inspectors at all operating U.S. nuclear plants, enabled the NRC to take prompt oversight action.

As a follow-up to the Extensive Damage Mitigation Guidelines inspections and our other routine oversight activities, we issued a Bulletin on licensee mitigation strategies. In response to the Bulletin, plants were expected to provide information on a broad range of issues, including whether they have the people and equipment in place to carry out their mitigation strategies. Licensees were also required to provide information on how they will keep their strategies and plans updated to reflect changing conditions. This information enables the agency to determine whether additional actions to ensure compliance or other improvements are necessary.

The Commission has undertaken a systematic and methodical review of our nuclear safety program. On March 21, the Commission established a senior-level Task Force, made up of some of the agency's most experienced and expert staff. Collectively, the Task Force members have more than 135 years of regulatory experience. They were asked to conduct a short-term review, to assist the Commission to better understand the events in Japan and determine the implications for domestic nuclear safety.

In line with our overall agency approach to nuclear safety, the Task Force took a defense-in-depth approach focused on prevention, mitigation, and emergency response. They examined a broad range of issues, including seismic, flooding, and other natural hazards, how to maintain power during these types of events, how to mitigate the potential loss of power, and emergency preparedness. In working through these issues, the Task Force relied on information and analysis from the NRC Operations Center, the NRC's site team in Japan, and dozens of other agency experts. They also called on experts from throughout the federal government, including the Federal Emergency Management Agency, which engaged the Task Force in discussions of offsite emergency preparedness and provided insights on the U.S. National Response Framework; the Institute of Nuclear Power Operations, which shared information on the industry's post-Fukushima actions; and other groups and individuals who shared their views with the Task Force.

The time constraints of the short-term review understandably placed limitations on the extent of stakeholder involvement, but in line with the NRC commitment to openness and transparency, three public meetings – at the 30-day, 60-day and 90-day mark – were held by the Commission, and the final short-term Task Force Report and recommendations were provided to the Commission on July 12, and made public on July 3.

The longer-term review report will also be made publicly available. During the longer-term review, the public, licensees, public interest groups and other key stakeholders will

have extensive opportunities for input. In addition, the report emerging from the longer-term review will be reviewed by the Advisory Committee on Reactor Safety.

Our safety review is examining a broad range of events and risks. Those include hazards specifically contemplated in the design basis and others beyond the design basis. Specifically, we are evaluating the requirements and safety margins for seismic and flooding events, and other external events that might inflict widespread damage to the plant and lead to an extended station blackout. Our review is not limited to the type of seismic/tsunami event experienced by Japan. We are also looking at risks posed by other types of flooding (including dam failures and river flooding), fires, and combinations of different events.

In addition to prevention, we are reexamining effective mitigation strategies for severe accidents. The Fukushima event has highlighted the challenges of coping with long-term station blackout and underscored the importance of mitigating its consequences. In moving forward with this part of our review, we are guided by two main goals: (1) to prevent core damage and containment failure, and (2) to prevent spent fuel damage and mitigate releases. Among the considerations being examined are: (1) the effectiveness of containment venting strategies; (2) the fuel inventory of spent fuel pools; and (3) hydrogen control measures for the reactor building.

We are also examining a number of cross-cutting considerations related to a plant's ability to mitigate a long-term station blackout event. Our current approach is a robust, multi-layered framework. It includes regulatory requirements for emergency operating procedures to address design basis events, requirements under the station blackout rule for coping and recovering from beyond design basis events, guidelines for responding to extensive plant damage from fires or explosions, and voluntary guidelines for mitigating severe accidents. Because these various regulatory requirements and voluntary guidelines are not currently integrated, we are assessing whether changes should be made that might better ensure a seamless response to severe accidents.

As part of our review, the NRC is also examining implications for our approach to emergency preparedness. The Fukushima event has demonstrated the challenges in implementing emergency response plans in the context of widespread infrastructure damage, multi-unit events, and long-term station blackout. Although we have recently completed a revised emergency preparedness rule, we are taking a fresh look at these issues to see if there are other possible improvements.

In line with our national approach to emergency preparedness, the NRC recognizes that this is a shared responsibility with other federal agencies, state and local authorities, and the private sector licensees. As we examine these issues more closely, we will work with those entities to ensure that we have a full appreciation of their roles and perspectives and make the best decisions for nuclear safety.

In considering the Task Force recommendations, the Commission must move forward with the urgency called for by these real safety issues. Although the Task Force did not find imminent risk to public health and safety, they did identify significant concerns with specific issues and what they described as the NRC's "patchwork of regulatory requirements and other safety initiatives," and they recommended improving the agency's regulatory framework. As stated in the Task Force report, "...an accident involving core damage and uncontrolled release of radioactive material to the

environment, even one without significant health consequences, is inherently unacceptable.” Fukushima clearly demonstrated that extraordinary circumstances can challenge plants in unexpected ways, and we must commit to a strong and timely response. The American public expects no less.

#### Communicating with the Commission

Throughout the two months of the emergency in Japan, I ensured my colleagues on the Commission were kept updated on events as they unfolded. These updates were in the form of briefings by me, occurring once per day in the first week after the earthquake, and on an ad hoc basis after March 18th. Commissioner’s staff also received briefings from the Executive Team working in the NRC Operations center. In addition, each office received written status reports from our Operations center at regular intervals.

**Between Friday, March 11<sup>th</sup>, when the earthquake and tsunami occurred, and May 16<sup>th</sup>, when the NRC exited monitoring mode, Commission offices participated in approximately 65 briefing calls and received more than 100 written status updates.**

#### First 24 Hours of NRC Response

At 9:46 am on Friday March 11<sup>th</sup> the NRC Operations Center entered monitoring mode in response to the events in Japan.

At 10:09 am on 3/11/2011 - 23 minutes after entering monitoring mode, the NRC Operations Center sent an email to announce the change in status to monitoring mode. All Commission offices received this announcement.

At 1:04 pm on 3/11/2011 - 3 hours and 18 minutes after entering monitoring mode, the first briefing of the Commissioner’s Assistants was conducted by the Executive Team (ET) working at the Operations Center.

**In the first twenty-four hours after entering monitoring mode, the Commissioner’s Assistants were briefed by the ET four times.**

#### Discussions with Commission, Meetings and Hearings (March 11<sup>th</sup> through May 16<sup>th</sup>)

Friday March 11<sup>th</sup>, Individual meeting with Commissioner Apostolakis  
 Saturday March 12<sup>th</sup>, 3:00 pm, Non-Sunshine Act Discussion (NSAD) Briefing call with Commission  
 Sunday March 13<sup>th</sup>, 4:00 pm, NSAD Briefing call with Commission  
 Monday March 14<sup>th</sup>, 4:30 pm, NSAD Briefing call with Commission  
 Tuesday March 15<sup>th</sup>, 7:30 pm, NSAD Briefing call with Commission  
 Wednesday March 16<sup>th</sup>  
 Testimony before House Joint Subcommittees of Energy and Commerce Committee  
 Public Briefing of Senate Environment and Public Works Committee  
 Thursday March 17<sup>th</sup>, 4:00 pm, NSAD Briefing call with Commission  
 Friday March 18<sup>th</sup>, 10:00 am, NSAD Briefing call with Commission  
 Sunday March 20<sup>th</sup>, Phone call with Commissioner Ostendorff  
 Monday March 21<sup>st</sup>  
 Commission Meeting – Briefing on NRC Response to Recent Nuclear Events in Japan



Individual meeting with Commissioner Ostendorff  
 Wednesday March 23<sup>rd</sup>, Individual meeting with Commissioner Svinicki  
 Thursday March 24<sup>th</sup>, Individual meeting with Commissioner Apostolakis  
 Friday March 25<sup>th</sup>, Individual meeting with Commissioner Apostolakis  
 Saturday March 26<sup>th</sup>  
 Phone Call with Commissioner Magwood  
 6:40 pm, NSAD Briefing Call with Commission  
 Wednesday March 30<sup>th</sup>  
 9:00 am NSAD Briefing Call with Commission (2 Commissioners participated)  
 Testimony before Senate Appropriations Committee, Energy and Water  
 Subcommittee Individual meeting with Commissioner Svinicki  
 Thursday March 31<sup>st</sup>  
 9:00 am NSAD Briefing Call with Commission (1 Commissioner participated)  
 Testimony before House Appropriations Committee, Energy and Water Subcommittee  
 Closed Commission Meeting: Discussion of Adjudicatory Issues  
 Individual meeting with Commissioner Ostendorff  
 Thursday April 7<sup>th</sup> –  
 NSAD Briefing Call with Commission scheduled, Commission decided to cancel  
 Individual meeting with Commissioner Ostendorff  
 Tuesday, April 12<sup>th</sup>  
 Testimony before Senate Environment and Public Works Committee and Clean Air and  
 Nuclear Safety Subcommittee  
 Thursday, April 28<sup>th</sup>  
 Commission Meeting – Briefing on the Status of NRC Response to Events in Japan  
 and Briefing on Station Blackout (open and closed portions)  
 Tuesday, May 3<sup>rd</sup>  
 Commission Meeting – Information Briefing on Emergency Preparedness  
 Wednesday, May 4<sup>th</sup>  
 Testimony before House Committee on Energy and Commerce Subcommittees on  
 Energy and Power, and Environment and the Economy  
 Thursday, May 12<sup>th</sup>  
 Commission Meeting – Briefing on the Progress of the Task Force Review (30-day  
 status) of NRC Processes and Regulations Following the Events in Japan

#### Commissioner's Assistant Phone Calls

After receiving three briefings in approximately the first 12 hours after entering monitoring mode, beginning on Saturday March 12<sup>th</sup>, Commissioners Assistants (CAs) agreed to an every-8-hour briefing schedule.

On Tuesday March 15<sup>th</sup>, CAs decided to move to every-12-hour briefings.

On Thursday March 31<sup>st</sup>, per the recommendation of CAs, the briefings became once daily.

On Sunday April 10<sup>th</sup>, CAs decided to go to twice-a-week briefings, Tues/Thurs schedule.

**As of May 16<sup>th</sup>, there had been approximately 65 briefings from the Executive Team to Commissioners Assistants.**

Written Status Updates from Headquarters Operations Officer (HOO)

Date:	# of Reports Generated:
3/11	3
3/12	8
3/13	4
3/14	4
3/15	4
3/16	3
3/17	3

Beginning on March 18<sup>th</sup>, decreased to twice-daily production of Status Update reports.

On Monday April 11<sup>th</sup>, decreased to once-daily production of Status Update reports.

On Friday April 22<sup>nd</sup>, decreased to once-daily production of Status Update reports, Mondays – Fridays.

**As of May 16<sup>th</sup>, when the NRC exited monitoring mode, the Commission had received more than 100 written status updates. In addition, the Commission received other written information, and had access to the internal website where all of these reports were being maintained.**

QUESTION 7.     **Do you believe the Commission would benefit from greater involvement of the ACRS on the NRC's longer term review rather than merely reviewing the staff's final product? If not, why not?**

ANSWER.

The ACRS has a great wealth of knowledge and experience that is valued at the NRC. The ACRS was established as a statutory Committee to the Atomic Energy Commission by a 1957 amendment to the Atomic Energy Act of 1954. The functions of the Committee are described in Sections 29 and 182b of the Act. The Energy Reorganization Act of 1974 transferred the AEC licensing functions to the NRC, and the ACRS has continued in the same advisory role to the NRC.

An October 28, 2009 Memorandum of Understanding (MOU) between the Office of the Executive Director for Operations and the Executive Director for the Advisory Committee on Reactor Safeguards outlines the process for ACRS involvement and review of relevant NRC staff actions. The MOU establishes a process for ensuring that ACRS reviews are done at a sufficiently early stage to permit effective and efficient interaction. The NRC staff solicits ACRS views early in the development of NRC rules and safety- and risk- significant guidance; in licensing decisions; and in resolution of technical issues. As such, it is important to point out that the ACRS' review of the task force recommendations will consist of multiple reviews and interactions and will not be a single review of the staff's final products.

QUESTION 8. **Please describe the processes the NRC uses to revise its regulatory requirements following new information or world events. Notwithstanding the seriousness of the events in Japan, there doesn't seem to be a reason to alter the Commission's normal processes to take account of any lessons learned from the events in Japan given the repeated assurances that U.S. plants are operating safely. Do you agree? If not, why not?**

ANSWER.

The Commission has not altered its normal processes to take account of the lessons learned from the events in Japan. The NRC has an active operational events program where domestic and world nuclear events are promptly evaluated for their applicability and significance to the U.S. nuclear power plants. This includes information sharing agreements with world nuclear organizations.

Using the Japanese example, there were initial and follow-on assessments using the information as it became available from the Fukushima accident, and vulnerabilities that may be common to the plants in the United States.

Commission procedures for policy making decisions are also being followed in response to events in Japan. On March 23, 2011 following a unanimous Commission vote, NRC Chairman Jaczko issued *Tasking Memorandum-COMGBJ-11-0002-NRC Actions Following the Events in Japan*. This memorandum directed the staff to establish a senior level agency task force to conduct a methodical and systematic review of NRC processes and regulations. The Task Force was directed to determine if improvements

to the regulatory system are necessary, and also suggest policy recommendations to the Commission, if warranted. On July 12, 2011, the Task Force submitted a report entitled *Recommendations for Enhancing Reactor Safety in the 21<sup>st</sup> Century*, to the Commission.

The NRC has engaged with licensees and external stakeholders to review and assess the recommendations of the Near-Term Task Force (NTTF) in a comprehensive and holistic manner for the purpose of providing the Commission with fully-informed options and recommendations. On October 18, 2011, the Commission voted to direct the NRC staff to begin immediately implementing seven of the 12 safety requirements from the NRC's Near-Term Task Force on lessons learned from the reactor accident at Fukushima. These issues cover issues including the loss of all A/C electrical power at a reactor, reviews of seismic and flooding hazards, emergency equipment and plant staff training. Additionally, in the Commission notation vote paper submitted to the Commission on October 3, 2011, the staff provided the prioritization of the NTTF recommendations to (1) reflect regulatory actions to be taken by the staff in response to the Fukushima lessons learned; (2) identify implementation challenges; (3) include technical and regulatory bases for the prioritization; (4) identify additional recommendations, if any; and (5) include a schedule and milestones with recommendations for appropriate stakeholder engagement and involvement of the Advisory Committee for Reactor Safeguards. Action on this paper is currently pending before the Commission.

QUESTION 9.        **Do the Commission's regulations provide a mechanism for applying lessons learned from Japan to COLs or certified designs already issued? Is there any material difference in NRC's ability to apply those lessons to COLs or certified designs as opposed to plants that are currently licensed and operating?**

ANSWER.

Yes. The Commission can apply lessons learned from Japan to combined licenses (COL) and design certifications. Although the Commission has yet to issue any COLs, once issued, the Commission could modify, add, or delete any terms or conditions of the COL to reflect any new Commission requirements in accordance with the regulatory provisions found in 10 CFR 52.83, 52.98, and 50.109, depending on whether the COL references an early site permit (ESP) or a design certification rule (DCR), and whether the license conditions address matters within the scope of the referenced ESP or certified design. The criteria for implementation of any Commission decisions as a result of lessons learned from Japan would generally be comparable for both COLs and for operating reactors, which is 10 CFR 50.109 (the Backfit Rule).

Regarding design certifications, the Commission can apply lessons learned from Japan through an amendment to an existing certified design rule or in a separate rulemaking if the "issue finality" provisions of 10 CFR 52.63 are met.

On October 18, 2011, the Commission voted to direct the NRC staff to begin immediately implementing seven of the 12 safety requirements from the NRC's Near-Term Task Force on lessons learned from the reactor accident at Fukushima. These issues cover issues including the loss of all A/C electrical power at a reactor, reviews of

seismic and flooding hazards, emergency equipment and plant staff training.

Additionally, in the Commission notation vote paper submitted to the Commission on October 3, 2011, the staff provided the prioritization of the NTTF recommendations to (1) reflect regulatory actions to be taken by the staff in response to the Fukushima lessons learned; (2) identify implementation challenges; (3) include technical and regulatory bases for the prioritization; (4) identify additional recommendations, if any; and (5) include a schedule and milestones with recommendations for appropriate stakeholder engagement and involvement of the Advisory Committee for Reactor Safeguards. Action on this paper is currently pending before the Commission.

