AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

S. HRG. 113–709

HEARING ON THE RE-NOMINATION OF ALLISON MACFARLANE TO BE A MEMBER OF THE NUCLEAR REGULATORY COMMISSION

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED THIRTEENTH CONGRESS

FIRST SESSION

MAY 23, 2013

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

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

U.S. GOVERNMENT PUBLISHING OFFICE

93–394 PDF WASHINGTON : 2015

For sale by the Superintendent of Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED THIRTEENTH CONGRESS
FIRST SESSION

BARBARA BOXER, California, *Chairman*

MAX BAUCUS, Montana
THOMAS R. CARPER, Delaware
FRANK R. LAUTENBERG, New Jersey
BENJAMIN L. CARDIN, Maryland
BERNARD SANDERS, Vermont
SHELDON WHITEHOUSE, Rhode Island
TOM UDALL, New Mexico
JEFF MERKLEY, Oregon
KIRSTEN GILLIBRAND, New York

DAVID VITTER, Louisiana
JAMES M. INHOFE, Oklahoma
JOHN BARRASSO, Wyoming
JEFF SESSIONS, Alabama
MIKE CRAPO, Idaho
ROGER WICKER, Mississippi
JOHN BOOZMAN, Arkansas
DEB FISCHER, Nebraska

BETTINA POIRIER, *Majority Staff Director*
ZAK BAIG, *Republican Staff Director*

C O N T E N T S

Page

MAY 23, 2013

OPENING STATEMENTS

Cardin, Hon. Benjamin L., U.S. Senator from the State of Maryland 2
Vitter, Hon. David, U.S. Senator from the State of Louisiana 3
Boxer, Hon. Barbara, U.S. Senator from the State of California 4
Inhofe, Hon. James M., U.S. Senator from the State of Oklahoma 5
Carper, Hon. Thomas R., U.S. Senator from the State of Delaware 7
Sessions, Hon. Jeff, U.S. Senator from the State of Alabama 7
Sanders, Hon. Bernard, U.S. Senator from the State of Vermont 8
Fischer, Hon. Deb, U.S. Senator from the State of Nebraska 10
Barrasso, Hon. John, U.S. Senator from the State of Wyoming 10
Lautenberg, Hon. Frank R., U.S. Senator from the State of New Jersey, prepared statement 103
Gillibrand, Hon. Kirsten, U.S. Senator from the State of New York, prepared statement 103

WITNESS

Macfarlane, Hon. Allison, Chairman, U.S. Nuclear Regulatory Commission 15
Prepared statement 17
Responses to additional questions from Senator Lautenberg 20
Response to an additional question from Senator Cardin 23
Responses to additional questions from:
Senator Sanders 25
Senator Vitter 28
Senator Inhofe 65
Senator Barrasso 67
Senator Barrasso with Senator Fischer 68
Senator Sessions 71
Response to an additional question from:
Senator Crapo 88
Senator Wicker 89
Responses to additional questions from Senator Fischer 90

HEARING ON THE RE-NOMINATION OF ALLISON MACFARLANE TO BE A MEMBER OF THE NUCLEAR REGULATORY COMMISSION

THURSDAY, MAY 23, 2013

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The full committee met, pursuant to notice, at 9 a.m. in room 406, Dirksen Senate Office Building, Hon. Barbara Boxer (chairman of the full committee) presiding.

Present: Senators Boxer, Vitter, Carper, Cardin, Sanders, Gillibrand, Inhofe, Sessions, Fischer, Barrasso, and Boozman.

Senator BOXER. Good morning. There is a vote at 10:30 and we want to make sure everyone gets their questions.

Before we start this, I wanted to respond publicly to the bill that has been agreed to by Senators Lautenberg and Vitter dealing with TSCA. I intend to handle it the same way I handle all of our other big bills which is everyone is going to have a chance to look at it, see how it impacts their State, see how it impacts their folks. But it is wonderful the two colleagues came together.

So, we will get all of the copies of their legislation to every member of this Committee for your advice and then we will do a Chairman's mark based on everybody's input. I really want to say thank you. And I know is means so much to Senator Lautenberg to have a chance to have this. Senator Vitter.

Senator VITTER. Thank you, Madam Chair. Thanks for a fair and open process. That is all we ask for. We of course want this bill with a lot of bipartisan co-sponsors to be the base but we invite discussion, amendment discussion. We will go from there. And I think it is really, really exciting that so many folks from both sides have come together. This Committee often comes together on infrastructure issues.

Senator BOXER. That is right.

Senator VITTER. Here, we are coming together on an EPA-related issue and doing something that is very important for health and safety and to make sure we continue to lead the world in innovation, a big part of our economy. So, we are very excited about it. Thank you.

Senator BOXER. Well, that is excellent. I look forward to reading it. I have not. I have read remarks pro and con. But I am excited that you have gotten it to this point, Senator, and we will do what we do on every big bill. We will all work together because this

Committee has to vote this up or down. So I want to make sure we get it out of this Committee. So, we will work together.

With that, I want to call on Senator Cardin who is going to introduce our witness, make his statement, then he has a hearing to go to. So, I will call on him first.

OPENING STATEMENT OF HON. BENJAMIN L. CARDIN, U.S. SENATOR FROM THE STATE OF MARYLAND

Senator CARDIN. Madam Chair, thank you for the courtesy. I wanted to have the opportunity to reintroduce Dr. Macfarlane to our Committee.

I believe when you were here last time Senator Blumenthal introduced you because your roots are in Connecticut. But you have shown the good sense to become a resident of Maryland, so I wanted to take this opportunity to welcome you back to the Committee and thank you very much for your public service. And we know this is a family commitment, your husband is here, and we thank your family for their understanding and your continued service to our Country.