**QUESTION 10. Given NRC's authority to apply lessons learned from Japan to the operating fleet, and the state of the art review the COL and design certification applications have undergone, it doesn't make any sense to delay the licensing process on these applications during the review of the Japan situation. Do you agree? If not, why not?**

**ANSWER.**

On September 9, 2011, in response to a series of petitions, the Commission declined to suspend the licensing process. The Fukushima Task Force report contains three specific recommendations for near-term combined license (COL) applications: 1) COLs referencing the AP1000 and ESBWR should address the prestaged equipment requirements for coping with station blackout beyond 72 hours, and have ITAAC to confirm effective implementation of minimum and extended coping time for station blackout ; 2) enhance onsite emergency response capability through the integration of emergency operating procedures, severe accident management guidelines, and extensive damage mitigation guidelines; and 3) enhance emergency planning to address prolonged station blackout and multi-unit accidents. Prior to issuance of the COLs, the Commission could choose to adopt some or all of these recommendations and implement them in the COLs through license conditions. Alternatively, the Commission could issue the COLs and later modify, add, or delete any terms and conditions of the COLs to reflect any new Commission requirements in accordance with the regulatory provisions found in 10 CFR 52.83, 52.98, and 50.109, depending on whether the COL references an early site permit (ESP) or a certified design and whether the license conditions address matters within the scope of the referenced early site permit (ESP) or



certified design. Under this approach, the criteria for implementation of any Commission decisions on the Task Force recommendations generally would be comparable for both the near-term COLs and for operating reactors which is 10 CFR 50.109 (the Backfit Rule).

**Questions from Senator Vitter**

**QUESTION 1.**      **What is the mission of the NRC?**

**ANSWER:**

The NRC's mission is to license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment.

QUESTION 2.      **Where does the NRC derive its authority?**

ANSWER:

The NRC derives its authority from several Federal statutes. These include the Atomic Energy Act of 1954 (42 U.S.C. § 2011 *et seq*), the Energy Reorganization Act of 1974 (42 U.S.C. § 5801 *et seq*), and the Reorganization Plan No. 1 of 1980.

QUESTION 3.      **In 1987 Federal law in an Amendment to the Nuclear Waste Policy Act made what location the nation's repository for spent Nuclear fuel?**

ANSWER:

Congress named Yucca Mountain, Nevada as the only site to be characterized as a potential high level waste repository.

QUESTION 4.      **What does this statement mean to you: “I will restore the basic principle that government decisions should be based on the best-available, scientifically valid evidence and not on the ideological predispositions of agency officials or political appointees.”?**

ANSWER.

This statement says that agency decisions should be based on sound science.

QUESTION 5.

**In 2009, Secretary Chu arbitrarily and in violation of established federal law declared that Yucca Mountain would not be the storage facility for spent nuclear fuel and subsequently ordered the DOE's withdrawal of the license application for Yucca Mountain. In 2010, the ASLB ruled that DOE did not have the authority to withdraw the application as it contravenes congressional intent and existing federal law. Absent the moral or legal authority to disavow expressed congressional intent as established by federal law, what "scientifically valid evidence" without regard to "the ideological predispositions of agency officials or political appointees" was used to determine Yucca Mountain's adequacy as the Spent Fuel site for the United States?**

ANSWER.

The Department of Energy is the best source to address what information the Secretary considered when deciding to file a motion to withdraw its construction authorization application.

**QUESTION 6.** Please explain your activity and inactivity with respect to Yucca Mountain since the ASLB rendered its decision on June 29, 2010. As well, please specifically address the following questions:

- Have the commissioners voted?
- Were there any recusals?
- Did you consider recusing yourself?
- Did you vote?
- What was/is your vote?
- Do you consider your vote to be final? Why or why not?
- Under what circumstances might you consider changing your vote?

**ANSWER.**

**Have the commissioners voted?**

Yes. The Office of Commission Appellate Adjudication (an office charged principally with drafting appellate opinions for the Commission) submitted to the Commission a notation vote paper to the Commission associated with the June 29, 2010, ASLB decision, providing recommendations for Commission action. All four participating Commissioners have filed notation vote sheets with the Secretary of the Commission with respect to that paper, consistent with the notation voting process in Chapter III of the Internal Commission Procedures, as follows:

- Chairman Jaczko – August 25, 2010 (withdrawn on August 27, 2010, re-filed on October 29, 2010)
- Commissioner Svinicki – August 25, 2010

- Commissioner Ostendorff – August 26, 2010
- Commissioner Magwood – September 15, 2010

**Were there any recusals?**

Commissioner Apostolakis recused himself from the *Yucca Mountain* adjudicatory proceeding on July 15, 2010.

**Did you consider recusing yourself?**

I recused myself from deliberations on the Yucca Mountain matter for the first year of my tenure on the Commission to demonstrate my impartiality.

**Did you vote?**

Yes, as stated above, I voted on October 29, 2010. The Commission's voting is complete and the Commission issued a unanimous Order on September 9, 2011. This Order indicated that we were evenly divided on DOE's motion to withdraw its construction authorization application with prejudice and directed the Board to, by the close of the current fiscal year, complete all necessary and appropriate case management activities, including disposal of all matters currently pending before it and comprehensively documenting the full history of the adjudicatory proceeding.

**What was/is your vote?**

Individual votes by those sitting on the Commission on adjudicatory matters are not made public, allowing the Commission order to speak for the Commission.

**Do you consider your vote to be final?**

As mentioned above, the notation vote process in Chapter III of the Internal Commission Procedures applies here. As to adjudicatory matters, OCAA transmits to the Commission a notation vote paper, which typically contains one or more proposed adjudicatory decisions, together with a recommendation for Commission action. Individual Commissioners then cast votes on the matter. Completion of Commission action on an adjudicatory matter is a dynamic process. In adjudicatory



matters (as in all voting matters) votes may subsequently be supplemented, withdrawn and re-filed, edited or otherwise revised during the deliberative process. Once voting is completed, OCAA will compile a draft memorandum and order reflecting the Commissioners' votes. Following the filing of notation votes, the Commission may engage in additional deliberations in order to reach a majority position on an adjudicatory matter. Over the course of those deliberations, one or more Commissioners may revise aspects of a vote, or an entire vote, in order to reach compromise on a decision that reflects the opinion of either the full Commission, or a majority thereof. Once a Commission majority reaches agreement, the Commissioners affirm their positions on the final decision in a public affirmation session, and the final order is issued. That final decision serves as the Commission record on the adjudicatory question or questions at hand. The Commission issued a final order associated with the June 29, 2010 ASLB decision on September 9, 2011. (CLI-11-7)

**Under what circumstances might you consider changing your vote?**

In view of the final order issued on September 9, 2011, this matter is no longer pending before the Commission.

QUESTION 7.        **During the events at Fukushima you ordered a 50-mile evacuation limit for reasons of safety – in part because of the risk caused by spent fuel housed at each of the affected reactors. Do you stand by this action?**

ANSWER.

Yes, NRC continues to believe that its 50-mile evacuation recommendation was prudent and conservative regarding the protection of U.S. citizens in Japan.

The decision to recommend a 50-mile radius evacuation of U.S. citizens near the Fukushima Daiichi site was based on limited information and the best assessment of conditions as we understood them at the time. Four of the six plants at the site were facing extraordinary challenges, including hydrogen explosions and the possibility of overheating in a spent fuel pool containing a recent full core offload of fuel. In addition, radiation monitors were showing very high levels of radiation on the plant site, which would impede workers trying to stabilize the reactors.

Calculations performed by NRC experts indicated that EPA protective action dose guidelines could be exceeded at a distance of 50 miles from the site if the situation continued to deteriorate – as seemed possible – and a large scale release occurred. These calculations were considerations for the NRC in making a prudent, conservative input for a travel advisory, to the White House and Department of State, to evacuate American citizens out to 50 miles from the affected nuclear site. Subsequent environmental sampling by Government of Japan and U.S. Department of Energy scientists found radioactive materials deposited out to 50 miles of the Fukushima Daiichi

site that exceeded EPA dose guidelines. The U.S. and international scientific agency consensus is that the extent of this deposition resulted from significant reactor core degradation and loss of containment barriers from Units 1, 2 and 3 reactors.

Over the past few months, conditions at the damaged Fukushima Daiichi facility in Japan have steadily improved and Tokyo Electric Power Company is progressing on recovery efforts. Based on current site conditions as reported by the Government of Japan, and models done by the U.S. Department of Energy, the NRC staff performed additional technical analyses that indicate that additional large radioactive releases are unlikely to occur. With conditions at and around the Fukushima Daiichi facility stabilizing, the State Department's Travel Alert reduced the existing 50-mile evacuation recommendation that was issued on October 7, 2011.

**QUESTION 8. Please explain your justification for the increase in risk to American citizenry by your actions attempting to kill and delay the federally designated facility for U.S. spent fuel at Yucca Mountain. In addition, what health, social, or economic models have you use to help you determine the “acceptable” increase in risk to American lives and businesses?**

**ANSWER.**

The role of the NRC, as an independent regulator, is to review a licensee’s application for a proposed geologic repository and determine the safety of the repository. As discussed earlier, DOE submitted a motion to withdraw the Yucca Mountain application. On September 9, 2011, the Commission issued a unanimous Order in the matter. This Order indicated that we were evenly divided on DOE’s motion to withdraw its construction authorization application with prejudice and directed the Board to, by the close of the current fiscal year, complete all necessary and appropriate case management activities, including disposal of all matters currently pending before it and comprehensively documenting the full history of the adjudicatory proceeding.

The Commission does not believe the delay in licensing a federal repository poses an immediate risk to the public. The Commission has determined through our revision of our Waste Confidence rule that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor in a combination of storage in its spent fuel storage basin and either onsite or offsite independent spent fuel storage installations. Further, the

Commission finds there is reasonable assurance that sufficient mined geologic repository capacity will be available to dispose of the commercial high-level radioactive waste and spent fuel generated in any reactor when necessary.

**QUESTION 9.       Where do you derive the authority to act in a manner  
inconsistent with established Federal law?**

ANSWER.

I follow the authorities given to the Chairman in the Atomic Energy Act of 1954 (42 U.S.C. § 2011 *et seq*), the Energy Reorganization Act of 1974 (42 U.S.C. § 5801 *et seq*), and the Reorganization Plan No. 1 of 1980 and other applicable statutes.

QUESTION 10.

**Please provide statistics for the following items:**

- a. Total number of new reactors licensed since your chairmanship**
- b. Total number of new reactors built since your chairmanship**
- c. The size of America's nuclear fleet before you became chairman as well as the number as it stands today**
- d. The total number of students in graduate nuclear programs across the country**
- e. The total number of new reactors built in China since you became chairman**
- f. The total number of reactors China had built prior to your chairmanship**
- g. The total amount of taxpayer money spent on the Yucca Mountain repository prior to your becoming chairman**
- h. The total number of employees at the NRC prior to your becoming chairman and each year since you have been chairman**

ANSWER.

**a. Total number of new reactors licensed since your chairmanship**

There have been no new reactors licensed during my tenure, or the tenures of the previous four NRC Chairmen. The last new reactor licensed was Watts Bar 1 in 1996. Currently, the NRC has 12 COL applications for 20 units under active review. NRC expects to issue decisions about the COLs for 4 new reactors early in 2012.

As of June 30, 2011 the NRC has completed the technical reviews on a design certification (DC) application and two design certification amendments: GE-Hitachi's Economic Simplified Boiling Water Reactor, Westinghouse's AP1000 DC amendment and STP Nuclear Operating Company's ABWR DC amendment to address the aircraft impact rule. The NRC expects to complete the rulemaking activities for the AP1000 by the end of 2011.

In addition, as of March 2011, 71 units at 41 sites have received renewed licenses.

**b. Total number of new reactors built since your chairmanship**

There have been no new reactors built since 1996. Currently, one reactor at the Watts Barr 2 site is under construction. Additionally, on March 8, 2010, Southern Nuclear Operating Company began site construction at Vogtle Unit 3 under a limited work authorization issued in August 2009. Site activities authorized under the limited work authorization include preliminary construction activities such as excavation and placement of engineered backfill.

**c. The size of America's nuclear fleet before you became chairman as well as the number as it stands today**

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**d. The total number of students in graduate nuclear programs across the country**

According to the Department of Education's "Digest of Education Statistics: 2010," in 2008 there were 1,201 nuclear graduate enrollments in degree-granting institutions

**e. The total number of new reactors built in China since you became chairman**

The NRC is a domestic safety regulator. Please contact the Department of State or the Chinese government for information on the Chinese nuclear program. Additionally, the International Atomic Energy Agency's (IAEA) Power Reactor Information System has current information on international construction activities.

**f. The total number of reactors China had built prior to your chairmanship**



The NRC does not track such statistics. As mentioned above, the IAEA's Power Reactor Information System is a good source of information on this topic.

**g. The total amount of taxpayer money spent on the Yucca Mountain repository prior to your becoming chairman**

Prior to my becoming Chairman on May 13, 2009, the NRC had expended approximately \$550 million in Nuclear Waste Funds in its activities related to the Yucca Mountain nuclear waste repository. The amount appropriated to the NRC has declined each year since FY '09. The Nuclear Waste Fund consists of money collected from fees levied against utilities that produce nuclear energy and must be appropriated by Congress prior to being expended by NRC. The total amount spent may be better answered by the Department of Energy, which manages the Nuclear Waste Fund.

**h. The total number of employees at the NRC prior to your becoming chairman and each year since you have been chairman.**

When I became Chairman of NRC on May 13, 2009, NRC had approximately 3937 employees. One year later in May, 2010, the NRC had approximately 3976 employees, and as of May, 2011 the NRC has approximately 3962 employees.

**Question from Senator Sessions**

**QUESTION 1. Do the NRC's licensing standards for nuclear power plants take into account the risk of earthquakes or tsunamis? Does the NRC Staff evaluate the ability of a plant to perform to a more severe earthquake than the design earthquake (i.e., a one in 10,000 year event)?**

**ANSWER.**

Yes, the NRC's regulations require that nuclear power plants take into account the risk caused by natural hazards, including earthquakes and tsunamis. The regulatory requirements establish the seismic design bases for currently operating nuclear power plants. Specifically, they require the design basis for systems, structures, and components to reflect appropriate consideration of the most severe of the natural phenomenon that have been historically reported for the site and surrounding area, with sufficient margin. 10 CFR Part 50, Appendix A, requires specifically that "nuclear power plant structures, systems and components important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornados, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions." Even those nuclear plants that are located within areas with low and moderate seismic activity are designed for safety in the event of such a natural disaster. The NRC requires that safety-significant structures, systems, and components be designed to take into account even rare and extreme seismic and tsunami events. In addition to the design of the plants, significant effort goes into emergency response planning and accident management.

The NRC also requires the nuclear industry to evaluate the nuclear power plant's capability to perform beyond the design basis earthquake and has made substantial efforts over time to ensure that nuclear power plant vulnerabilities to postulated internal and external events were considered and mitigated in the current design of its regulated facilities. In the mid-to-late 1990's, the NRC staff reviewed the potential for earthquake ground motions beyond the design basis as part of the individual plant examination of external events. From this review, the staff determined that seismic designs of operating nuclear plants in the U.S. have adequate safety margins for withstanding earthquakes. The NRC is currently in the process of conducting a generic review (i.e., Generic Issue-199 (GI-199), Implications of Updated Probabilistic Seismic Hazard Estimates in the Central and Eastern U.S. on Existing Plants), to re-assess the resistance of U.S. nuclear plants to earthquakes. This is an ongoing effort and a draft Generic Letter has been developed to move the process into the regulatory assessment stage. The public comment period on the draft Generic Letter closed on October 31, 2011. The NRC staff will consider the comments before finalizing the Generic Letter, which the staff expects to issue near the end of this year. The draft letter's approach would have U.S. nuclear power plants perform their analysis within either one or two years, depending on the analysis method used, and deliver their results to the NRC. The agency will then determine whether additional actions are necessary.

In addition, the Commission is considering whether and how to implement seismic and flood hazard reevaluation recommendations that resulted from Near-Term Task Force review of insights from the Fukushima Daiichi accident.

QUESTION 2.        **Are all potential nuclear plant sites evaluated for seismic and tsunami activity before the NRC approves them for construction?**

ANSWER.

Yes, several NRC regulations require an evaluation of the seismic and tsunami hazards at all potential nuclear plant sites before granting a license or permit to construct any safety-related structures. These include 10 CFR 50.34, 10 CFR Part 50, Appendix A, Criterion 2, and 10 CFR Part 100. Both the tsunami and seismic hazard evaluations are based on site-specific conditions for each new plant site. In addition to potential site flooding induced by a tsunami, nuclear plant sites are evaluated for all other potential flooding mechanisms, including floods induced by storm surge (hurricanes), rivers, and dam failures.

**QUESTION 3. Please describe how the Commission intends to proceed with hearings on new nuclear plant applications in the near future, and any steps that the NRC is taking to make the hearing process as efficient as is reasonably possible.**

**ANSWER.**

The Atomic Energy Act requires the NRC to hold a hearing on any license application for a construction permit, which includes an application for a combined construction permit and operating license (combined license, or COL) for a new nuclear plant prior to issuance of the license, whether an outside party has requested a hearing on a particular issue or not. An interested party may obtain a contested hearing before an Atomic Safety and Licensing Board by demonstrating standing and a disputed issue material to the NRC's licensing decision. The time needed for the consideration and resolution of the contested hearing will be informed by a number of factors, including the nature of the legal and/or factual issues that must be decided. These issues may vary in number, and in legal and technical complexity. With this in mind, the Commission's rules of procedure applicable to COL contested proceedings provide for model milestones to be used by the Boards as guidelines in developing hearing schedules, and provide broad latitude for the Board and the Commission to take action in individual proceedings – to ensure prompt and effective resolution of matters set for adjudication.

The Commission itself presides over the mandatory hearing associated with a combined license application. The Commission recently approved a process to facilitate timely, effective decisions in these cases. The mandatory hearing process begins upon completion of the NRC staff's Final Environmental Impact Statement and Final Safety Evaluation Report. The Commission's goal is to issue a decision within four months of

the completion of those documents, or after the Commission affirms the related design certification rule, whichever occurs later. The Commission's objective is to evaluate the adequacy of the staff's review, rather than duplicating the time- and labor-intensive, detailed review of the application, which already has been completed by the staff, or revisiting matters previously addressed and resolved in the context of other reviews (for example, review of an early site permit application, or a design certification rule). This high-level review allows the Commission to focus on significant safety, security, and environmental issues, and meet our goal of completing our work within four months of the issuance of the staff's review documents. Our mandatory hearing decision will explain the basis for our conclusions, which will include our determinations on whether the staff's review has been adequate to satisfy each of the safety and environmental regulatory findings required for a combined license.

The hearing process is ongoing for two proposed COL applications. On September 27 and 28, 2011, the Commission held the mandatory hearing associated with the application for Vogtle Electric Generating Plant, Units 3 and 4, and on October 12 and 13, 2011, the Commission held the mandatory hearing associated with the application for the Virgil C. Summer Nuclear Station, Units 2 and 3. To date, both hearings are proceeding consistent with the four-month goal. The Commission is now in the process of reviewing both matters.

**QUESTION 4. I am concerned by the slow pace of review for the AP1000 reactor. When will the NRC Staff complete its review of the amendments to the AP1000? How many NRC Staff people were involved, and do you know how many NRC Staff hours were expended in the review of the design amendments? What were the conclusions? Did the NRC's review of the AP1000 cover: (A) The ability of the plant to survive a severe earthquake; and (B) The ability of the plant's passive cooling system to operate during a loss of offsite power?**

**ANSWER.**

The NRC has completed its technical review of the AP1000 Design Certification (DC) Amendment and issued its Final Safety Evaluation Report (FSER) for AP1000 Design Certification Amendment (NUREG-1793, Supplement 2) on August 5, 2011, to Westinghouse Electric Company. The FSER contains the documentation supporting the NRC conclusions that the DC amendment meets existing regulatory requirements. The proposed Final Rule for the AP1000 Design Certification Amendment was sent to the Commission on October 18, 2011.

The AP1000 DC Amendment review involved NRC staff from over 20 different technical disciplines from six different NRC offices (Office of New Reactors, Office of Nuclear Security and Incident Response, Office of Nuclear Reactor Regulation, Office of Enforcement, Region II, and Office of Nuclear Regulatory Research). The review included such topics as Reactor Coolant System and Connected Systems, Steam Power and Power Conversion, Radioactive Waste Management, Severe Accidents/Probabilistic Risk Assessment (PRA), Design of Structures, Components, Equipment, and Systems,

Engineered Safety Features, and Instrumentation and Control. To date, the NRC staff has spent a total of approximately 52,000 hours on the review.

With respect to your concern about the ability of a plant using the AP1000 certified design to survive a severe earthquake, the AP1000 design is to be certified to a generic site with a defined level of earthquake ground motion. The level of earthquake ground motion was selected by Westinghouse, who then analyzed the plant's design in order to demonstrate that the design could withstand the Westinghouse-selected earthquake ground motion. The level of earthquake ground motion is established in the AP1000 design certification rule (DCR) as a *site parameter*. A combined license (COL) applicant referencing the AP1000 DCR must demonstrate that the actual *site characteristic* for earthquake ground motion at the site where the plant is to be built meets the AP1000-specified site parameter. The COL applicant must comply with 10 CFR Part 100 when determining the actual site characteristic for earthquake ground motion. If the site-specific earthquake ground motion is larger than the AP1000-specified site parameter for earthquake ground motion, then the COL applicant must prepare and submit to the NRC a site-specific analysis, including potential re-design of the safety-related structures for the AP1000.

With respect to your query as to whether the NRC reviewed the ability of the plant's passive cooling system to operate during a loss of offsite power, the AP1000 design relies on passive safety-related systems and equipment to automatically establish and maintain safe-shutdown conditions for the plant following design-basis events, assuming the most limiting single failure. These passive safety systems are designed with sufficient capability to maintain safe-shutdown conditions for 72 hours, without operator actions and without non-safety-related onsite or offsite power.



QUESTION 5. **There has been a great deal of concern about the NRC's handling of the Yucca Mountain licensing. Please provide an update on the status of licensing proceedings related to Yucca Mountain. What specific steps is the Commission taking toward hearing, and ruling upon, the pending appeals of the determination by the Atomic Safety [and] Licensing Board that the U.S. Department of Energy was not authorized to withdraw the Yucca Mountain licensing application?**

ANSWER.

The Commission issued a unanimous Order on September 9, 2011, stating it had found itself evenly divided on whether to take the affirmative action of overturning or upholding the Board's decision. In that Order, the Commission directed the Board to complete all necessary and appropriate case management activities, including disposal of all matters currently pending before it and comprehensively documenting the full history of the adjudicatory proceeding by the close of fiscal year 2011.

Senator INHOFE. Madam Chairman.

Senator BOXER. Yes?

Senator INHOFE. Could I make a request? To accommodate my problem with the Armed Services Committee, Senator Barrasso has been kind enough to agree to take my 5 minutes in addition to his 5 minutes, and I have given him my questions. If we could do that, I would appreciate it.

Senator BOXER. Sure, of course.

Senator INHOFE. Thank you so much.

Senator BOXER. Absolutely. We will miss you very much.

OK. We are going to move along now, to each of you, for 3 minutes each. Our next commissioner is Hon. Kristine Svinicki.

Ms. SVINICKI. Thank you, Chairman Boxer, Chairman Carper and Ranking Member Barrasso and members of the Committee, for the opportunity to appear before you today. Chairman Jaczko has addressed the breadth of the NRC's ongoing activities in the written statement he has submitted on behalf of the Commission. The events at Fukushima in Japan are a sober reminder that nuclear technology is unique and its use requires an unwavering commitment to nuclear safety. We must learn the lessons that these tragic events present.

The NRC has initiated a systematic review of the events in Japan, while maintaining its focus on the safety and security of nuclear materials and facilities here in the U.S. The NRC staff also continues its work on the many routine licensing, rulemaking and inspection activities before the agency. The NRC has been entrusted with the important missions of nuclear safety and security. During my service as a Commissioner, I have found the NRC to be an organization of dedicated safety professionals who are mindful of their important obligations to the Nation. I strive, as a member of the Commission, to enable them in advancing this cause.

Thank you again for this opportunity, and I look forward to answering your questions.

Senator BOXER. Thank you very much, and we move to the Commissioner that I was happy to meet in California, he was visiting the San Onofre plant when I was there. I think that was a very good visit. So it is an honor to welcome you back here, Mr. Apostolakis.

Mr. APOSTOLAKIS. Chairman Boxer, Ranking Member Inhofe and members of the Committee, good morning. I appreciate the opportunity to appear before you today.

I will summarize my impressions of the Fukushima events to date as follows. First, the performance of the NRC staff. I have been a commissioner a little over a year now. During that time, as well as during my 15 years as a member of the NRC's Advisory Committee on Reactor Safeguards, I had plenty of opportunities to interact with the NRC staff at all levels.

I have always been impressed by their technical excellence and dedication to our mission of protecting public health and safety. Our team in Japan confirmed what I already knew. I am told that both the U.S. Ambassador in Japan and the Japanese government have great respect for our team and its advice on technical matters. I am proud of the NRC staff and honored to be an NRC commissioner.

Second, the value of conservative decisionmaking. The plants at Fukushima were subjected to incredibly destructive natural forces exceeding the plant's design limits without reported acute health effects resulting from radiation exposure. In my view, this reflects at least in part the conservatism built into nuclear reactor designs in terms of safety margins. This is a valuable lesson for me as I consider the application of conservatism in our regulatory family.

Third, the importance of decisionmaking during emergencies. The terrorist events of September 11th, 2001, and the aftermath of the Katrina Hurricane, had already brought the issues related to emergency preparedness to the forefront in this Country. The Fukushima accident demonstrated once again the need for a clearly defined decisionmaking process during emergencies.

Fourth, a lesson in humility. There have been numerous safety studies of light water reactors worldwide. I believe that, as a community of safety analysts, we were pretty confident that there would be no new surprises. Fukushima has challenged that belief. We must retain a questioning attitude and ensure that confidence does not translate into complacency.

Thank you, Chairman Boxer.

Senator BOXER. Thank you for those remarks.

We welcome Commissioner Magwood.

Mr. MAGWOOD. Thank you, Chairman Boxer. Thank you, Senator Carper and Senator Barrasso. It is a pleasure to be here this morning to speak to you about these important issues.

The vital importance of understanding and responding appropriately to the lessons of Fukushima weighs heavily on the minds of all who serve on the Nuclear Regulatory Commission. Also, may I add that we continue to send our best wishes to the people of Japan, as they continue the hard work of recovering from the March 11th earthquake.

NRC is a learning organization. We have and will continue to learn from Fukushima. That said, I recognize it will take months and possibly years before all the technical facts associated with the events of Fukushima are fully assessed. While we will learn much from a complete understanding of what happened to the plant and its systems after it was battered by the earthquake and tsunami, we know enough today to review the nuclear regulatory framework of the United States with a critical, post-Fukushima eye. From what we know now, I believe that we will need to make some changes in a variety of areas.

It is our responsibility to take new knowledge and new perspectives and review our regulatory framework. I also believe that the regulated community takes safety seriously and is stepping up to its responsibility to preemptively identify safety issues in the aftermath of Fukushima.

While, as the staff reported to us yesterday, we remain quite confident in the safety of all U.S. nuclear power plants and also in our overall approach to assure safety into the future, there may be opportunities to improve defense in depth. If those opportunities exist and enhance safety, we should seize them.

As our efforts proceed over the coming months, I believe a strong role for experts and stakeholders outside of the NRC will be essential. Many observers have raised important and challenging ques-

tions, and I believe we should engage them directly to assure that our review benefits from their insights. This includes the full engagement of the Advisory Committee on Reactor Safeguards.

As smart and talented as the NRC staff is, even they may not have all the answers. We will, as we have always done, benefit from the open process. Once again, thank you for holding today's hearing. I look forward to working with this Committee as we go forward, and I look forward to your questions.

Senator BOXER. Thank you. And now, Commissioner Ostendorff.

Mr. OSTENDORFF. Thank you, Madam Chairman. I also thank Chairman Carper, Ranking Member Barrasso, for the chance to be here today.

I am fully supportive of the Task Force the Commission chartered back in March, and I am committed to a systematic, methodical review of the events of Fukushima. I know that if we need to make changes, and I am sure there are some changes we will need to make, the Commission will.

The full Commission received a public briefing yesterday in Rockville on what the Task Force has learned so far in the near-term review. The Task Force informed the Commission of its results to date, including the results of our inspections at all 104 reactors, and several key themes in the application of our defense in depth safety philosophy. Those key themes include assessment of protection of equipment from external hazards, mitigation strategies to prevent core damage or spent fuel damage, emergency preparedness and last, how to apply our regulations in a consistent and coherent manner.

Concurrent with our near-term review efforts, the NRC's highly qualified resident inspectors have also inspected licensee implementation of severe accident management guidelines around the Country to ensure that our licensees are able to deal with the loss of power or big damage event to their particular reactor sites. The findings from these inspections will help to guide our decisions going forward with respect to any warranted regulatory changes.

For the longer term, our review efforts will focus on other key areas related to the Fukushima incident. These areas include, among others, station blackout, acts of mitigation, spent fuel pool safety and emergency preparedness. I will echo Commissioner Magwood's comments of the importance of the Advisory Committee on reactor safeguards for an independent technical review.

I am looking forward to evaluating the NRC staff's recommendations in areas where improvements can be made to our regulatory framework. Congress and the public can be assured that our findings will be brought to light in an open and transparent fashion. I appreciate the Committee's oversight role. I look forward to your questions.

Senator BOXER. Thank you very much.

Before I start my questions, I want to respond on Yucca. Because it was important to note that we found out that through a GAO report that Republicans asked for that they terminated, the DOE terminated the project, because it was not a workable option, and that there were benefits associated with this. Now, that is a report that was requested by the Republicans in the House.

And some of the past problems we had with Yucca, the risk that water will seep into the repository and cause the casks holding high level radioactive waste to rust and break, leaking the contents, earthquake faults in the vicinity, and Lord knows, I know too much about earthquake faults and dangerous radiation.

And of particular concern to me, groundwater from Yucca Mountain flows into my State. And the fact that there were tests that showed that water was leaking from the site.

So to me, it is a closed matter. But since it was raised by the Ranking Member on the Subcommittee, Senator Barrasso, I felt it was important to bring everybody up to date that a GAO investigation asked for by House Republicans basically said this was an appropriate decision.

I have some questions here, I am going to focus, starting on the Fukushima and then move to California, try to cover all those bases. Chairman Jaczko, 34,000 children in Japan have been issued personal radiation monitors. Those children live within, they live 40 miles from the plant itself, well outside the 12-mile exclusion zone. Why do you think 34,000 kids were given radiation monitors?

Mr. JACZKO. It is my understanding there has been a lot of discussion about the protective actions for children in Japan, as well as in general with all of the people living in Japan. The Japanese government continues to evaluate the actions that they have taken with regard to protecting all of their population. This is a very complicated situation and I think as the international community begins to look more and more at what happened in Japan, there is a lot of interest and effort in attempting to come up with a more common set of guideline for what types of protective actions are appropriate.

Senator BOXER. OK, well, wait a minute, this isn't about protective. This is about exposure. So I would just say, since we want to learn from this, if your answer was because the Japanese government has been bombarded by parents, I would say that is a better answer. Because that is my understanding. And let's just note, we can't have an accident like this, is my point. Because you can't, kids are going to school there. They live 40 miles, and the parents don't feel good.

Now one of the things, I am going to ask Commissioner Ostendorff on this, because I don't want to give you all the hard questions. Because this is a hard one. Help me with this.

The Japanese government has raised the legal limit for exposure since the plant was devastated, since the plant was devastated by the March 11th earthquake and tsunami. Prior to the accident, the annual permissible dose was 1 millisievert per year, and now it's 20 millisieverts.

Now, that sounds to me very suspicious. Why would you all of a sudden find out, oh, we can be exposed to more radiation? Were there any studies that were done that said that level is safe and that's why they raised it? Or did they raise it because the people were exposed to more than one?

Mr. OSTENDORFF. Madam Chair, I am personally not aware of there being any studies that informed that decision. But I do not have the detailed knowledge of what the Japanese government may

have considered in that area. I do agree that is a significant change to radiation exposure levels.

Senator BOXER. OK, well, can I just ask the Chairman to work with the commissioners and try to see if you can do a little more investigation on this? Because I don't want to see that happen where, after an accident, we say, oh, it is OK, you are exposed to what we thought was the limit, but we are changing the limit. It doesn't make it OK.

I wanted to ask you about, Chairman Jaczko, I will get back to you. On April 11th, PG&E asked the NRC to delay final processing of the Diablo Canyon license renewal application until they complete their 3D seismic studies. I think that was a smart thing they did, and the right thing. According to press accounts, the NRC is moving forward with safety and other reviews of Diablo in preparation for a ruling on this request. So I guess what I want to ask you, is it usual, if they have asked for a delay, do you normally grant the delay, or is that something that is not going to be automatic unless you take a vote? How does that work?

Mr. JACZKO. What PG&E asked for specifically was that we delay a final decision. They did not actually ask us to delay the review. But what we have done is we have moved forward with the safety component of the review, but held open a piece of that review pending the analysis of the seismic studies.

In addition, we have held off and won't finalize the final environmental impact statement until the final 3D assessment is done. So we are effectively waiting for that 3D assessment to be completed before we complete our actions on the review.