At your last hearing, there was a lot of discussion about the collegiality or lack of collegiality in regards to the Commission. Thank you for the leadership you have shown in restoring the type of collegiality that is critically important for the Commission.

That is not just my view. The Nuclear Energy Institute CEO, Marvin Fertel, said "Chairman Macfarlane has achieved notable progress in returning a climate of collegiality within the Commission." We certainly are pleased to see that type of progress.

Dr. Macfarlane is an expert on nuclear waste issues, a critical issue since the industry lacks a permanent waste storage site. She holds a Doctorate in Geology from MIT and a Bachelor of Science Degree in Geology from the University of Rochester.

Before Dr. Macfarlane became the Commission's 15th Chair, she was an Associate Professor in Environmental Science and Policy at George Mason University. From 2010 to 2012, she served on the Blue Ribbon Commission on America's Nuclear Future which President Obama established to make recommendations about a national strategy for dealing with the Nation's high level nuclear waste. Her research is focused on environmental policy and international security issues associated with nuclear energy, especially the back end of nuclear fuel cycle.

During her academic career she held Fellowships at Radcliffe College, MIT and Stanford and Harvard Universities, and from 2003 to 2004 she was on the faculty of Georgia Tech on Earth Science and International Affairs. From 1998 to 2000, she was a Social Science Research Fellow and MacArthur Foundation Fellow in International Peace and Security. She also served on the National Academy of Science Panel on Nuclear Energy and Nuclear Weapons Issues.

So, Madam Chair, as you can see, she brings to this position a wealth of experience, a wealth of academic background and is eminently qualified to serve as Chairman as she has.

Madam Chair, I regret, as you pointed out, I will not be able to stay for the rest of the hearing, but I appreciate the opportunity of reintroducing Dr. Macfarlane and to commend her to the Com-

mittee. I believe she has both the requisite technical knowledge and management skills needed to lead the NRC.

I thank the Chair for the courtesy to introduce her.

Senator BOXER. Thank you.

Senator Vitter, we will have you go next and I will follow you.

OPENING STATEMENT OF HON. DAVID VITTER, U.S. SENATOR FROM THE STATE OF LOUISIANA

Senator VITTER. Great. Thank you, Madam Chair. I am very excited to have this hearing. It was originally planned for 4 weeks ago but the Chair had questions that needed to be answered and I would be the last person who would object to that.

[Laughter.]

Senator BOXER. Let us just say I had four questions, not 1,000.

Senator VITTER. Four questions, 4 weeks, but they have been answered apparently.

[Laughter.]

Senator BOXER. Actually, they have not been answered at all.

[Laughter.]

Senator BOXER. And we are still doing it. Mark my words.

Senator VITTER. Well, if you want to delay a set of things, we can discuss that possibility.

[Laughter.]

Senator BOXER. No, my questions have not been answered. We are having the hearing. So, let that be a sign.

[Laughter.]

Senator VITTER. The NRC plays an important role in promoting and maintaining the safety standards of nuclear reactors across the U.S. which makes the U.S. fleet the safest in the world. And Chairman, as Chair of the NRC you are entrusted with providing responsible stewardship of those nuclear reactor assets. That responsible stewardship not only includes promulgating and enforcing stringent safety standards but also ensuring that such regulations do not unnecessarily burden industry and consumer interests.

So, our duty as members of this Committee is to confirm that any nominated leader is qualified and competent in this specific field and to ensure that the NRC pursues its goals in a responsible and efficient way.

Nuclear energy has become an indispensable contributor to our base load electricity needs and will continue to be for years to come. Safety, of course, is the priority for members of this Committee as it is for members of your body.

Since Fukushima, NRC has devoted significant amounts of resources into implementing its lessons learned and nobody would argue against those safety precautions. While the NRC has traditionally accomplished this through an objective approach, concerns have been brought to my attention in regards to possible or threatened departures from this method. And the departure is prevalent in the Commission's consideration of requiring filtered vents at some nuclear facilities.

While I appreciate the Commission's decision to take a further look at the need for this requirement, I worry that in the light of Fukushima some new culture of hasty regulatory implementation may overtake the NRC's tradition of impartial regulation.

After Three Mile Island many regulations were imposed that created heavy burdens at great cost which, after enforcement, were found to have no substantial impact on safety. This parallel was included as a cautionary comment in the NRC's own near-term task force report and it was noted by Commissioner Svinicki in her March 19 vote. This should especially be kept in mind as you continue to deal with issues surrounding SONGS. Any decision made on the issue should be based only on sound science and objective facts.

And again, while safety is of the utmost importance, we must keep in mind the impact of unnecessary or burdensome regulations that have no safety impact.

Again, thank you very much for being here today, Dr. Macfarlane, and I look forward to hearing from you on these important issues.

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

Senator BOXER. Dr. Macfarlane, today the Senate Environment and Public Works Committee meets to reconsider your nomination as Chairman of the NRC. I look forward to discussing your views on the role of the NRC and further ensuring the safety of nuclear reactors across the Country. That is the job of the NRC.

I am very pleased to see in your testimony that you fostered a productive working relationship with other Commissioners during your time as Chairman, and I do believe the Commission is focused on its important safety and security mission.

The most important work for the Commission is to meet its mission, to regulate the use of radioactive materials to protect public health and safety, promote the common defense and security, and protect the environment. That is your official role. That is spelled out in the NRC's Mission Statement. So, people might have a different view of the NRC, it is to promote nuclear power, not at all what the function and the role is as designed in the legislation that set up the NRC. It is all about safety, promoting the common defense and security, and protecting the environment. That is what it is.

Your solemn responsibility is to ensure safety at the Nation's 104 commercial nuclear reactors and at the thousands of facilities that use radioactive materials. And I want to point out that if people have confidence in the safety, nuclear power will continue to move forward. If they lose confidence, that is the end. Because I know you can talk to the folks in Japan about how they reacted to what occurred there.

The NRC's progress in implementing the post-Fukushima safety enhancements is a key indicator for the Commission's ability to successfully accomplish its mission. You have made some progress. But much work remains to be done to apply the lessons of this nuclear disaster. The Commission must not waver in its commitment to promptly implement all the needed safety improvements and I will call hearings to look at your progress.

As I think about the importance of fully addressing the post-Fukushima recommendations, the safety of the 8 million people

who live within 50 miles of the San Onofre Nuclear Power Station in California is constantly in the forefront of my mind.

I am deeply concerned by the problems that plague this damaged facility. This nuclear plant is located in a seismic zone and, as if that was not enough, in a tsunami zone. And we all know that if there was no nuclear power plant there and someone came in and said I want a license for this, to put the nuclear plant right here, right in a seismic and tsunami zone, we all know every single Commissioner would say, don't think you could find a better place for it?

Now, in January 2012, a leak of radioactive material led to discovery of unexpected deterioration of the tubes in the plant's new steam generators. The plant has been shut down ever since. The NRC's investigation into the cause of this serious damage must be thorough and it must involve the public.

Eight million people live there, within 50 miles. The thought of families in the U.S. facing an accident such as the type of accident the people of Japan faced or in Fukushima makes me have sleepless nights and should make us all much more vigilant.

So, the American people have a right to expect the best of the people serving in these critical positions. And I know that you come to us with great credentials, you have a good working relationship, which is very important as far as the Commission is concerned.

But for me, what I want to see and what I want to hear is that this dedication to safety is something you hold near and dear.

Thank you very much. And we will call on Senator Inhofe.

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

Senator INHOFE. Thank you, Madam Chairman.

Let me make one comment about the disaster in Oklahoma that was brought up by Dr. Macfarlane and you as well as Ben Cardin and others. It is an indescribable thing unless you have been there and have seen it.

The irony is, in this case, 14 years ago at the same time I was there when the same tornado tracked the same area and hit the same ground, the same. And you look and you see that some of that was not even totally rebuilt after 14 long years. So, I heard someone say, over there, that the problem 3 days ago when I was there, 2 days ago, was to try to match the missing parents with the missing kids.

And I appreciate all of the comments that we have gotten.

Chairwoman Macfarlane, I appreciate your appearing before us today. First, I want to thank you for restoring the congeniality. This is something I felt very strongly about. I know it gets a little bit controversial but your predecessor did not do as good a job as you are doing, in my opinion, in terms of dealing with your people. And having the congeniality is necessary in any bureaucracy.

One of the most exciting developments over the past few years has been the tremendous expansion of oil and gas drilling. Where many believed that we would become a major natural gas exporter at the time, all that is said and it looks like we are going to be able to become, or rather an importer, gas exporters. So, that is very im-

portant. And it is important to look at the overall energy as we approach the, becoming independent in this Nation.

When I talk about energy independence, I am not just talking about oil and gas production. Nuclear energy is, without question, one of the most important assets. And if the United States pursues a lackluster nuclear policy, then it may be impossible for us to achieve this important bipartisan goal.

Unfortunately, the future of American nuclear energy is facing many of the same hurdles as the oil and gas industry and one of the key threats is overregulation by the Government. As with oil and gas producers, we are facing major regulatory hurdles to mine uranium and other feed stocks. Many Federal lands have been ruled off limits by the current Administration despite a long-proven track record of extracting the minerals in an environmentally safe way.

And as we are all well aware, there have also been major hurdles to establish a long-term depository for nuclear waste.

Some of the threats to the industry also come from the Commission. And this has occurred most recently in the aftermath of the Fukushima event. While several emergency orders were awarded and justifiable, such as addressing issues like extreme natural events and the measuring of seismic risks, others were not.

My main concern stems from the attempt to use the emergency orders to impose a costly filtered vents requirement without adequate consideration of the cost benefits, appropriate risks or differences in the United States and the Japanese regulatory practices which are quite different.

These actions and several of the statements that you made to justify your decisions make me wonder whether you are approaching the job with a bias that the industry is unsafe and that regular accidents are inevitable despite the industry's remarkable track record over the past 40 years.

The NRC has many important responsibilities that, if handled correctly, will actually accelerate our ability to achieve and maintain energy independence. The NRC has a tremendous historical record of working well with industry and balancing the needs of public safety and a workable regulatory environment. If you are confirmed, it is my hope that you will continue to ensure the nuclear energy industry remains vibrant in the United States for many generations.

Again, thank you for being here today. I would like to ask you some questions about your vote on filtered vents, the issue of being based on the prospective of Greenpeace and whether you will respect the court's final decision on Yucca Mountain. But I may have to leave early because, as is always the case with this Committee, we have that conflict on every hearing.

So, what I would like to do is ask those two questions for the record in the event I am not here when we ask questions to you.

Thank you very much.

Senator BOXER. OK. Senator Carper. Oh, wait, did Senator Sanders come before? I cannot remember.

Senator Carper.

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

Senator CARPER. I would be happy to yield to the gentleman from Vermont.

Thanks so much for holding this hearing, Madam Chairman. I know you have concerns that you have expressed before and today. I just urge the Chair of the NRC to be as responsive as you can be to those concerns. I know you will be.

I will just be brief, really brief.

We went through a tough patch on the Nuclear Regulatory Commission. You provide new leadership and by all accounts you provide very, very good leadership, restoring collegiality, a sense of cohesion and respect, respect not just from your colleagues but from the employees at the NRC and from the many stakeholders.