Senator BOXER. OK. Well, let me just say, from a very concerned Senator, and I speak for my fellow Senator and for the people in my State, if you were looking at a new proposal and it came to you on an earthquake site, where we have had studies that show the faults are getting worse, not better, and the tsunamis are going to get worse, not better, I would assume you would say, take your plant somewhere else. What I am hoping that you do is understand. Both of these plants have had enormous increase in population since they were approved, especially San Onofre, which has now 7.4 million people living within 50 miles. They are on earthquake faults, they are right along the coast. You have identified issues and problems.

I think it is very important that when you look at this in a humble way, as the commissioner pointed out, and I appreciate so much the tone of his remarks, I think we are all humbled by what happened, that you look at this with the eyes of the people living there who are in a situation where, when I went to San Onofre, one of the women, she was actually a PR person, pulled me aside, and she said, you asked what the evacuation plan is there. They don't really have any. She said, here is our evacuation plan. Rush hour on the freeway.

Now, anyone who has been to Southern California in rush hour on the freeway, that is not acceptable. So I am urging you, do not rush these.

We also in California, I don't know whether Vermont is No. 1 in energy efficiency or California, we may be No. 1. But the bottom line is, in our State, we have a lot of sun, we have a lot of wind.

We have a lot of geothermal. And yes, there may be places for nuclear power that are not on earthquake faults or near tsunami zones. So please put on those safety hats. We will be working very closely with you. I don't want to see a rush to relicense these plants. It would not be fair to the people.

Senator BARRASSO, you have 10 minutes.

Senator BARRASSO. Thank you very much, Madam Chairman. I am glad to see the full Commission here with us today. I am particularly pleased to see Commissioner Ostendorff, thank you very much for being here. I congratulate you on your recent nomination by the President to serve again on the Commission. Your background is extensive. Prior to being sworn in as commissioner, you worked as an engineer, legal counsel, policy advisor, naval advisor. Among your many jobs, you were Principal Deputy Administrator at the National Nuclear Security Administration, a member of the staff of the House Armed Services Committee, serving as staff director of the Strategic Force Subcommittee, and a captain in the Navy, commanding an attack submarine squadron. I could go on and on.

I would like to ask the Chairman, having served with Mr. Ostendorff on the Commission, do you believe that the Senate should confirm Commissioner Ostendorff as quickly as possible before his term expires?

Mr. JACZKO. I would leave it up to the Senate to decide that, but I certainly have had a good and productive working relationship with him and I think he is a valuable member of the Commission.

Senator BARRASSO. Thank you. It is interesting, because I agree with Senator Boxer, in our efforts on safety and our concerns about safety, I know that you had spoken at a symposium in Virginia, Mr. Chairman, were you said employees, both of the NRC and industry, must feel empowered to ask the difficult questions. Ensuring this happens is at the core of safety culture. And when we look at industry, we want safety for workers, for others, for communities. And you have to be able to ask questions. Do you agree with that statement? I see you nodded your head yes.

Mr. JACZKO. Absolutely.

Senator BARRASSO. And I know you are aware that the Office of Inspector General issued a report on June 6th that has been widely referenced in the press, your statement on June 8th stated that you appreciated the thoroughness with which the Inspector General and his staff conducted this comprehensive review. Do you still agree with that issue about the thoroughness?

Mr. JACZKO. Yes.

Senator BARRASSO. Thank you, nodding your head yes. Well, according to the report, and I have read it, and the New York Times has done an extensive reporting on it on June 11th, it says "Mr. Jaczko created a hostile workplace atmosphere with frequent outbursts of temper, favoritism in travel assignments and selective release of information to other members of the Commission." And Madam Chairman, I ask that the entire Inspector General's report be made a part of the record.

Senator BOXER. Without objection, so ordered.

[The referenced information was not received at time of print.]

Senator BARRASSO. Thank you.

Mr. JACZKO. Senator, if I could just comment, those were not findings of the Inspector General. They were comments in the report of individuals that they interviewed. There is a distinction between those as far as the review goes.

Senator BARRASSO. Well, continuing, I would say that with safety and a sense of a feeling of someone being able to speak out and feel intimidated or feel pressured to not speak out, where there is a finding in a report or a statement of someone who has felt that way, they may be less likely to speak out. Because the Inspector General's report goes on, it says, "Over the course of the investigation, a number of interviewees," as you say, "a number of interviewees conveyed their perception that the Chairman controls and restricts the information available to his fellow commissioners, and noted concerns about his interpersonal style." It goes on, "Several current and former Commission staff members said the Chairman's behavior caused an intimidating work environment."

A former chairman told the Office of the Inspector General that the Chairman often yelled at people and his tactics had a negative effect on people. He described this behavior as ruling by intimidation. The former chairman said he—

Senator SANDERS. Madam Chair, if I could, I am not clear. Who is making these statements?

Senator BARRASSO. This is in the report—

Senator SANDERS. I know it is in the IG, but this is not the IG that is making this—

Senator BOXER. An unnamed staffer.

Senator SANDERS. An unnamed staffer?

Senator BARRASSO. People that are members of the staff and a former chairman said—

Senator SANDERS. A former chairman?

Senator BARRASSO [continuing]. described the behavior as ruling by intimidation. The former chairman said he verbally counseled the chairman—

Senator SANDERS. Is the former chairman still active in the NRC?

Senator BARRASSO. The former chairman counseled this Chairman on his behavior on two occasions before leaving the agency. It is page 43 of the report. And I don't want to use my time as part of the questioning.

Senator SANDERS. I am sorry, yes.

Senator BARRASSO. But I am happy to share this report. And my question is, I am focusing on a culture of safety. So I want to make sure that we are getting that culture of safety. And if people feel intimidated and they work there, I worry about that. I worry about that in coal mines, I worry about that in industrial sites, I worry about that on the railroads, I worry about that throughout the State of Wyoming and I worry about that also from a nuclear power issue.

Yes, Mr. Chairman?

Mr. JACZKO. I worry about the same things. And since I have become Chairman, I have worked very hard to ensure that we have an open debate and dialog at the Commission. It is no, I am a very passionate and intense person. I have, hold people accountable for



their actions at the agency. And that is what I have done since I became Chairman.

But I would note that all of those statements that you read were not findings of the IG, which means that they were statements that some people made and they couldn't corroborate them, they couldn't substantiate them to the point that they became an official finding.

As I said, as Senator Carper has said, we can always work to make everything we do better. And every day I come to the NRC, I work to do my job better. And there are going to be difficult issues and difficult discussions that we will sometimes have at the agency. I feel very strongly that the staff, I have not experienced staff being shy around me and being unwilling to tell me they think. So while sometimes I express my thoughts about what I think to them, I have been very comfortable that we have an open and—

Senator BARRASSO. Do you agree with the Washington Post that Yucca Mountain is a \$15 billion hole to nowhere?

Mr. JACZKO. It is not really something that is in my role and responsibility to comment on.

Senator BARRASSO. Thank you. You mentioned my colleague from Delaware and his comments about the State of Nevada perhaps making a decision to change their mind on Yucca Mountain. But it seems to me that Nye County, the home county, the folks there still did want Yucca Mountain to proceed and still did want those jobs and did want that opportunity.

To get to Senator Inhofe's questions, and Madam Chairman, if I run out of time I would like to just submit the others for the record.

Senator BOXER. Of course.

Senator BARRASSO. The Energy Reorganization Act that the Chairman is exercising his executive administrative functions, it says, "shall be governed by general policies of the Commission. The Commission, through its internal Commission procedures sets forth procedures for the Chairman to follow in exercising the emergency authority under Section 3 of the reorganization plan." I have that section here.

There have been some concerns, because you have used your emergency authority. I read it, it says you shall have it for a limited period of time, any chairman, should have it for a limited period of time, and it requires additional reporting to the other members.

So I would ask the other members who are sitting here if you can tell me, when did the Chairman inform you that he ceased using his emergency powers under Section 3? Has that happened?

Ms. SVINICKI. I received no such notification.

Mr. APOSTOLAKIS. I did not, either.

Mr. MAGWOOD. Never received notification.

Mr. OSTENDORFF. I have not received any notification.

Senator BARRASSO. OK. Because the Chairman is required, both in statute and Commission procedures, to provide a complete and timely report to the Commission on actions taken while exercising the authority. So you have not yet received a report, it sounds like, if you haven't gotten notification.

Mr. Chairman, when you testified before this Committee back in April, and these are Senator Inhofe's questions, when you testified back in April you stated that "most of the activities" that you had engaged in as part of this response "have been in my normal supervisory authorities over the staff at the agency and my communication responsibilities." Senator Inhofe asked for a full account of the actions that you took outside of your normal authority, because you had said "most of the activities." So will you commit to provide a report to this Committee detailing the actions during your exercise of emergency authority?

Mr. JACZKO. Of course.

Senator BARRASSO. Thank you.

Mr. Chairman, also, in your testimony before the House Energy and Commerce Committee in May, you stated that you were not "required" to make a formal declaration of your decision to use emergency authority under Section 3(a) of the reorganization plan and go on to, I can read the whole plan, but in the interest of time, why did you choose to keep secret the fact that you were transferring to yourself functions vested in the Commission?

Mr. JACZKO. The Commission was fully aware that I was exercising my emergency authorities. I did not keep that secret. I did not make a formal declaration, because that is not part of the process.

The Commission was briefed three times a day by the staff, or rather, staff was briefed three times a day during the accident about all the actions that were being taken. They were provided with situation reports that were, at the outset of the incident, produced at least three times a day. I spoke with them at least once a day. Generally, as much as time allowed in the initial part of the incident.

So there was a tremendous amount of communication to my colleagues. They were fully aware of all the decisions that were being taken by the agency and then ultimately by me in my role as Chairman.

Senator BARRASSO. So I would like to ask each of the four other commissioners, when did you first learn that the Chairman had taken on emergency powers?

Ms. SVINICKI. I did not receive any declaration as the Chairman has stated. He made no declaration.

Senator BOXER. The question was when did you learn about it, not whether you received notification.

Ms. SVINICKI. My understanding is that NRC's Office of congressional Affairs informed this Committee of the exercise of emergency powers. And I believe I learned of it then.

Senator BARRASSO. Have you been specifically informed by the Commissioner that he was taking over?

Mr. APOSTOLAKIS. No, I was not.

Senator BARRASSO. Commissioner Magwood.

Mr. MAGWOOD. Yes, just echoing Commissioner Svinicki, I first heard about it when we heard that the Office of congressional Affairs had notified this Committee. That was the first time I heard it.

Mr. OSTENDORFF. Senator, I did have a discussion with the Chairman on March 31st, in which I understood at that point in

time that it appeared to me he was exercising emergency powers, though there had not been a formal statement to that effect.

Senator BARRASSO. Mr. Chairman, final question from Senator Inhofe, he sent you a letter outlining his concerns regarding your exercise of emergency authority, asked you to provide any legal analysis that supports your transfer of Commission functions to yourself. He said you have not provided one yet. Are we to conclude that you chose to exercise the authorities without seeking any legal counsel? And perhaps you want to seek legal counsel and respond to Senator Inhofe on that.

Mr. JACZKO. No, that is incorrect. I sought legal counsel. There is no question my authority in this case, and I have plenty of documentation from the general counsel to support that.

Senator BARRASSO. Thank you, Mr. Chairman. Thank you, Madam Chairman.

Senator BOXER. Thank you.

I am going to place in the record a document backing up what Chairman Jaczko has stated. There is no requirement for an emergency declaration at all. And we will put the actual language into the record. Because this kind of questioning is to me extraordinary, asking if you did something that you don't have to do. And having every commissioner say no, he didn't do it. Yes, you didn't have to. It is mind-boggling around here.

OK, we are going to turn to the Subcommittee Chairman now, Senator Carper.

Senator CARPER. I want to go back to what I thought this hearing was to focus on, and that is, what have we learned. Before I do that, I just want to encourage all of you in the roles that you are playing on the commission, whether it is as a commissioner or as the chairman of the commission, one of the best leadership rules I ever learned in the Navy and then a lot of other places, including my own home, was to follow the Golden Rule, treat other people we want to be treated.

I would just remind all of you, that is the way I try to live my life. Sometimes fail miserably. I try every day. I implore you to do the same, whether you are the Chair or a member of this Commission. Treat other people the way you want to be treated.

The Chaplain here, Barry Black, with whom some of us will be meeting in a couple of hours, those of us who need special help, special guidance from the Chaplain, meet with him on Thursdays for half an hour or so. But he always reminds us that the Golden Rule is the Cliff Notes of the New Testament. And as it turns out, it is the Cliff Notes of just about any scripture of the major religions of the world.

Having said that, let's talk about lessons that we have learned, lessons that we have learned so far since the tragedies at Fukushima. I just want to ask, I will start with you, Commissioner Ostendorff, just give us one example of a lesson that we have learned that we have or have not begun to act on, to implement some followup in this Country because of that.

Mr. OSTENDORFF. Senator, thank you for your question. I would say one area that has come up by the Task Force at two meetings we have had so far has been the need to evaluate the adequacy of our existing station blackout rules, which deal with the loss of A/

C power onsite offsite. I think that the Commission will probably receive from the Task Force perhaps some recommendations in this area. That is a concrete example that I provide to you.

Senator CARPER. All right, thank you.

Mr. Magwood.

Mr. MAGWOOD. I would agree with Commissioner Ostendorff on station blackout. I would also add—

Senator CARPER. That is good, and for anybody, if you want to repeat something that somebody else has said, just for reinforcement, that is a good thing. I appreciate that. But then you still have to give me another example.

Mr. MAGWOOD. One other example, one that I think leaps out at many of us, after 9/11 we put in place certain procedures and equipment to allow plants to respond to events that require emergency cooling from auxiliary diesel generators to drive pumps to provide water to core reactors and spent fuel pools. We require those units be just a very short distance away from reactor buildings. Clearly, if we had those procedures in place and had experienced a Fukushima type event, that equipment would have been wiped out along with a lot of the other site equipment. That was a significant revelation for me and something I think we have to address.

Senator CARPER. All right, thank you.

Dr. Apostolakis, how are you doing?

Mr. APOSTOLAKIS. I am doing fine, thank you.

Senator CARPER. Nice to see you.

Mr. APOSTOLAKIS. One thing that maybe I have learned is that we, that I think at least we should go back and look again at the distinction between design basis events and beyond design basis events. That is a legal distinction. The agency has many, many requirements and inspection requirements and so on for design basis events. For beyond design basis events, we don't really get involved too much.

And of course, nature doesn't work that way. Nature does not distinguish between design basis and beyond design basis events. So I think we ought to go back and look at what we are doing now with respect to beyond design basis events and maybe get some ideas from the staff as to how we can strengthen our involvement. This is of course a personal view.

Senator CARPER. Good. Ms. Svinicki, one lesson?

Ms. SVINICKI. I certainly agree that we should look at station blackout and loss of offsite power. I also agree that we need to re-look at the measures put in place after September 11th to deal with catastrophic events.

I would add an area that is fruitful for lessons learned would be looking at our coordination between Federal agencies and State and local governments, should an event occur. It is always very difficult to have communications in a crisis situation. I think that is an area that we can always be exercising and improving. Thank you.

Senator CARPER. All right, thank you. Mr. Chairman?

Mr. JACZKO. Certainly I think they are good comments by my colleagues. The only thing I would add that hasn't been touched on is the significance of spent fuel pools. I think we have had a sin-

gular focus, perhaps, on reactor safety in the event of accidents, and have not put enough attention to considering the impact of spent fuel pools. Not necessarily for the pools themselves, but for how they could possibly impact the ability to carry out response at the site.

The other piece of that I think is just a recognition that our traditional approach has always been to assume a single incident at a single reactor. Clearly, Fukushima Daiichi has shown us that we have to consider the possibility of multiple units at a single site, perhaps multiple spent fuel pools being affected at the same time.

Senator CARPER. Thank you all. Thank you, Madam Chair.

Senator BOXER. Thank you. Senator Boozman.

Senator BOOZMAN. Thank you, Madam Chair. And again, thanks for the hearing.

I guess I would say that our Country is well served when you as a Commission function collectively and collegially. When you do, you can pool your expertise and more effectively harness the knowledge at your disposal.

I have concerns that the Commission may not be fully utilizing the expertise on their Advisory Committee on Reactor Safeguards, the ACRS. The Advisory Committee is mandated by law and structured to provide a forum where experts representing many technical perspectives can provide independent advice that is factored into the Commission's decisionmaking process. The Advisory Committee again represents a wealth of knowledge in reactor safety and severe accident occurrences. I am concerned that they have been so far limited to merely reviewing the NRC's staff's conclusions at the end of their long-term review of the Fukushima accident.

My question is, the NRC's direction for the Fukushima Task Force lists no role for the ACRS, other than reviewing the staff's final report and the end of the longer-term review. Mr. Chairman, considering the ACRS's wealth of expertise in nuclear and reactor safety and severe accidents, wouldn't the NRC's Task Force benefit from the insights throughout the Fukushima review?