You do not have an easy job. It is a challenging job. It is hard to please everybody all the time. And I think if you will just continue to do what you think is right, work hard, provide the kind of leadership that you are doing, the NRC will be fine and we will be as a Country.

We are counting on you. We are counting on your colleagues. The work that you do is important for our Nation in many respects for providing energy and for helping to clean our air. And for that, we thank you.

Senator BOXER. Are you finished?

Senator CARPER. Yes.

Senator BOXER. OK. Senator Sessions followed by Senators Sanders, Fischer, and Barrasso.

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

Senator SESSIONS. Congratulations, Ms. Macfarlane. The President has again found confidence in you and nominated you and his nomination deserves respect. There is no doubt you entered into the office in a tumultuous period and I believe you have done a good job of bringing that group together.

I hear good reports and we have not seen the kind of unhealthy internal disputes that we saw before. I guess maybe Senator Carper's always good advice is the rule of do unto others and he is a big fan of yours. But I think you have done that.

At your confirmation hearing last year, it was unique. I noted your background is not the kind of background I would normally look for in a chairman. And that could cause a situation in which decisions get made more on a political basis rather than a technical basis. I hope you will guard against that.

I have looked at your record. I would note that your vote on filtered vents suggests that you are willing to impose costly new mandates without allowing the public the liberty of the rulemaking process. The other Commissioners disagreed with your view on that, all of them did. Public notice and comment is a critical component of good governance at any agency, but especially the NRC, which has to deal with such highly complex and technical issues.

Even the NRC's principles of good regulation are designed to "focus the NRC on ensuring safety and security while appropriately balancing the interests of the NRC stakeholders including public li-

censees." That is why openness is an important issue and principle. The anti-nuclear people believe in openness, they are entitled to it, and those who are for nuclear power need to have that, too.

So, it would be a concern to me that if you were too willing to reach firm conclusions without a full and open process, as Commissioner Apostolakis wrote in this vote: "Vibrant debate continues to take place on this filtered vent issue and there remain technical questions to be resolved. Pursuing such requirements through the rulemaking process will give all stakeholders the opportunity to discuss these issues." The issuance of orders without rulemaking constrains the extent of stakeholder interaction.

Second, you indicate a willingness to use more subjective qualitative factors when the history of the agency and its practice is to be more focused on objective quantitative factors. In other words, you seem willing to approve new mandates like filtered vents even when that option is not supported by robust numbers-driven cost benefit analysis as the rulemaking process requires.

Commissioner Magwood correctly described, I believe, your use of qualitative factors as an "extraordinary step" that he notes "goes well beyond previous guidance." So, I think that is a dangerous process and it allows more emotional and political influences if you do not do it on the record on a fact basis.

NRC guidance on cost benefit analysis in fact states that qualitative analysis, the kind of analysis that you relied on in this instance, should only be used as a "last resort." As Commissioner Magwood explained in his vote, your approach could be used to "justify essentially any regulatory change." So this would undermine the regulatory certainty that I think we need.

And finally, you have done a good job in leading the Commission. I appreciate that. But we will be, I think it is important as you go into your second term, full term I guess, that you adhere to these fundamental principles and that is important to me.

Madam Chairman, I have a couple of questions that I would just mention and I may not be able to return. I would note that I will be asking you about the principles of independence and your willingness to resist groups and pressures from Congress and other places to reach an independent decision as I believe you are sworn to do and as you have testified. And, that you would be, understand that your vote, absent a real emergency, we had a problem with Mr. Jaczko on this, your vote is equal to only the others. Your power, other than administrative power, leadership power, has no more impact than the others, and the entire board needs to be engaged in these issues.

Thank you, Madam Chairman.

Senator BOXER. And I am going to piggyback on that and ask not only should you be independent from all of these groups, but from the nuclear industry. So, I will ask my question, so you will have a chance to answer his and mine.

We are going to go to Senator Sanders.

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

Senator SANDERS. Thank you, Madam Chair.

Ms. Macfarlane, it is no secret that for decades the NRC was kind of perceived by the public as a tool, if you like, of the industry, a very, very powerful industry. And I happen to think that Mr. Jaczko did a good job. I suspect that his major problem was that he was independent of the industry and some other Members did not like him.

So, in terms of the independence that Senator Sessions raised, I hope, also, that you will be independent but independent of one of the most powerful industries in this Country. And, as the Chairwoman mentioned a moment ago, your job is an enormously important one. But it is not the promotion of nuclear power, which many people now believe is a very expensive way to generate new electricity, but the safety of the American people.

I want to simply add that when we discuss nuclear power and energy in general, many of my friends talk about the Government not picking winners and losers. And I hope everybody here understands that without the Federal Government's heavy support, heavy subsidization of the nuclear power industry, there would be no nuclear power.

So, when some of us argue that we have to move in order to deal with global warming away from fossil fuels to sustainable energy and to energy efficiency, we need Government support because, oh no, we do not want Government support, understand that the nuclear power industry would be dead tomorrow without legislation like Price-Anderson.

Very few people understand that if, God forbid, there is a major nuclear disaster in this Country, you know who picks up the bill? It will be the taxpayers of this Country. And when you say well, why don't you go to Wall Street to get the help, it is because Wall Street thinks it is too risky an investment.

But, my question for you, and I also am going to have to leave and I will put it in writing and would very much appreciate hearing from you, and we did discuss this on several occasions, in Vermont, this is our concern. We have an aging nuclear reactor called Vermont Yankee that has had a number of problems over the years. Our legislature has voted not to renew its license, wants to shut it down. They are in court right now arguing about this.

There is good reason to believe that either for political reasons Vermont would prevail and shut it down or for economic reasons, an old plant is not worth Entergy maintaining, the plant will be shut down.

What the people of Vermont are concerned about is that Entergy, which owns the plant, has suggested that they may want to go into a SAFSTOR process which means you are going to have a plant there for 30, 40 or 50 years, a rotting hulk in the southern part of the State of Vermont, rather than decommissioning, moving quickly in a few years, putting people to work tearing apart that plant in a safe way.

So, what I will ask you in writing and very much want to hear from you as definitively as we can is, my understanding is that all over the world and in this Country when nuclear plants are shut down, they are decommissioned, in a few years they are gone and the waste is safely disposed of, or as safely as it might be.

So, I would like to ask your help in making sure that plants in the Country, it is Vermont Yankee now but there are other plants a few years down the line who are going to be in exactly the same position, that when a nuclear plant is shut down, communities do not have to keep a rotting hulk there for 30, 40 or 50 years.

So, that would be my question, and I thank you very much for being here.

Senator BOXER. Thank you.

Senator Fischer followed by Senator Barrasso.

OPENING STATEMENT OF HON. DEB FISCHER, U.S. SENATOR FROM THE STATE OF NEBRASKA

Senator FISCHER. Thank you, Madam Chairman, and thank you, Ranking Member Vitter, for holding today's hearing.

Welcome Dr. Macfarlane. I appreciate your willingness to continue to serve the people of this Country.

Nebraska is unique and we are very proud of the way we do things. Nebraska has the distinction of being the only State in the Country where every single home and every single business receives electric service from publicly owned power, publicly owned utilities.

Our public power system exists to serve customers, to deliver affordable and reliable electricity. In Nebraska, electricity costs are well below the national average, thanks in part to our nuclear energy. Nebraska normally receives more than 25 percent of its electricity from its two nuclear power plants. Our citizens appreciate access to this clean and affordable energy source.

The Nuclear Regulatory Commission plays an important role in ensuring the safety and the security of our nuclear power and inspiring public trust and confidence that we have in our system. As the NRC does its work, it is critical that the Commission adheres to its principles of good regulation, independence, openness, efficiency, clarity and reliability.

Now more than ever, we need an agency that will put these principles into practice. From the implementation of new safety enhancements to the review and approval to licensing requests, there is much at stake for the nuclear industry here in the United States.

Dr. Macfarlane, I look forward to continuing our discussion on these important issues and again, I offer my thanks for your service.

Senator BOXER. Thank you, Senator.

Senator Barrasso.

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

Senator BARRASSO. Thank you very much, Madam Chairman. Welcome back to the Committee. I am happy to see you.

Since I came to the Senate, I have worked closely with my colleagues to ensure that nuclear energy can continue to be a vital part of America's energy mix. Nuclear energy is essential if we are going to make American energy as clean as we can, as fast as we can, without raising costs for families and businesses.

Over the last 4 years, we have witnessed a competing vision of American energy, a vision that says Washington will pick costly and unreliable energy alternatives because, of course, Washington believes it knows best. The Washington vision is a vision that says nuclear energy must take a back seat to other forms of energy, despite the industry's proven track record of reliability and affordability.

Over the last 4 years, Congress and the executive branch have debated the lessons of Fukushima, the storage of nuclear management and the management of the Nuclear Regulatory Commission. Fukushima was a major event. And it is not just for its impact on Japan, but also for implications here in the United States. As with any major event involving nuclear power, there are immediate calls for new regulations, especially from those who have long campaigned again nuclear energy.

As we consider this nomination, I believe we need a nominee who would proceed cautiously on these proposals. On February 4th of this year I, along with other Republican members of this Committee, sent a letter to the nominee. In that letter, we asked that she take a prudent and thoughtful approach to evaluating the lessons of Fukushima and, where necessary, conduct a cost benefit analysis.

We also expressed concerns that the NRC is moving forward with implementation of costly post-Fukushima recommendations beyond those identified as Tier 1 without fully analyzing the differences between the regulatory and safety cultures of Japan and the United States.

There are significant differences between the regulatory and safety cultures in Japan and the United States. The nuclear industry and the regulatory agencies in the U.S. have an excellent track record of safety. I am concerned with the amount of resources being dedicated to addressing new regulations related to Fukushima, that there is a possibility that the NRC will fail to address potential safety issues that exist at our plants today. We cannot allow that happen.

We need a nominee who will take a thoughtful approach to addressing these issues and we need a nominee that will recognize that the regulations beyond Tier 1 can be costly to the industry and yield in terms of actual safety benefits.

I will say to the nominee that your tenure has brought significant change to the NRC. I believe that collegiality has returned to the NRC under your leadership and I want to thank you for that. I hope that collegiality will be applied to addressing other issues such as the storage of nuclear waste.

The nominee served on the Blue Ribbon Commission that made a series of recommendations for the storage of nuclear waste. Now, I have long been a supporter of Yucca Mountain and I continue to believe that the project should move forward. There are some who have doubted that long-term or interim storage can work. I disagree with them. The recommendations by the Blue Ribbon Commission to transport waste to interim sites could give the industry the opportunity to demonstrate that working with DOE and the NRC it can build and supply and safely supply a long-term storage site in the future.

We need a nominee that recognizes that those who oppose the use of nuclear energy would like nothing more than to have the industry choke on its own waste, get weighed down by regulatory burdens or bow to political pressures to the point that the industry is no longer viable.

I realize that the role of the NRC Chairman is not to be a cheerleader for the industry. I also believe any nominee should not have an agenda either to drive this reliable, affordable energy source out of our Country's energy portfolio.

With that, I look forward to the questions and raising these and other important issues to my State with the nominee today.

Thank you very much, Madam Chairman.

Senator BOXER. Thank you, Senator.