Mr. JACZKO. Well, the staff has briefed the ACRS once already. Very early on in the incident they held a meeting and they briefed them. The senior staff members will also be briefing the ACRS, I believe next week. So there has been dialog and interaction between the ACRS. But the Commission did provide a role for ACRS in the longer-term review. But given the significant task in front of us and the very short period of time in which we asked the Task Force to work, we really wanted them to focus on their best thinking and utilize and reach out to the people that they thought would be most helpful.

In my discussions with the ACRS, I have encouraged them to make their members available to the Task Force if the Task Force had questions and wanted to reach out to them. The ACRS was not comfortable with that. They preferred for them to meet singly as a body. I think that is unfortunate, because as you said, I think they have tremendous expertise that could be made available to the Task Force. But their interest is not to do that in a way that would be most convenient for the Task Force.

Senator BOOZMAN. Would the rest of you like to comment in that regard? Do you feel like increased use of the ACRS would be beneficial?

Ms. SVINICKI. Senator, as the Chairman noted, the Commission did explicitly instruct that one tasking for the ACRS to review the final report. But in general, the ACRS Chairman can also initiate inquiries and look into matters. I am fully supportive of the ACRS doing some self-directed looks at Fukushima as well.

Mr. APOSTOLAKIS. Yes, I am a former chairman of the ACRS. And I can assure you that there is no doubt in my mind that we will hear from them and they will give us their frank opinion. There is nothing to stop them from writing letters any time they want.

Senator BOOZMAN. And you agree that is helpful?

Mr. APOSTOLAKIS. Yes, absolutely.

Mr. MAGWOOD. Yes, Senator, I am fully supportive of a full participation by the ACRS, particularly in the longer-term review.

Mr. OSTENDORFF. Senator, I agree with my colleagues. I also agree with the Chairman's comment that the ACRS role in the longer-term review is perhaps, as far as our Task Force tasking, is appropriate. But as Commissioner Apostolakis says, to the extent that they have other ideas as to what might be helpful, I welcome those.

Senator BOOZMAN. Very good. I believe that Chairman Issa sent a letter regarding this, are you familiar with that, Mr. Chairman?

Mr. JACZKO. Yes, I am.

Senator BOOZMAN. Good. I think he asked for a response by June 9th. Have you sent a response yet?

Mr. JACZKO. I don't believe I have yet.

Senator BOOZMAN. OK. Do you have any idea when that will be done?

Mr. JACZKO. I assume in the next couple weeks.

Senator BOOZMAN. Would you, again, I am interested also, would you share the response with the Committee when that is done?

Mr. JACZKO. I would be happy to.

Senator BOOZMAN. Good. Thank you, and I appreciate you all being here. Thank you, Madam Chair. I yield back.

Senator BOXER. Thank you.

Senator Sanders.

Senator SANDERS. Thank you, Madam Chair.

I believe that it was Commissioner Magwood who, in his remarks, said something to the effect that the NRC can benefit from an open process. And I happen to agree very much with what the Commissioner said. In that light, let me ask Chairman Jaczko just a few questions. Mr. Chairman, your position, as I understand it, has been that the NRC should not be involved in preemption issues, the legal fight that is currently going on between the State of Vermont and the Entergy Corporation. Is that still your position?

Mr. JACZKO. I certainly, as I have looked at the issues, I don't see an immediate issue here where there is a concern for preemption. I don't want to get into the specifics, though, of kind of the legal question that was in front of the Commission to protect that, those frank legal discussion from our staff.

But as I have said publicly, the States have a role here. The Federal Government has a role. And I think we have taken our action with our license extension, and the State has permanent action, those things are necessary in order for license.

Senator SANDERS. So just to say it again, at this moment, you do not believe that the State, that the NRC should get involved in the legal dispute between the Entergy Corporation and the State of Vermont? Am I hearing you say that NRC should not be involved?

Mr. JACZKO. Again, Senator, I don't want to comment specifically on the matter in front of the Commission, because that is a privileged discussion. But certainly I have seen nothing that would tell me that there is a preemption issue here.

Senator SANDERS. OK. Again, getting back to Commissioner Magwood's very apt statement, which I strongly agree with, that the NRC benefits, and we all benefit, from an open process, my understanding is that there was a vote yesterday at the NRC on the issue in fact of whether or not the NRC should be involved in this case. Can you tell me what the vote was, Mr. Commissioner?

Mr. JACZKO. Well, again, the matter in front of the Commission was in our, one of our legal discussions. And we generally like to keep those closed matters. Because it preserves the opportunity for our legal counsel to give us frank legal recommendations.

Senator SANDERS. Well, you may not like it, but I am going to pick up Commissioner Magwood's point again about our open process. Your job is to represent the best interests of the people of the United States of America on very difficult issues. My understanding is that there was a vote yesterday on whether or not the NRC should recommend to the Department of Justice as to whether or not they should intervene on behalf of Entergy. Can you tell me if I am right and what the vote was on that?

Mr. JACZKO. As I said, at this point the Commission has not released those documents. I certainly would be in favor of providing them to you, with the understanding until we were to agree to release them publicly that you not release them.

Senator SANDERS. Well, I don't want them if they can't be released publicly. I would like them released publicly and I would like a member of the Commission now, Commissioner Magwood, you believe in an open process. Will you tell us how you voted yesterday?

Mr. MAGWOOD. I can really only echo what the Chairman just said. It is a privileged discussion and it is also a discussion that the agency has had with the Department of Justice. It is not something, in fact, we were specifically asked not to comment on it by the Department of Justice.

Senator SANDERS. Well, I am asking you to comment on it.

Mr. MAGWOOD. I am afraid I can't do that, Senator.

Senator SANDERS. And one of the reasons, well, let me ask Commissioner Svinicki, will you tell me how you voted yesterday?

Ms. SVINICKI. Senator Based on inquiries from your office regarding this legal, this ongoing litigation, I asked my counsel to inquire and receive advice and confer with the Justice Department. The Justice Department asked that I emphasize two things in my response. First of all, that the Justice Department has the litigating

authority and is the sole decisionmaker on any Federal Government involvement in this matter and they also——

Senator SANDERS. But you can and apparently did make a recommendation to the DOJ, is that correct?

Ms. SVINICKI. There are interagency, the litigation posture of the United States is under active deliberation by the Justice Department. And they have asked that in our testimony today we not comment any further.

Senator SANDERS. All right. Madam Chair, I won't waste a whole lot of time asking all the commissioners. I suspect I will get the same answer, and I find that a disturbing answer.

Let me ask Chairman Jaczko if he could tell me, what did the non-partisan general counsel's office recommend to the Commission about this matter?

Mr. JACZKO. Again, in order to preserve the integrity of their advice, I would rather not comment. I would just say personally, I do think historically it has been very rare for the agency to get involved in preemption issues. It is a very high threshold for us to get involved. And I think it should be a very high threshold for us to get involved.

Senator SANDERS. My last question, I am running out of time now, let me ask the chairman, has Entergy or its representatives or the nuclear industry as a whole come in to meet or requested to meet with the Commission or the NRC staff about this litigation?

Mr. JACZKO. There were meetings between Entergy officials and staff at the agency. They requested meetings with commissioners under guidance from the Department of Justice. I can only speak for myself in that regard, I did not take the meeting.

Senator SANDERS. You did not meet with them, but staff did?

Mr. JACZKO. I believe that they had a meeting with some of our staff, correct.

Senator SANDERS. Have representatives from the State of Vermont met with your staff? Have they been invited to meet with your staff?

Mr. JACZKO. I am not aware of that.

Senator SANDERS. OK. Madam Chair, I may want to get back later, but my time has expired.

Senator BOXER. We will have another round.

Senator Merkley.

Senator MERKLEY. Thank you very much.

I want to turn to some of the issues that were raised by Fukushima. One of those is regarding vent systems. And here in the United States, there is a point in time in which we recommended that vent systems be hardened and if someone could choose to just kind of quickly describe what was done in that hardening and whether that was fully implemented across the nuclear power plants across America.

Mr. JACZKO. Well, Senator, I believe all of our boiling water reactors, as ultimately really kind of a voluntary initiative, did harden the vents, which ensures that they are able to withstand the pressures in more of a design basis accident scenario. The event in, it is still unclear exactly what the source of hydrogen was and the challenges with the venting at Fukushima, whether it was a failure



of the vents themselves or whether there was some other leak in one of the systems that would have allowed the hydrogen to accumulate where it did.

So at this point, it is not clear exactly what role they played. But that again is something that our Task Force will be looking at very closely. I expect some very significant recommendations on future changes to our requirements for the hardened vents and other means to monitor and control hydrogen accumulation.

Senator MERKLEY. So one of the other issues that has been discussed in the past has been automatic depressurization systems. And there has been debate over whether a design should be implemented that allows pressure to be automatically decreased or whether there should be a human in the link, if you will. And I have received some conflicting understandings of what was decided and what has been done on nuclear power plants in America in that regard. Can you comment a little to that?

Mr. JACZKO. On that particular issue, I am not as familiar with it. But we can get back to you with some detailed information.

Senator MERKLEY. Is there anyone who is familiar with it? So the general understanding at the press level has been that the hydrogen gas that occurred in 1 and 3 came from fuel rods in those active reactors that were partially uncovered. Mr. Chairman, you are proposing that is perhaps not the reason? What are the other potential sources?

Mr. JACZKO. Well, again, the hydrogen would come from some type of interaction with exposed fuel in the water and air. That is essentially how you generate the hydrogen. So Unit 4 in particular, there is still some uncertainty about where the hydrogen came from there, whether it was from the spent fuel pool or whether it came, what I think is kind of the dominant theory right now is that the vent lines themselves, and the actual exhaust stack that goes from Unit 3 potentially had a, did not have a valve that prevented the hydrogen from flowing into the Unit 3 vent into the Unit 4, and therefore it kind of went back through the pipes essentially.

Senator MERKLEY. So I want to stick to 1 and 3, we will leave the mystery of Unit 4 apart right now. The whole point of venting is so that the explosion occurs outside rather than inside a vessel. And clearly, something went wrong. What do we think went wrong?

Mr. JACZKO. Well, certainly the fuel was uncovered. When the fuel is uncovered, it is likely going to produce hydrogen. Now, the plants are designed so that hydrogen will pool in essentially what is called the wet well. And then there is a vent, this so-called hardened vent, that takes that hydrogen from the wet well and releases it out into the atmosphere.

Somewhere in that system, there was a failure and that hydrogen was allowed to accumulate in an area where it shouldn't have accumulated, and therefore there was ultimately an explosion. But at this point, the details are still not yet clearly defined as to what the exact path of that hydrogen was from the accumulation from the fuel.

Senator MERKLEY. So my understanding is the explosions occurred after the venting began but there is no insight yet as to what went wrong in terms of whether the explosion began on the

outside, ignited the hydrogen inside, so on and so forth? There is just a—well, this is a pretty important issue for us to understand. Because it is key to a lot of the complexities that have come about in the effort to rescue the reactors.

Commissioner Magwood, you noted that the Fukushima shows insights about specific safety improvements. What are the top five?

Mr. MAGWOOD. What are the top five improvements?

Senator MERKLEY. Yes, you said that Fukushima gives us insights on the needs we have for specific safety improvements. What are the top five for American power plants?

Mr. MAGWOOD. I am not sure I can give you a top five. I think that is really what we are expecting this Task Force to do for is. But just an overall—

Senator MERKLEY. What are a couple that you would highlight for us?

Mr. MAGWOOD. Well, an observation I would make is that if there is, I think Senator Barrasso asked earlier what it was, or maybe Senator Carper, what a lesson was. If there is an overall lesson to be learned from this, I think it is that you can't, as I think Senator Boxer said earlier, you can't predict everything that will happen in the future, you can't predict every earthquake, every tsunami.

But I think the biggest lesson I take from all this is that you have to be able to recover from whatever happens. So for me, the biggest safety message is to position equipment, have training, to have the capability to recover from whatever incident transpires and to be able to do so in an effective manner.

Senator MERKLEY. Well in order to do that—I am over my time now. I would just leave you with this thought. In order to do that, one has to have an understanding kind of what are the highest risk areas, so that the training can be appropriate, the countermeasures can be appropriate, the preventive measures are fully pursued. I would think at this point, we would have a list of the top five concerns, be they not having backup power that is susceptible to being flooded by tsunami, might be one example.

Thanks.

Senator BOXER. Thank you.

Senator Lautenberg.

Senator LAUTENBERG. Thank you, Madam Chairman. In view of some of the assertions that we heard that were made, how many employees are on the staff of the NRC?

Mr. JACZKO. Approximately 4,000.

Senator LAUTENBERG. Four thousand. OK. I think it is important to note that is a pretty large size organization.

Mr. Magwood, the GE Mark 1 design that was used at Fukushima is also used at U.S. plants, including two reactors in my State of New Jersey. Some have said that modifications to the design in the United States ensures the safety of the reactor. But it now appears that the Japanese plant also previously made the modifications like the ones that were made at plants in the U.S., and if those modifications could prevent what finally happened in the Japanese accident, can we believe that our plants are not similarly vulnerable?

Mr. MAGWOOD. I think that is a very important question that we are all asking ourselves today. By the way, I did visit Oyster Creek some months ago and learned a lot about the Mark 1s during that visit. I think that what we are finding today is that there are still facts dribbling in from Fukushima, there are still some very basic things that we are still trying to understand about what exactly were the modifications that the Japanese performed at the Mark 1s in Japan. We really don't have all those details yet.

We don't know, and I think the Chairman was indicating this, we don't really know what happened to the vents during the earthquake and the following tsunami. There are so many factors yet that we still have to sort out, that it would be premature to make a judgment at this point. But right now, today, the staff has indicated that they believe the plants are safe. Unless we learn something dramatically different from what we know today, we will continue to believe that.

Senator LAUTENBERG. I am not sure that is reassuring to the public. But Mr. Chairman, do you have anything to say about that?

Mr. JACZKO. Well, I think the review we are doing is to make sure we get this right. And what we want to make sure that we do is we don't follow something that is an incorrect path, that we don't take early information that turns out to be inaccurate and pursue it and make changes that ultimately don't impact safety.

So as Commissioner Magwood indicated, the venting process is still a little bit uncertain. Because there is still too much radiation for people to really get into the buildings to begin to remove debris, to try and figure out exactly what happened in the units. So right now, we have done, as part of the reviews and the Task Force review, we have always asked ourselves the question, are the plants still safe, is there anything we need to do today to address that.

And the answer continues to be, no. We want to get good information. We have time to do that. The likelihood of something like this happening in the United States is still very, very, very small. Because these are really very, very unlikely types of events.

So it is very important, 90 days may seem like a very long time to do this review.

Senator LAUTENBERG. It does.

Mr. JACZKO. To the people doing the review, it is going by in a millisecond, because they have done so many interviews, there is so much information for them to process. But it is important that we get it right. I think that so far, they are looking at all the right things. I think they are going to come out with very good—

Senator LAUTENBERG. My concern included the length of time that it is taking to do this. But you have already dealt with that.

The spent fuel, and I address this to any and all of you, the spent fuel can be stored in pools, as it was at Fukushima, the plant in Japan, or dry casks. Now, we have heard from you that spent fuel and dry casks are both, each one is a safe method of storage. But is one more reliable than the other, safer than the other?

Mr. JACZKO. Each of them I would say has different strengths and weaknesses.

Senator LAUTENBERG. That is not—I think we should get past that and really, can we clearly say yes, one has a safety edge that the other doesn't have?

Mr. JACZKO. With all the information we have right now, I would say no. They both provide a very robust way to maintain spent fuel cooling and to maintain the spent fuel. Now, we may find with all this new information from Japan that spent fuel pools may provide additional vulnerabilities that make them less of an optimal approach for storing fuel in the long term.

But right now, with the information we have, what we know is that they are both very, very safe ways to store fuel. And there doesn't really seem to be an obvious difference between one approach versus another. But again, we are really looking closely at what happened in Japan, and we may get some information from that tells us that there really is a difference, and if there is, then we will do whatever we need to do to our regulations to do that.

Senator LAUTENBERG. That universal, each of you, have each of you looked at this fairly in depth and come up with the conclusion that we have just heard?

Ms. SVINICKI. I agree with Chairman Jaczko.

Mr. APOSTOLAKIS. I do also.

Mr. MAGWOOD. I agree with the Chairman. I would add one other fact. I think that while I believe, I agree with the Chairman, there are different aspects of wet and dry storage, and they both have their attributes. But probably the less safe thing to do with spent fuel is move it around a lot. So before you make a decision about whether to relocate spent fuel, you also have to take into consideration the risks involved in simply transporting this spent fuel around from wet storage to dry storage or whatever you want to do, because that's where the risks are the highest.