Well, you know, this issue, it is great that you are collegial. But I just want to stress that we are very collegial, we do not agree on every single thing. It is OK. So, there is a difference between being collegial and being rubber-stamping, everybody looking the same way and walking out in the same, the same thing.

We need people on the Commission right, left, center, pro-nuclear or nervous about it, looking at it however they look at it, to say what they think, or we are not served well.

I want to make a point. I want to put into the record, without objection, do not start the questioning now, we have to do this, a letter than I sent to you along with Senator Wyden about Fukushima and I felt that, and not only that, we had a whole slew of people who signed on to this letter, making the point, and Senator Barrasso, I think this is critical, 31 of our nuclear plants are identical to the one that had problems in Fukushima.

So, of course there are other problems we have to look at. But we should not reinvent the wheel. If we are the same design 31 times, I think we can learn, you know, from that. So, let us agree with you that let us not obsess over it, but since there are 31 plants, those plants should not make the same mistake as plants that we had in Fukushima and all of the horrible problems there and the people turning against nuclear. That does not really help the nuclear industry.

And the other point I make about Yucca Mountain, I mean, this is still a fight, right? I thought it was over but obviously it is still there. I want to make a point for my people in California who, if there is a leak, and it shows that there were leaks when they had the tests, that there would be leakage to our underground water supply and Republican members of boards of supervisors all over that area of my State, which is a pretty wet part of my State, said no way, no how.

So, again, I feel bad that you have to deal with these difficult issues every day. It is, we know what that is like here. But there are very different views on it.

Now, I will not take my 5 minutes. I know you want to do a statement but I want to make one point. In your statement, which you are doing now, if you can just answer the questions that you know I want to hear about, San Onofre, then I will not have to ask you those questions later.

Go ahead.

[The referenced letter follows:]

United States Senate

WASHINGTON, DC 20510

February 20, 2013

The Honorable Allison M. Macfarlane
Chairman
Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Dear Chairman Macfarlane:

Next month marks two years since the earthquake, tsunami, and nuclear meltdown in Fukushima, Japan, and we are writing to urge the U.S. Nuclear Regulatory Commission (NRC) to promptly take the next important steps needed to protect the 31 similarly designed U.S. nuclear reactors.

The NRC is legally responsible for ensuring when nuclear materials are used in the country, they are safe and secure. During the years since the disaster in Japan, the NRC staff has worked to conduct numerous studies evaluating the adequacy of U.S. nuclear safety standards, including containment venting systems. In November 2012 the NRC staff recommended the Commission require hardened vents that would operate in a severe accident and include filters to reduce the amount of radioactive material released into the environment. The NRC staff concluded this capability could help keep containment structures intact and documented that these technologies have been demonstrated in nuclear plants around the world. The NRC staff also found the safety benefit of this feature exceeds the cost, even while being restricted from considering the economic costs of an accident like in Japan that left communities uninhabitable.

Two and a half months have already passed since the NRC staff made this well-reasoned recommendation to the Commission and implementing these safety measures will likely take several years. The tens of millions of Americans who live near the affected reactors located in 15 states should not face additional delays.

We urge the Commission to promptly require installation of engineered filtered venting systems, consistent with the expert judgment of the NRC staff, the agency's goal of ensuring all safety features needed to address a Fukushima-type disaster are in place after five years, and the direction from Congress in the Fiscal Year 2012 Final Consolidated Appropriations Bill conference report. We will continue to provide oversight of agency activities dedicated to achieving that goal. If you have questions, please have your staff contact Grant Cope of Chairman Boxer's staff at 202-224-8832.

Sincerely,

Barbara Boxer
United States Senator

Ron Wyden
United States Senator

Dianne Feinstein
United States Senator

Richard Durbin
United States Senator

Charles E. Schumer
United States Senator

Patrick Leahy
United States Senator

Robert Menendez
United States Senator

Bernard Sanders
United States Senator

Frank R. Lautenberg
United States Senator

Jeff Merkley
United States Senator

Kirsten E. Gillibrand
United States Senator

Elizabeth Warren
United States Senator

STATEMENT OF ALLISON MACFARLANE, CHAIRMAN, U.S. NUCLEAR REGULATORY COMMISSION

Ms. MACFARLANE. Thank you. Chairman Boxer, Ranking Member Vitter, Chairman Carper, Ranking Member Sessions and members of the Committee, I appreciate the opportunity to appear before you today. I am honored that the President has nominated me to continue my service on the Nuclear Regulatory Commission. I also want to thank my husband, Hugh Gusterson, for his constant support and for being here with me this morning.

Before I begin, I would like to take a moment to extend my deepest sympathies to the people of Oklahoma as they recover from the enormous tragedy that they have just suffered. We have been in close contact with our Agreement Statement Partners in Oklahoma and they have verified that all licensed nuclear materials that were in the vicinity of the tornado are now secure.

Last June, I committed to you that I would foster a collegial, productive working environment at the NRC. The NRC faced challenges and I committed to meet them. From the first day, I made it my practice to meet regularly with my fellow Commissioners to hear and understand their views and establish collegial relationships with each of them. I value their expertise and perspectives and I believe that we have alleviated the challenges and are now focused on the important safety and security mission at the NRC.

I have been privileged to get to know the NRC staff and have benefited greatly from their guidance. I have visited each of the NRC's four regional offices, our training center in Tennessee and a number of our licensed facilities including the Diablo Canyon, Indian Point and San Onofre nuclear power plants. I will travel to the Vogtle construction site in a couple of weeks and see the construction there.

I have been impressed by our resident inspectors and the talented men and women of the NRC who are dedicated to ensuring that our licensed facilities operate at a consistently high level of safety, that nuclear materials are protected from those with malicious intent and that the public has confidence in our work.