Mr. OSTENDORFF. Senator, I would agree with the Chairman's comment and Commissioner Magwood's comment. I would also add that our Office of Research is looking right now at a differential risk calculation between leaving the spent fuel in a pool as opposed to putting it in a dry cask at different periods of time. So that will be informing the Task Force recommendations.

Senator LAUTENBERG. Thank you. Thank you, Madam Chairman. Thank each of you.

Senator BOXER. Thank you so much. We are going to continue, going to do another round.

Chairman Jaczko, it is my understanding that the NRC staff will report their recommendations from this initial phase of the review to the commissioners on July 12th, and the commissioners will hold a meeting concerning those recommendations on July 19th. A lot of us are really anxious to see those recommendations.

Will you assure me that the report containing the recommendations is delivered to my office and Senator Inhofe's office on the day it is delivered to the commissioners?

Mr. JACZKO. Absolutely. I mean, again, I would say that is a decision probably for the commission, but certainly I would.

Senator BOXER. Well, I will ask each commissioner. Can you assure me that you will release that report to me and to Senator Inhofe?

Ms. SVINICKI. I support that action.

Mr. APOSTOLAKIS. Yes.

Mr. MAGWOOD. Yes.

Mr. OSTENDORFF. Yes.

Senator BOXER. Excellent. OK.

Ms. Svinicki, you testified at your confirmation hearing, when I asked you a series of questions about Yucca, and I sent it up and said, so you didn't work directly on Yucca, and you said, I did not, no. N-O. And I said, OK, very good, thank you.

Now there is a report out in the media that says as a DOE employee you co-authored a technical report entitled Acceptance of Waste for Disposal and the Potential United States Repository at Yucca. And this report was used in the site characterization of Yucca Mountain, which eventually led to Secretary Abraham and President Bush approving it. And also, according to these documents, while at DOE you were tasked by the former Yucca Mountain project director to conduct technical work related to radioactive waste materials that could be stored in Yucca. And there is other, you were a member of DOE's repository task team, tasked with resolving technical issues related to Yucca.

So it is kind of important to me, since I said to you, so you didn't work directly on Yucca, and you said, I did not, no, and now years later this comes out. Could you explain this to me?

Ms. SVINICKI. I am aware of the document that you are referencing, Chairman Boxer, and it has caused me to go back and look at my testimony to you and the exchange that we had at my confirmation hearing. You asked me to characterize my work at DOE, and my answer indicated that I had worked obviously in the Office of Civilian Radioactive Waste Management, which was well-known and was on my resume.

And I indicated to you that I did not work on the Yucca Mountain license application. I worked on DOE waste inventories and transportation of materials in that program. And I drew that distinction in my testimony. I do not agree that the document that I believe you are referring to is accurate about stating that the reports I worked on were underlying the Yucca Mountain licensing application. I don't agree that is accurate.

Senator BOXER. OK, that is fair. I would just like to say, when I summed up and said, so you didn't work directly on Yucca, I didn't mean you were in the mountain taking tests on it. I meant, were you working in the whole subject. And you were.

So I would just say to you, this is troubling to me, I will leave it. I will leave it at that. I will leave it at that.

I believe that the focus should be on ensuring the safe operation of the 104 nuclear reactors in communities across our Nation, not on old, already-resolved issues. But to ensure that everyone is clear that no laws were broken, I am going to ask you, Chairman Jaczko, two questions about the leaked Inspector General report. One, did the IG find that the NRC's general counsel supported your decision to direct staff to follow the Fiscal Year 2011 budget guidance on closing out Yucca, and that your direction was consistent with NRC's statute, OMB guidance and the Administration's decision to terminate Yucca?

Mr. JACZKO. Yes.

Senator BOXER. Did the IG find that your decision was a budgetary matter within your purview as chairman?

Mr. JACZKO. Yes.

Senator BOXER. Thank you.

Chairman, I want to ask you a question off the political side of it. According to an article in the New York Times this morning, the Chairman of the NRC Task Force review said yesterday that past studies by safety experts in the U.S. have analyzed the risk of losing electricity from the grid or from onsite emergency generators, but not both at the same time. I understand this scenario, the loss of offsite electricity and onsite emergency generators, which happened in Japan, is that correct?

Mr. JACZKO. Yes.

Senator BOXER. That is referred to as a station blackout?

Mr. JACZKO. Correct.

Senator BOXER. So in light of what happened in Japan, will the NRC consider new regulations that will prepare nuclear power plants to better handle a station blackout?

Mr. JACZKO. Well, ultimately that will be, I think, a decision for the Commission. But my personal view, I think this is an area where I suspect we are going to have to make some changes in the area of the regulations for station blackout. And I suspect that the Task Force will have some recommendations for us in this area.

Senator BOXER. Is there agreement on the panel on that statement by the Chairman, yes or no?

S. I will study carefully the Task Force's recommendations.

Senator BOXER. OK, so you don't see a station blackout as a problem that needs to be fixed at this time?

S. There are currently requirements to address station blackout. I look forward to the Task Force's analysis of the adequacy of the current requirements.

Senator BOXER. OK. My understanding is there aren't, that what they deal with in the past are just losing electricity from the grid or from onsite, but not both at the same time.

Mr. APOSTOLAKIS. No.

Senator BOXER. That is incorrect?

Mr. APOSTOLAKIS. That is incorrect, Senator.

Senator BOXER. OK. Please correct the record for me, sir.

Mr. APOSTOLAKIS. Station blackout means that you lose all A/C power, including onsite and offsite, and that there is a rule that the Commission has promulgated. So it was an issue that was addressed. But there are other questions that are coming up as a result of Fukushima. For example, in most power plants in the United States right now, the batteries which are supposed to provide the extra power when you lose both are expected to work somewhere between four and 8 hours. And the Japanese incident shows that you may have days or even weeks.

So these are some of the things that we will have to think about how to address in the future. But—

Senator BOXER. So you don't agree with the New York Times article where Charlie Miller, the chairman of the Task Force, said that studies by safety experts in the United States had analyzed the risks of losing electricity from the grid or from onsite emergency generators, but not both at the same time? You are saying you have had studies on this?

Mr. APOSTOLAKIS. This is not a true statement, yes.

Senator BOXER. OK, well, that is important. And we will let the New York Times know. Thank you.

Mr. Chairman.

Mr. JACZKO. Madam Chairman, I would say, I think the intention of that statement by the team was that when you are looking at the coping time, which is the important factor in the station blackout event, you have to make assumptions about how quickly you can restore that electrical power. So that historically has been done, they have looked at events in which you had the loss of the electric power from a minor disturbance in the electrical grid, and that would take a certain amount of time to restore that. That gets you to essentially that four to 8 hours of coping time.

But that idea of the simultaneity in some of the guidance gets really to the recovery and how long it would take to recover. We would make assumptions that you wouldn't necessarily both have catastrophically lost the use of the generators as well as catastrophically lost the offsite power.

Senator BOXER. I see.

Mr. JACZKO. So if you lost offsite power and the diesels didn't work, you would be able to get the diesels back in a normal time or the normal expected time for recovery of diesels. Or if it was the other way and the diesels weren't working, then you would have a normal way to recover the offsite power.

Senator BOXER. So if I can get to what both of you have said, that you have looked at station blackout, but not for such a long duration?

Mr. JACZKO. Correct.

Senator BOXER. And I am assuming that Commissioners, you will look at, the last two, if you will look at this recommendation carefully, if there is one?

Mr. MAGWOOD. I agree. I just want to add one small thing. I think the Chairman characterized it correctly. But I think the Task Force is also interested in the fact that you could have what we would call a common cause failure, both offsite power and the on-site diesel generators. That is something that I think was a new thought for many people. I agree with others who said that is something we have to look at.

Senator BOXER. Do you agree?

Mr. OSTENDORFF. Madam Chair, I agree this is an area we need to look at.

Senator BOXER. OK, very good.

All right, Senator Boozman.

Senator BOOZMAN. Thank you very much.

Again, I appreciate the hearing. I think it has been very helpful. I really do understand, I think the Country understands how important this agency is and I know you have your differences. But we do appreciate your working hard together to keep us safe.

We have a nuclear plant in Arkansas run by Entergy, and they do a tremendous job. They are a great citizen and we are very proud to have the plant there, again, realizing that everyone working in harmony to make sure that these things function in such a manner that they not only produce cheap electricity and help us in that way but also again, we don't have to worry that we are not doing the very best that we can for the population.

The only thing else I would add, I think that probably on the Yucca project, there were probably thousands of people that worked

in a minor way. I think the idea that you, Ms. Svinicki, as a junior engineer, being there, working in whatever manner, the idea that somehow that laid the foundation for the Bush administration's decision 6 years later I think is a real reach. So we do appreciate you all. Certainly anything I can do to help, I will. I know the Committee feels the same way. And like I said, we appreciate your efforts. And I yield back.

Thank you.

Senator BOXER. Thank you very much, Senator.

Senator Carper and then Senator Sanders.

Senator CARPER. Thanks, Madam Chair.

I would like to come back to the issue raised by our Chairman about the batteries, the power batteries. It is my understanding that in Fukushima things were not that bad as long as the power batteries were working. And once, I think they had an 8-hour life, as I recall. But whether it was 8 hours or four, the life of those batteries was used up. That is when something hit the fan, if I could. I am told that many, maybe most of our facilities, nuclear facilities in this Country, have the backup batteries of I think a 4-hour battery life. I don't know if they are all four, or if there are some that are eight. The thought occurs to me, we had a little discussion here already, but shouldn't we be looking at the requirements for the operating life of these batteries and extending that? Is there a place called A123, right there in Cambridge, Dr. Apostolakis, but A123, the battery folks, the batteries that are going to be in the Chevrolet Volt or are in the Chevrolet Volt. But our battery technology is getting a lot better as we go forward, particularly with electric powered vehicles. But shouldn't we be able to do a whole lot better than a 4-hour or 8-hour life battery in the future?

Let me just ask that of the—I will just say Dr. Apostolakis, why don't you take a shot at that. And Mr. Magwood, would you take a shot at that question too, please?

Mr. APOSTOLAKIS. Yes, you are absolutely right, Senator. This is something that we have to look into and take some sort of action. I don't know what that action would be. But clearly, a message from Fukushima is that 4 hours or sometimes eight is not sufficient.

Interestingly enough, when the requirement of four or longer hour was put in place, it was actually a conservative estimate. They looked at the time it took to recover A/C power, the average was about 2 hours. So to be conservative, they doubled it. And now we have this accident that shows that it is very inadequate. So that is certainly something we have to look into.

Senator CARPER. Thank you, sir. Mr. Magwood?

Mr. MAGWOOD. Not long after Fukushima, when I was talking with experts on the staff about this, I was listening to the history of how the 4-hour coping time was decided. As Commissioner Apostolakis pointed out, the time was deemed to be conservative.

I remember pointing out to the staff at the time that, I live in Montgomery County in Maryland. If I lost power for only 4 hours, I would be thrilled. Because often, when I lose power, it is gone for 2 days. So I wondered, how in the world can you justify 4 hours.

There is certainly a technical background for the 4-hours. But it is clearly something we have to look at.



Senator CARPER. All right. And the other side of this, not just the life of the batteries but also our ability to get additional batteries onsite where they are needed, fully charged. Is that something that we are considering?

Mr. JACZKO. Senator, if I could say, I don't want to focus too much on the batteries. The focus really is to have the ability to have systems move water, or perform whatever safety functions. The way the current station blackout rule is written, the batteries, they don't, because of the way pumps are designed, they don't activate pumps. What the batteries are there for is instrumentation and sometimes valves or other control systems.

So the most important issue is the restoration of electrical alternating current power. That is really the most important factor. So the batteries provide a way to cope. But that also requires some other system to do the pumping. So that is done with turbines that are driven by steam from the reactors.

So there is lots of ways to look at this problem. It may not necessarily be a problem of coping and dealing with the batteries. But it may be, the better, more effective approach may be to have additional ways to provide alternating current power. That may in fact be more effective.

So at this point, it is not clear exactly what the right way will be. But the real issue is to get the electrical power back, the alternating current power back. As long as you are on the batteries, you are in a coping mode and you are not in an ideal situation.

Senator CARPER. Well, we will look forward to you report back to us later this year to see how this all sorts out.

One other thing. I spent, along with Captain Ostendorff, we both spent some time in the Navy, he was on submarines, nuclear submarines, I was on Navy P3 airplanes trying to find submarines. It was very easy to find those Russians, a lot hard to find our guys, which was actually reassuring. But we were in aircraft, and I know it is true in some ways you are given actually very realistic scenarios to follow. Training exercises, going after, in our case Russian submarines.

We do, in nuclear power plants, in order to prepare for challenges with respect to plant security from hostile forces, or actually these force on force exercises in plants across the Country where we use good guys, our guys, to sort of take the role of bad guys and try to actually do force on force exercises. Pretty realistic. Nobody is shooting real bullets, but they are pretty realistic, I am told.

Do you think we ought to maybe consider something similar for inspections and for regular emergency preparedness exercises, where plant employees are faced with different scenarios that are more realistic than maybe what we do today? And let me say, Mr. Ostendorff, Commissioner Ostendorff, Captain Ostendorff, will you take a shot at that? And Mr. Chairman.

Mr. OSTENDORFF. Sure. I think the training and qualification and the demonstrated ability to carry out response actions is a piece of this. It is one thing to do a tabletop exercise, it is another thing to actually fight a fire in conditions of flooding where you are up to your knees in water where you maybe have very poor lighting, very poor ventilation. I think the training, qualification, com-

mand and control, direction on an individual reactor plant site are areas we should look at.

Senator CARPER. All right. Thanks. Mr. Chairman?

Mr. JACZKO. I would just say, actually, the Commission has kind of maybe anticipated your question. We actually just finalized an update to our emergency preparedness regulations. And one of the cornerstones of that was to incorporate in our emergency planning exercises one, more realistic exercises. I would often comment that everybody knew when to order lunch, because we always knew there was going to be a lull in the exercise at around noon. So the exercises are in many ways kind of pro forma and everybody knows how they are going to play out. So one thing we have done is made them more, we are going to be making them more realistic.

The other thing we have done is we have added what we call hostile action-based drills. So we are now going to incorporate in the exercise cycle precisely what you talked about, which is dealing with an emergency response when you have a security component as well. And the additional confusion and drains on communication and command and control, that can be accomplished. So it is actually something the Commission just finalized, and I think it is a very strong effort over the last really decade since September 11th.

Senator CARPER. Thanks.

Madam Chair, I would just say, they are used to, in these exercises, having a lull and during the lull they have lunch. I am just wondering, when will they eat lunch now? I am sure they will find the time.

Mr. JACZKO. We will find a way.

Senator BOXER. OK. Senator Sanders.

Senator SANDERS. Thank you, Madam Chair.

Mr. Chairman, you indicated during my last round of questioning that representatives of a major multi-national corporation, a \$14 billion corporation, Entergy, which is now involved in a major and extremely important legal contest with the State of Vermont, met with staff at the NRC.

Mr. JACZKO. That is my understanding.

Senator SANDERS. Do you think it is proper, in the midst of a major legal dispute, for proponents of Entergy to be meeting with the staff of the NRC?

Mr. JACZKO. I would say, I think in the end, the best way to determine that is to see how the staff handle it. Our staff, I think, are very diligent and dedicated and focused on their responsibilities to safety. I think we have an effort to be open and to listen to concerns.

Senator SANDERS. But the issue in this lawsuit is not about safety. It is about the right of the State of Vermont, under the law, to not relicense a nuclear power plant. I am just kind of curious, if I can ask Ms. Svinicki and other members, have you been contacted by Entergy or the nuclear power industry in anyway, written, verbally, phone, personal meetings, about the Vermont Yankee case? Ms. Svinicki?

Ms. SVINICKI. I have not communicated with Entergy or any broad industry group regarding this particular litigation.

Senator SANDERS. Have they communicated with you?

Ms. SVINICKI. They have not. As the Chairman mentioned, there was a request to meet with commissioners. But that request was withdrawn based on, my understanding is the Justice Department had concerns, and so Entergy withdrew that request.

Senator SANDERS. What about representatives of the nuclear power industry?

Ms. SVINICKI. I have not had any meetings with representatives of the nuclear power industry on this litigation.

Mr. APOSTOLAKIS. I have not either.

Mr. MAGWOOD. I have had no conversations.

Mr. OSTENDORFF. Senator, I also was aware of a request to meet with commissioners. And that request, as Commissioner Svinicki mentioned, was withdrawn. I have not met with Entergy nor with members of the nuclear industry to discuss this matter.

Senator SANDERS. Nor any communications with them about this matter?