During my tenure, the NRC staff has continued its excellent work. Our most recent plant performance data demonstrates that the majority of plants are performing well. We continue to implement post-Fukushima safety enhancements to protect further our licensed facilities against severe accidents. The staff is working to address Waste Confidence in a timely and comprehensive manner.

The NRC remains committed to ensuring the safe construction of new nuclear facilities without undue delays. When our staff identified potential problems at the Vogtle and Summer plants, the NRC expedited its comprehensive review of license amendments in addressing these issues to enable the sites to safely move forward with construction.

I have also ensured that we are prepared to process new reactor license applications, including those for small modular reactor technology.

Under my leadership, the NRC has navigated a number of internal challenges. I am proud that our agency has been able to address sequestration without furloughs. I am also managing extensive succession planning among the agency's senior management

including the replacement of our retiring Executive Director of Operations.

Further, I have ensured that the NRC is taking the necessary steps to reduce its office space footprint and make more efficient use of our space in close cooperation with the General Services Administration. And finally, I have been a strong proponent of effective engagement with the public and plain language communication.

I have also assumed several important international leadership roles in activities that directly benefit the NRC's domestic mission. I led the U.S. delegation to a major nuclear safety conference in Japan late last year and in January I became Chair of the Multinational Design Evaluation Program, a collaborative international program that focuses on new reactor designs and will give important input to our own construction oversight.

If confirmed, I will remain committed to openness, transparency, fairness and efficiency in the NRC's processes. I will continue to seek views from a broad range of parties affected by our work and ensure those views inform the agency's actions.

I will oversee timely implementation of continued post-Fukushima safety enhancements while ensuring that this work does not distract the staff from other important safety and security priorities. I will endeavor to more fully integrate our consideration of the entire fuel cycle and I will also work to ensure that the starting point for all agency decisions is rigorous scientific analysis.

I have been honored to serve as Chairman of the Nuclear Regulatory Commission for the past 10 months. The NRC has accomplished a tremendous amount in that short time and my leadership has promoted the openness and collegiality necessary for us to focus on our priorities. There are a number of challenges ahead but I believe we are on a good course.

If confirmed, I enthusiastically look forward to continuing to lead the talented staff of the Nuclear Regulatory Commission through what promises to be a dynamic and rewarding 5 years.

I greatly appreciate the opportunity to appear before you today and I would be pleased to answer your questions.

[The prepared statement of Ms. Macfarlane follows:]

OPENING STATEMENT

BY ALLISON M. MACFARLANE, CHAIRMAN

UNITED STATES NUCLEAR REGULATORY COMMISSION

TO THE

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

May 23, 2013

Chairman Boxer, Ranking Member Vitter, Chairman Carper, Ranking Member Sessions, and Members of the Committee, I appreciate the opportunity to appear before you today. I am honored that the President has nominated me to continue my service on the Nuclear Regulatory Commission. I also want to thank my family for their constant support and for being here with me this morning.

Last June, I committed to you that I would foster a collegial, productive working environment at the NRC. The NRC faced challenges, and I committed to meet them. From the first day, I made it my practice to meet regularly with my fellow Commissioners to hear and understand their views and establish collegial relationships with each of them. I value their expertise and perspectives. I believe we have alleviated these challenges and are now focused on our important safety and security mission.

I have been privileged to get to know the NRC staff and have benefitted greatly from their guidance. I have visited each of the NRC's four Regional Offices, our Technical Training Center in Tennessee, and a number of our licensed facilities, including the Diablo Canyon, Indian Point, and the San Onofre Nuclear Generating Station reactors. I will travel to the Vogtle construction site in early June. I have been impressed by our Resident Inspectors and the talented men and women at the NRC who are dedicated to ensuring that our licensed facilities operate at a consistently high level of safety, that nuclear materials are protected from those with malicious intent, and that the public has confidence in our work.

During my tenure, the NRC staff has continued its excellent work. Our most recent plant performance data demonstrates that the majority of plants are performing well. We continue to implement post-Fukushima safety enhancements to further protect our licensed facilities against severe accidents. The staff is working to address Waste Confidence in a timely and comprehensive manner. The NRC remains committed to ensuring that the safe construction of new facilities occurs without undue delays. When our staff identified potential problems at the Vogtle and Summer plants, the NRC expedited its comprehensive review of license amendments addressing these issues to enable the sites to safely move forward with construction. I have also ensured that we are prepared to process new reactor license applications, including those for small modular reactor technology.

Under my leadership, the NRC has navigated a number of internal challenges. I am proud that our agency has been able to address sequestration without furloughs. I am also managing extensive succession planning among the NRC's senior management, including the replacement of our retiring Executive Director for Operations. Further, I have ensured that the NRC is taking the necessary steps to reduce its office space footprint and make more efficient use of our space, in close cooperation with the General Services Administration. Finally, I have been a strong proponent of effective engagement with the public and "plain language" communication.

I have also assumed several important international leadership roles in activities that directly benefit the NRC's domestic mission. I led the U.S. Delegation to a major nuclear safety conference in Japan late last year. In January, I became Chair of the Multinational Design Evaluation Program (MDEP), a collaborative international program that focuses on new reactor designs and will give important input to our own construction oversight.

If confirmed, I will remain committed to openness, transparency, and efficiency in the NRC's processes. I will continue to seek views from a broad range of parties affected by our work and ensure that those views inform the agency's actions. I will oversee timely

implementation of continued post-Fukushima safety enhancements, while ensuring that this work does not distract the staff from other important safety and security priorities. I will endeavor to more fully integrate our consideration of the entire fuel cycle. I will also work to ensure that the starting point for all agency decisions is rigorous scientific analysis.