Mr. OSTENDORFF. There was a communication that came through for a request to meet. We did not meet.

Senator SANDERS. Right. Thank you.

What I want to do now is go to a very important Supreme Court decision dealing with the role of States in terms of nuclear power. Very important decision. I want to read it to you. It will take me a moment.

Senator BOXER.

[Remarks off microphone.]

Senator SANDERS. Thank you, Madam Chairman. It has to do actually with the State of California. This is what the Supreme Court said in ruling for a State, in this case the State of California, in 1983.

My question, after I read this paragraph is, if you could comment on your feelings on this important decision. This is what the Supreme Court said in 1983. It said that "The promotion of nuclear power is not to be accomplished at all costs. The elaborate licensing and safety provisions, and the continued preservation of State regulation in traditional areas belie that. Moreover, Congress has allowed the States to determine as a matter of economics," let me repeat that, "as a matter of economics," not safety, my words, "as a matter of economics, whether a nuclear plant vis-a-vis a fossil fuel plant should be built. The decision of California to exercise that authority does not in itself constitute a basis for preemption. The legal reality remains that Congress has left sufficient authority in the States to allow the development of nuclear power to be slowed or even stopped for economic reasons."

In other words, to my understanding, what the Supreme Court said in 1983 is, look, forget the safety issue. If a State, California or any other State, feels that there is another way to go forward that is better for the people of that State in terms of energy, maybe they want to buy power from Canada, hydroelectric power. Maybe they want to go sustainable energy. Maybe they want to invest in energy efficiency.

From an economic point of view, the Supreme Court has said, they of course have that right. You can't push a nuclear power plant on people. It is not a safety issue. Let me go very briefly and

ask members of the Commission if they would give us their view on that Supreme Court decision. Mr. Chairman?

Mr. JACZKO. As I said, I think it should be very rare that the Commission is involved in preemption cases. There are clearly, and I think I have said this publicly, there are clearly areas that, where the States have authority and we should respect those authorities as we expect them to respect our authorities.

Senator SANDERS. Thank you. Ms. Svinicki.

Ms. SVINICKI. Senator Sanders, although I have not read the decision you were quoting from, I would agree in general with Chairman Jaczko that there are areas reserved to the States. And I would note I began my career working for the State of Wisconsin at a utility commission. So I am aware of the States' role in economics.

Senator SANDERS. Just out of curiosity, Madam Commissioner, were you familiar with this Supreme Court decision?

Ms. SVINICKI. I have not read that decision. I believe I may know the one you are quoting from, but I have not read it.

Senator SANDERS. Well, it concerns me very much that you may not be knowledgeable about this decision. Because as I understand it, this Commission just voted yesterday on an issue very relevant to what the Supreme Court had to say.

Mr. Commissioner, are you familiar with it? How do you feel about that?

Mr. APOSTOLAKIS. I was not familiar with it, but what you just read makes perfect sense.

Senator SANDERS. Makes perfect sense. Do you think the State should have the right, from an economic point of view, to say no, we don't want a nuclear power plant?

Mr. APOSTOLAKIS. Yes, I do agree.

Senator SANDERS. Commissioner Magwood.

Mr. MAGWOOD. Yes, I also am not familiar with that particular ruling, although I will read it when I get back to the office, I make that commitment. I agree generally, I think that there is clearly a reason we have a Federal Government. The States have a strong role in issues such as economics. And as you have described it, it seems perfectly reasonable to me.

Senator SANDERS. Commissioner Ostendorff.

Mr. OSTENDORFF. Senator Sanders, I agree with the Chairman's statement. I would also comment that I am generally familiar with that case in the context of discussions I have had with our solicitor, with respect to this, the matter of Vermont Yankee. Our authority is not based on economics, but rather on nuclear safety.

Senator SANDERS. Right.

Mr. OSTENDORFF. So preemption, however, where there may be, as, in a rare case, as Chairman Jaczko has mentioned, where there is an issue of potential nuclear safety issues being raised, then that is a situation that might warrant NRC engagement.

I would like to, Senator, if I can also comment on a comment you made during the first round of questions on this topic, and the Chairman has appropriately characterized the Department of Justice's role in this matter as the litigating authority for the United States executive branch. I would just like to add that the comments to us, or discussions between the Department of Justice and NRC are not whether to intervene on the side of Entergy. It is a matter

of whether or not the NRC has an interest in this case dealing with preemption issues.

So I just wanted to maybe provide a different perspective on that.

Senator SANDERS. I am not so sure. I mean, the reality, the political reality is that the Department of Justice is going to have to make a decision. And I think it is quite understandable that they would go to you guys and say, NRC, what do you think? What do you think?

But I want to get back to your first point, Commissioner Ostendorff, because, correct me if I am wrong, but I am hearing you say that if the issue is not safety, which certainly is an NRC issue, but the issue about whether or not a plant should be relicensed and kept open then in fact you do not see that as an issue that the NRC should be preempting the State on, is that what you are saying?

Mr. OSTENDORFF. I want to be very careful here with my words, but I will answer the question, Senator, it is a very fair question to ask. This case is very complex. And I have had a chance to read briefings filed by both parties, and to be briefed on the status of the case.

Senator SANDERS. Who briefed you on the status of the case?

Mr. OSTENDORFF. I talked to our solicitor, the solicitor for the NRC. He is our representative with the rest of the Federal Government, our interface with the Department of Justice. And as Chairman Jaczko mentioned, there are things we cannot discuss here today in this session. So each individual case has its own nuances, its specific details, its specific issues, contentions. As a safety regulator, our job is to ensure that nuclear power plants are operated safely.

Senator SANDERS. Right.

Mr. OSTENDORFF. Whether or not there is a safety issue in a particular case depends on a lot of fact, a lot of details, a lot of arguments made by both parties to the case. And so I think it is hard to say in a particular abstract manner whether a particular case has a safety nuance or not.

Senator SANDERS. Let me try. If the people of the State of Vermont want to shut down a 40-year old plant that has had numerous problems, want to shut it down, not relicense it, not see it continue for years to come, why do you see that as a safety issue rather than an economic issue, perhaps, of the State to do that?

Mr. OSTENDORFF. Senator, I appreciate the question. And for me to respond in that would be counter to what I have been advised by our solicitor.

Senator SANDERS. Thank you, Madam Chair, for giving me more time than I was originally scheduled to have. Let me just say this. First of all, I do appreciate, I think as I hear it, and somebody jump up and tell me if I am wrong, all of the Commissioners' understanding that States certainly under the Supreme Court decision do have the right for economic reasons to determine whether or not they want a nuclear power plant. Not a safety issue, an economic issue.

Is there anyone who disagrees with that?

Thank you very much, Madam Chair.

Senator BOXER. I am going to followup just with a couple of quick questions. Commissioner Ostendorff, you just said in answer to Senator Sanders, I hope I heard you right, I want you to clarify if I didn't, that when there is a safety problem you have to listen to both sides. That is what you said, is that right?

Mr. OSTENDORFF. I am not sure exactly what both sides—we are talking—

Senator BOXER. Commissioner, can you read that back perhaps, what he said?

OK.

Mr. OSTENDORFF. I believe what I may have said, at least what I believe I said, Madam Chair, is that whether or not there is a nuclear safety issue, in the case Senator Sanders is referring to, requires hearing the perspectives of both parties to a case.

Senator BOXER. Right. That is right. I want to talk—

Mr. OSTENDORFF. I did say that, yes.

Senator BOXER. I want to talk to you about that. Why is that the issue? Isn't the issue whether you find it is safe or not? I don't get that. I didn't get that. If that is your job, why do you listen to both sides? You need to have your staff ascertain whether it is safe or not, taking into consideration what both sides are saying. But I hope that is what you meant.

Mr. OSTENDORFF. Well, certainly that is our job as a regulatory, Madam Chair. I don't dispute that at all. What I am trying to say in the context of Senator Sanders' question as to whether or not there is a safety issue that might warrant preemption issues being raised by the NRC, I think it is important for us to hear both sides of the question—

Senator BOXER. It is.

Mr. OSTENDORFF [continuing]. from all parties.

Senator BOXER. But please tell me, don't you have the ability, I will ask the Chairman, to decide for yourself if a plant is safe or not safe?

Mr. JACZKO. Absolutely. That is our responsibility and it is ultimately our decision. We strive as an agency to make sure that we listen to stakeholders so that we have informed decisionmaking. But ultimately it is our decision.

Senator BOXER. But you are independent. You are independent. So when I hear you say, when there is a safety issue raised, we are going to hear both sides, that troubles me.

Mr. OSTENDORFF. Madam Chair, I—

Senator BOXER. I think hearing both sides is fine. But at the end of the day, you have to perform your own inspections. Am I correct on that? And that is what you do with your people, right? You send them out and say, look, one side says it is safe, the other side said they are scared. Can you come back and give us a review of what is going on? Isn't that what you would demand, Mr. Ostendorff, other than just listening to either side?

Mr. OSTENDORFF. I would like to clarify this, Madam Chair.

Senator BOXER. Please.

Mr. OSTENDORFF. Thank you for the opportunity.

Senator BOXER. Sure.

Mr. OSTENDORFF. It is clearly our responsibility as regulators under the Atomic Energy Act to make the final determinations on whether a plant is safe or not.

Senator BOXER. Good.

Mr. OSTENDORFF. The question I was responding to with respect to Senator Sanders dealt with whether there is an issue being raised in this lawsuit of nuclear safety, or is it purely economics. The case that Senator Sanders was citing from the Supreme Court in California was dealing with an economic-based aspect. What I am saying is that on the decision that I can't discuss the details—

Senator BOXER. Right, right, right.

Mr. OSTENDORFF [continuing]. the Department of Justice, it is important for us as commissioners to hear and listen to the different briefs and our perspectives on how to vote, being informed by understanding both sides of the argument as to whether or not there is a preemption issue.

Senator BOXER. OK. Well, I mean, I just have to say, and I want to commend all of you, first of all, for giving us your total focus and attention. There have been some tough moments here today. I think each of you has conducted yourself just very well and very sincerely.

I want to compliment my colleague. I so identify with his fighting for his State. And I share his concerns about transparency and openness and intervening in a State's rights situation. I think that if a commissioner votes one way to say, we are going in, and I assume spending taxpayer dollars, would it not be? Taxpayer dollars to intervene in a suit, it ought to be a matter of the public's right to know. And I am sure each of you could eloquently defend your reasoning.

So I would question all of you ducking this question, I think it is wrong. I think you ought to rethink it. All of you should meet and think about it. Think about it. It is too important. You need to be as transparent as you can be.

I want to just close by saying, I looked through this really good book, The Information Digest, that you put out. I am sure all of you are very, there are very nice pictures of you in here. And it really lays out what you do. And I am struck by page 2, where you or your writers, and I am sure you have agreed with them, have highlighted the major function of this Commission in a very clear way. You took all of the law and you just synthesized it.

This is what you said: Strategic goals, there are two, safety is first. Insure adequate protection of public health and safety and the environment.

What a wonderful job you have. It is the way I look at my job. That is sacred trust you have. Sacred trust to the people of this great Country, so that we never get into a situation where because somebody might have done the wrong thing, we are dealing with a Japanese disaster. We just, we just can't do that. I keep thinking back to my two plants and all the people there who really, some of them don't realize how much their very well-being depends on you being vigorous on their behalf. I am going to be vigorous on their behalf. Senator Feinstein is. And others who, I am sure the Governor and all of us.

But you have the power. You are independent. I can't tell you what to do, I can just urge you to do the right thing.

Second, security. That is your second strategic goal. Insure adequate protection in the secure use and management of radioactive materials. So important. And that is why Yucca keeps being brought up, and I remember reading those reports of leakage and all kinds of problems there. And I have a county that just is right next door, which would get anything that leaked into the river. We would get it on our side.

So I just want to close by saying thank you. This Committee cares a lot and we have different views. You saw them all today, and that is the beauty of America and democracy. I often say anyone watching us, every point of view is represented. And that is really what democracy is. Of course, some of us think our point of view is the right one. Each of us thinks that our ideas are the right one.

But we will keep on overseeing the work you do. We wish you well. We hope that you as a Commission will be kind to one another, good to one another. Yes, there will be debates, there will be arguments. But life is too short to make them personal. That is just coming from me as a friend, as a Senator, as a mother, as a grandmother.

So we need you to work together. Disagreements may abound. But at the end of the day, you have to work it out. Because you are in charge of safety and security for the American people in a very important way with these 104 plants. A hundred and four, is that right? Yes. Two of which are in my State, and I worry about.

So worry about those a little bit, too.

Thank you very much. We hope to see you again. We stand adjourned.

[Whereupon, at 12:30 p.m., the committee was adjourned.]

[Additional material submitted for the record follows.]

STATEMENT OF HON. JEFF SESSIONS, SENATOR  
FROM THE STATE OF ALABAMA

Thank you, Commissioners of the NRC, for appearing before our committee today.

We have spent a lot of time in this committee and in other committees in Congress reviewing the earthquakes and tsunamis in Japan in March of this year and the implications for nuclear power in the United States. In fact, we have spent so much time on the nuclear aspects of this natural disaster that the public may overlook that at least 15,000 individuals were killed and nearly 8,000 were reported missing as a result of the earthquakes and tsunamis. Yet I am not aware of a single death or injury arising from the overheating of spent fuel stored at the Fukushima Daiichi Nuclear Plant. Certainly, there are lessons to be learned from the unusual events at the Japanese plants but it does not seem at this point that there are substantial reasons to call into question the overall safety or reliability of nuclear power in the United States. I look forward to hearing today about the preliminary results of the Commission's review of this incident.

According to the North American Electric Reliability Corporation, the United States will need to add 135,000 megawatts (MW) of new generation by 2017 in order to meet our economy's energy needs, but the amount of new generation currently planned to come on-line by that date is significant less than what will be required.<sup>1</sup> America needs a comprehensive energy plan that increases domestic American energy production from a variety of sources—nuclear, oil, natural gas, hydroelectric, biofuels, and other sources of reliable energy that America can put to good use. Conservation has a very important role as well. America needs an energy policy that strengthens our national security by using more domestic energy, fosters economic growth by providing plentiful low cost energy, and protects the environment in an effective and cost-effective manner.



I read yesterday that Chairman Jaczko believes, as a result of the Japanese situation, the NRC should issue tougher new regulations. After a thorough review, some new safety requirements may be justified. But policymakers in Washington D.C. should not get ahead of themselves. An earthquake of historic intensity was centered very near a 40-year old nuclear facility that is located directly on Japan's Pacific coast. This caused Daiichi reactors 1 through 4 to experience a "station blackout"—that is, the facility lost all offsite power and the emergency diesel generators were flooded and inoperable as a result of the tsunami. As a result, the cooling systems did not function as designed. In the United States, nuclear plants already must demonstrate to the satisfaction of the NRC that the plant can continue to operate safely during a blackout scenario. Existing U.S. regulations also require multiple layers of redundancy to ensure safe operation.

In Alabama, we saw a potential blackout event first-hand in April of this year when severe tornados occurred throughout our state, knocking out the power lines that fed offsite power to the Browns Ferry Nuclear Power Plant—the second largest nuclear power station in the U.S. The backup power systems at Browns Ferry responded as designed and there was no blackout or meltdown scenario. While there will certainly be lessons to learn from the Japanese experience at Fukushima, I believe that we need to remain firmly committed to expanding America's nuclear power fleet today. The new nuclear units currently in the licensing process contain safety features, such as gravity-fed cooling systems, that would have been another safety redundancy that would have prevented the kinds of problems seen at Fukushima.

That is the case with the Westinghouse AP1000 design. These new designs reduce reliance upon mechanical and electrical systems for cooling. As the NRC does its work in this regard, it will be critically important that the Commission has a full panel of commissioners, and I would continue to urge that Commissioner Ostendorff, whose term expires at the end of this month, receives a confirmation vote on the floor of the Senate immediately.

In my view, the Japanese situation should not lead us to push the pause button, especially for licensing new facilities in areas of the country not susceptible to the kinds of events that led to the Japanese disaster. Rather, I believe we need these newer, safer nuclear units to come on line as soon as possible. Nuclear power is a clean source of domestic energy that the American people support. It has an important role to play in reducing our dependence on foreign oil and reducing air pollutants. Nuclear power plants provide long term economic benefits, and the construction of new nuclear facilities creates new, high paying jobs.

Finally, I am very concerned, Chairman Jaczko, about reports concerning your apparent decision to withhold important and relevant information about the Yucca Mountain matter from the other members of the Commission. I am also concerned about the way in which you exercised "emergency powers" in the wake of the Japanese incident. Both are troubling situations that merit a full review.

Thank you. I look forward to our hearing today.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

August 18, 2011

The Honorable Barbara Boxer  
Chairman, Committee on  
Environment and Public Works  
United States Senate  
Washington, D.C. 20510

The Honorable James M. Inhofe  
Ranking Member, Committee on  
Environment and Public Works  
United States Senate  
Washington, D.C. 20510

Dear Chairman Boxer and Ranking Member Inhofe:

Thank you for the opportunity to appear before the Committee on Environment and Public Works on June 16, 2011. In response to your letter of August 3, 2011, enclosed please find my response to questions for the record from that hearing submitted by Senator Inhofe.

Please have your staff contact Jeffrey Sharkey of my staff at (301) 415-1855, should you have any questions.

Respectfully,



Kristine L. Svinicki

Enclosure: As stated

**Commissioner Kristine L. Svinicki's Responses to Questions for the Record  
Environment and Public Works Committee Hearing  
June 16, 2011**

Senator James M. Inhofe

**Question 1:**

Do you believe the Commission would benefit from greater involvement of the ACRS on the NRC's longer term review rather than merely reviewing the staff's final product? If not, why not?

**Answer 1:**

Yes. Part of the ACRS's statutory mandate is to advise the Commission independent of the NRC staff with regard to the hazards of proposed or existing reactor facilities and the adequacy of proposed reactor safety standards. Therefore, I believe that this mandate applies to the recommendations of the NRC's near-term Fukushima task force. Throughout my tenure on the Commission, I have found that the ACRS provides valuable insights and advice on matters pertaining to safety. Their advice reflects the breadth and depth of the collective knowledge and experience of the Committee's members, as well as the diversity of their views. The task force's recommendations span a wide variety of complex issues with varying safety implications and potentially significant regulatory impacts, which calls for regular ACRS engagement on the longer term review.

**Question 2:** Please describe the process the NRC uses to revise its regulatory requirements following new information or world events. Notwithstanding the seriousness of the events in Japan, there doesn't seem to be a reason to alter the Commission's normal processes to take account of any lessons learned from events in Japan given the repeated assurances that U.S. plants are operating safely. Do you agree? If not, why not?

**Answer 2:**

The NRC has many processes for gathering and assessing operating experience information that range across all areas that it regulates, including information reported domestically by NRC and State licensees, as well as event reports provided by international organizations, such as the International Atomic Energy Agency. Other sources of information include NRC and Agreement State inspection reports.

In all cases, the safety significance of this information is assessed to determine if immediate action is needed to restore adequate protection of public health and safety or common defense and security. After the NRC has determined that adequate protection is being maintained, the need for longer term action is assessed on the basis of the safety significance of each issue. In general, events whose potential safety ramifications and operational and design data are well understood are amenable to expeditious resolution.

Enclosure

On the other hand, events that involve complex interactions among multiple systems, structures, components, or environmental effects typically require a significant amount of information to be gathered and assessed to develop a path forward to long-term resolution. The NRC's response to the events in Japan fits in this category and, given that U.S. plants are operating safely, I agree that there is no reason for the NRC to deviate from its normal processes to take account of the lessons learned from these events.

**Question 3:** Do the Commission's regulations provide a mechanism for applying lessons learned from Japan to COLs or certified designs already issued? Is there any material difference in NRC's ability to apply those lessons to COLs or certified designs as opposed to plants that are currently licensed and operating?

**Answer 3:**

The Commission has several options for applying lessons learned from Japan to COL applications and previously-issued certified designs. These options apply not only to lessons learned from significant events such as those in Japan, but also to regulatory changes that occur, regardless of the reasons for the changes. The NRC's fundamental concern is that nuclear power plants must be safe to be allowed to operate. This precept applies to currently licensed and operating plants, and to those that may begin operations in the future, after they have been licensed and built. The NRC's regulatory tools apply to both of these categories of plants, providing the NRC with the ability to apply lessons learned from the events in Japan to both currently operating and future U.S. nuclear power plants.

**Question 4:**

Given the NRC's authority to apply lessons learned from Japan to the operating fleet, and the state of the art review the COL and design certification applications have undergone, it doesn't make any sense to delay the licensing process on these applications during the review of the Japan situation. Do you agree? If not, why not?

**Answer 4:**

Currently before the Commission is an "Emergency Petition to Suspend All Pending Reactor Licensing Decisions and Related Rulemaking Decisions." This Emergency Petition to Suspend includes design certification rulemakings and COL licensing reviews, along with the associated adjudicatory proceedings. Because the question you raise is currently under consideration by the Commission in its adjudicatory capacity, it would not be appropriate for me to comment further, at this time.



COMMISSIONER

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

August 18, 2011

The Honorable Barbara Boxer  
Chairman, Committee on  
Environment and Public Works  
United States Senate  
Washington, DC 20510

The Honorable James M. Inhofe  
Ranking Member, Committee on  
Environment and Public Works  
United States Senate  
Washington, DC 20510-6175

Dear Senators Boxer and Inhofe:

I am responding to your letter of August 3, 2011, which contained questions submitted by Senator Inhofe related to the June 16, 2011 hearing before the Committee on Environment and Public Works. The subject of the hearing was the Nuclear Regulatory Commission's preliminary results of the nuclear safety review following the accident at the Fukushima Dai-ichi nuclear power plants in Japan. My responses to Senator Inhofe's questions are enclosed.

Sincerely,

A handwritten signature in black ink, appearing to read "George Apostolakis".

George Apostolakis

Enclosure: as stated

**Environment and Public Works Committee Hearing  
June 16, 2011  
Follow-Up Questions for Written Submission**

Questions for Apostolakis

Senator James M. Inhofe

1. Do you believe the Commission would benefit from greater involvement of the ACRS on the NRC's longer term review rather than merely reviewing the staff's final product? If not, why not?

Yes, I believe that the staff should engage the ACRS early on in its review of substantive safety issues being pursued as part of the NRC's longer term review. In addition, the ACRS, on its own initiative, may conduct reviews of specific generic matters or nuclear facility safety-related items.

2. Please describe the processes the NRC uses to revise its regulatory requirements following new information or world events. Notwithstanding the seriousness of the events in Japan, there doesn't seem to be a reason to alter the Commission's normal processes to take account of any lessons learned from the events in Japan given the repeated assurances that U.S. plants are operating safely. Do you agree? If not, why not?

The NRC uses rulemaking or orders to impose new or modified regulatory requirements. The NRC may also institute a proceeding to modify, revoke, or suspend a license. In addition, the NRC may also request that licensees provide information to determine whether or not a license should be modified, suspended or revoked. New requirements may be subject to the change processes outlined in 10 C.F.R. 50.109, 52.98, and 52.63. As is often the case with significant new information presented to the NRC, there are policy issues to be decided by the Commission with regard to the lessons learned from the events in Japan (e.g., whether to initiate rulemaking or to authorize issuance of Orders to U.S. operating nuclear power licensees). Once those policy decisions are made by the Commission, the NRC staff should be able to use its normal processes to implement the Commission's decisions.

3. Do the Commission's regulations provide a mechanism for applying lessons learned from Japan to COLs or certified designs already issued? Is there any material difference in NRC's ability to apply those lessons to COLs or certified designs as opposed to plants that are currently licensed and operating?

Yes, NRC regulations provide mechanisms for imposing new requirements on COLs or certified designs already issued subject to the provision in 10 C.F.R. 50.109, 52.98, and 52.63. Although there is some variation in the criteria for imposing new requirements on a certified design, a COL holder, and the holder of a current operating license, there is no material difference in the NRC's ability to impose new requirements that are necessary to protect public health and safety.

4. Given NRC's authority to apply lessons learned from Japan to the operating fleet, and the state of the art review the COL and design certification applications have undergone, it doesn't make any sense to delay the licensing process on these applications during the review of the Japan situation. Do you agree? If not, why not?

Currently before the Commission is an "Emergency Petition to Suspend All Pending Reactor Licensing Decisions and Related Rulemaking Decisions" pending investigation of the lessons learned from the Fukushima Daiichi nuclear power station event. A central point of the petitions is a request to hold in abeyance (among other things) certain COL licensing reviews, associated adjudicatory proceedings, and ongoing design certification rulemakings pending resolution of Fukushima lessons learned. As this petition and related filings are currently under consideration by the Commission in its adjudicatory capacity, I should not comment on your question at this time.



COMMISSIONER

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

August 18, 2011

The Honorable Barbara Boxer  
Chairman, Committee on Environment  
and Public Works  
United States Senate  
Washington, D.C. 20510

The Honorable James M. Inhofe  
Ranking Member, Committee on Environment  
and Public Works  
United States Senate  
Washington, D.C. 20510

Dear Chairman Boxer and Ranking Member Inhofe:

Thank you for your August 3, 2011 letter which provided additional questions for the record as a follow-up to my appearance before the Committee on Environment and Public Works on June 16, 2011. The questions and my responses are provided below.

1. **Do you believe the Commission would benefit from greater involvement of the ACRS on the NRC's longer term review rather than merely reviewing the staff's final product? If not, why not?**

Yes, I agree that the Commission would benefit from greater involvement of the ACRS on the NRC's longer-term review. Although a tight time frame was necessary for the initial evaluation of the Fukushima event by the task force, as I noted in my vote on the task force paper, one detrimental effect of the shortened response time was that the task force did not have the benefit of the ACRS's analytical resources. Given that the purpose of the ACRS is to provide a forum for technical experts from a variety of disciplines to provide their independent advice and analysis to the Commission, it would be irresponsible of the Commission to move forward with its continuing review without the benefit of the ACRS's knowledge and expertise as early in the process as practicable.

2. **Please describe the processes the NRC uses to revise its regulatory requirements following new information or world events. Notwithstanding the seriousness of the events in Japan, there doesn't seem to be a reason to alter the Commission's normal processes to take account of any lessons learned from the events in Japan given the repeated assurances that U.S. plants are operating safely. Do you agree? If not, why not?**



Changes to the NRC's regulations that respond to new information or world events may be initiated by the NRC staff, the Commission, or members of the public. The NRC staff continuously reviews and monitors the agency's regulations to confirm that they ensure adequate protection of public health and safety based on the most current available information, or the Commission may direct the staff to begin a rulemaking if it identifies a technical or policy concern that should be addressed. Interested members of the public may also petition the NRC to develop, change, or rescind any regulation. Regardless of how the rulemaking process begins, all NRC rulemakings generally follow the same process. Proposed rules are published in the *Federal Register*, and the public is usually provided with 75 to 90 days to provide written comments. After comments are considered, final rules are developed. Rules impacting significant matters of policy are sent to the Commission for review and approval prior to finalization. Final rules are published in the *Federal Register* and generally become effective 30 days after publication. For rules that are especially important or controversial, the staff may publish an Advanced Notice of Proposed Rulemaking, soliciting public comment prior to publishing a proposed rule. The staff may also hold one or more public meetings during the rulemaking process.

These processes ensure that all NRC rules are carefully considered and based on sound technical, scientific, and policy considerations. Further, this step-wise process ensures that all rulemakings take into account input from appropriate stakeholders such as industry, non-governmental organizations, state and local governments, members of the public, or the ACRS.

Given the importance and complexity of the issues arising from the post-Fukushima analysis, I agree that the agency will be better served by following a well-understood, step-wise process that allows for incorporation of stakeholder input while undertaking its post-Fukushima review. Nevertheless, we do view responding to the lessons to Fukushima with urgency. Therefore, I believe that there may be some steps, such as special inspections and assessments, which might be appropriate for us to take on a somewhat accelerated basis.

3. **Do the Commission's regulations provide a mechanism for applying lessons learned from Japan to COLs or certified designs already issued? Is there any material difference in NRC's ability to apply those lessons to COLs or certified designs as opposed to plants that are currently licensed and operating?**

Yes, the Commission's regulations provide a mechanism for applying lessons learned from Japan to COLs or certified designs that have already been issued. Changes may be effected via the rulemaking process described in the response to question 2 above. New regulations will be applied to already operating facilities, already issued COLs, and certified designs based on a change process outlined in our regulations at 10 C.F.R. §§ 50.109, 52.98, and 52.63, respectively. Although there are slight variations among these three regulations, the requirements for applying new regulatory requirements to a COL

or certified design are substantially the same as the requirements for applying new regulations to already operating reactors.

4. **Given NRC's authority to apply lessons learned from Japan to the operating fleet, and the state of the art review the COL and design certification applications have undergone, it doesn't make any sense to delay the licensing process on these applications during the review of the Japan situation. Do you agree? If not, why not?**

You asked whether it makes sense to delay the licensing process for COLs and design certifications currently under review while the NRC conducts its post-Fukushima review. As you may be aware, the NRC has received a number of petitions requesting that, among other things, the NRC suspend its ongoing reviews of COLs and design certifications. Because this adjudicatory issue is currently being considered by the Commission, I cannot comment further at this time.

Thank you for the opportunity to appear before the Committee. If you require clarification or have additional questions, please contact me at any time.

Sincerely,



William D. Magwood, IV



COMMISSIONER

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

August 18, 2011

The Honorable Barbara Boxer  
Chairman, Committee on Environment  
and Public Works  
United States Senate  
Washington, DC 20510

The Honorable James M. Inhofe  
Ranking Member, Committee on  
Environment and Public Works  
United States Senate  
Washington, DC 20510

Dear Chairman Boxer and Ranking Member Inhofe:

I appeared before the Committee on Environment and Public Works on August 2, 2011, along with my colleagues on the Commission. On August 3, 2011, you forwarded questions for the hearing record. The responses to those questions are enclosed. If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "William C. Ostendorff".

William C. Ostendorff

Enclosures:  
As stated

ENCLOSURE

Senator James Inhofe – Question 1

Do you believe the Commission would benefit from greater involvement of the ACRS on the NRC's longer term review rather than merely reviewing the staff's final product? If not, why not?

Answer

Yes. The Advisory Committee on Reactor Safeguards (ACRS) has a long standing history of providing the Commission with independent advice regarding licensing, operation, and related safety issues, including the adequacy of proposed safety regulations and policies. As a Commissioner, I have benefited from input from the ACRS.

## ENCLOSURE

Senator James Inhofe – Question 2

Please describe the processes the NRC uses to revise its regulatory requirements following new information or world events. Notwithstanding the seriousness of the events in Japan, there doesn't seem to be a reason to alter the Commission's normal processes to take account of any lessons learned from the events in Japan given the repeated assurances that U.S. plants are operating safely. Do you agree? If not, why not?

Answer

The NRC continuously assesses new information from a variety of sources, including domestic and international operational experience, and the results of our reactor oversight program. If necessary, the NRC can initiate a proposed rule or change a rule in order to provide reasonable assurance of adequate protection or to enhance safety. Further, any member of the public may petition the NRC to develop, change, or rescind one of its regulations.

As the Task Force report stated, "the current regulatory approach has served the Commission and the public well" and "continued operation and continued licensing activities do not pose an imminent risk to public health and safety." While I support thoughtful consideration of potential safety enhancements in a systematic and holistic manner, I do not believe that our existing regulatory framework is broken. I believe that our current regulatory processes and tools comprehensively enable the NRC to apply the lessons learned from Japan.

ENCLOSURE

Senator James Inhofe – Question 3

Do the Commission's regulations provide a mechanism for applying lessons learned from Japan to COLs or certified designs already issued? Is there any material difference in NRC's ability to apply those lessons to COLs or certified designs as opposed to plants that are currently licensed and operating?

Answer

Yes. The Commission can apply lessons learned from Japan to Combined License (COL) reviews and design certifications. Prior to issuance of the COL, the Commission could choose to incorporate lessons learned into the COL through specifying additional license conditions. Alternatively, the Commission could issue the COL and later modify, add, or delete any terms or conditions contained in the COL to reflect any new Commission requirements in accordance with the regulatory provisions found in 10 CFR 52.83, 52.98, and 50.109, depending on whether the conditions address matters within the scope of the referenced early site permit (ESP) or certified design. Under this approach, the criteria for implementation of any Commission decisions as a result of lessons learned from Japan would generally be comparable for both the near-term COLs and for operating reactors.

Regarding design certifications, under our existing processes, the Commission can apply lessons learned from Japan through an amendment to an existing certified design rule or in a separate rulemaking.

ENCLOSURE

Senator James Inhofe – Question 4

Given NRC's authority to apply lessons learned from Japan to the operating fleet, and the state of the art review the COL and design certification applications have undergone, it doesn't make any sense to delay the licensing process on these applications during the review of the Japan situation. Do you agree? If not, why not?

Answer

Currently before the Commission is an "Emergency Petition to Suspend All Pending Reactor Licensing Decisions and Related Rulemaking Decisions." This Emergency Petition to Suspend includes design certification rulemakings and COL licensing reviews, along with the associated adjudicatory proceedings. Because the question you raise is currently under consideration by the Commission, I cannot comment at this time. I will be pleased to follow up with you or your staff after this adjudicatory matter is resolved by the Commission.