I have been honored to serve as Chairman of the Nuclear Regulatory Commission for the past ten months. The NRC has accomplished a tremendous amount in that short time, and my leadership has promoted the openness and collegiality necessary for us to focus on our priorities. There are a number of challenges ahead, but I believe we are on a good course. If confirmed, I enthusiastically look forward to continuing to lead the talented staff of the Nuclear Regulatory Commission through what promises to be a dynamic and rewarding five years.
I greatly appreciate the opportunity to appear before you today, and I would be pleased to answer your questions.

Environment and Public Works Committee Hearing
May 23, 2013
Follow-Up Questions for Written Submission

Questions for Macfarlane

Questions from:

Senator Frank Lautenberg

1. President Obama's Blue Ribbon Commission on America's Nuclear Future recommended establishing a permanent geologic storage facility for nuclear waste in addition to developing interim storage facilities in multiple locations around the country. Transporting the more than 67,500 metric tons of used nuclear fuel currently stored on-site at nuclear power plants to these repositories will require multiple shipments. While the Department of Energy is responsible for overseeing the transport of nuclear waste around the country, the NRC is responsible for regulating the design and manufacturing of the containers used to transport nuclear fuel.

   a. Do you continue to support the recommendations of the Blue Ribbon Commission regarding nuclear waste storage?

      ANSWER:

      Yes, I support the Blue Ribbon Commission's recommendations as a former BRC member. As Chairman of the Nuclear Regulatory Commission, my role now is – and will continue if confirmed - to ensure that the facilities we license are protective of public health and safety.

   b. Are there opportunities for the NRC to encourage on-site storage of spent fuel in a manner that facilitates the eventual transport of the spent fuel to an interim or long-term repository?

      ANSWER:

      The NRC's regulatory responsibility is to ensure that spent nuclear fuel is managed safely and securely in either wet or dry storage located at reactor sites or away from reactors, and can be safely transported to an interim or long-term repository. The NRC licenses on-site storage of spent nuclear fuel, but does not direct its licensees toward a particular storage option. The NRC also does not promote a specific national waste management policy. As the National Policy evolves, the NRC's mission remains the same – to ensure the safe and secure use of radioactive materials while protecting people and the environment.

2. Currently, all of the spent fuel from nuclear reactors in the U.S. is stored on-site due to the absence of a safe, centralized storage location. Most of this waste is stored in spent fuel pools, where water is used to cool and contain the radioactivity from spent nuclear fuel. However, due to the declining capacity of spent fuel pools, some facilities are storing spent fuel in dry cask storage, which utilizes passive cooling.

a. Are there opportunities for the NRC to encourage the use of dry cask storage?

ANSWER:

Dry cask storage is used to extend the storage capacity at most nuclear power sites. The NRC routinely reviews, certifies, and inspects new dry cask designs. However, the NRC's regulatory responsibility is to ensure that spent nuclear fuel is managed safely and securely in either wet or dry storage.

b. Does the NRC consider the presence of dry cask storage and the relative storage capacity of the spent fuel pool when reviewing applications for relicensing?

ANSWER:

The capacity of the spent fuel pool is part of the licensing basis for power reactors. To allow continued power operations, licensees have chosen to expand this storage capacity through reconfiguring the storage racks in spent fuel pools and deployment of external dry storage casks. The NRC does not direct licensees on the specific means for expanding storage capacity. For license renewal, the plant's current licensing basis is required to be maintained. The licensee must demonstrate that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis, with a plan to address the possible detrimental effects of aging on certain systems, structures, and components. The NRC does not consider the presence of dry cask storage and relative spent fuel storage capacity as a specific decision factor during the license renewal review itself.

3. Last year, the NRC issued its first three orders requiring nuclear power plants to make safety upgrades based on the lessons learned from the disaster in Fukushima, Japan. These include: 1) requiring plant operators to develop and implement strategies to maintain safety in the event of an extreme natural disaster; 2) installing effective venting systems to prevent heat and radiation from building up inside a reactor in the event of an emergency; and 3) installing enhanced protections for instruments that monitor the spent fuel pools.

Under the NRC orders, nuclear plant operators are required to make these improvements no later than December 31, 2016, or two scheduled maintenance periods after the plant has submitted its compliance plans, whichever date comes first.

a. What is the current status of these actions and does the NRC anticipate early compliance from any facilities?

ANSWER:

With respect to the orders requiring licensees to develop and implement mitigating strategies to respond to a beyond design basis natural event and install enhanced spent fuel pool instrumentation, all operating licensees submitted integrated plans to explain how their facilities would achieve full compliance. Consistent with their integrated plans, licensees have begun procuring equipment and making facility modifications to achieve compliance with the orders. All licensees are required to achieve full compliance within two refueling outages of February 28, 2013. As such,

the first plants are planning to implement the orders' requirements by the end of 2014. With respect to the order on the installation of reliable hardened vents at boiling water reactors with Mark I and Mark II containment designs, the NRC expects to issue a revised order in June 2013, which will expand the requirements of the original order to make these hardened vent systems capable of being used during a severe accident (i.e., after fuel damage has occurred). Hence, licensees will be given additional time to respond to, and to come into compliance with, the requirements of the revised order.

b. What other actions is the NRC considering to improve safety at U.S. nuclear facilities post-Fukushima?

ANSWER:

With respect to safety improvements related to lessons learned from the Fukushima Dai-ichi event, the NRC has taken action on a number of topics. The NRC has requested information from licensees regarding the protection of their facilities from both seismic and flooding events. This information has been, or will be, developed from both licensee walkdowns of their facilities against the seismic and flooding design and licensing bases for their facilities, and from reevaluations of seismic and flooding hazards at their sites using present-day methods. The NRC has also requested information from licensees related to how they will establish communication capabilities and staff their facilities to be able to effectively respond to beyond-design-basis and multiunit events. The NRC is also in the process of pursuing rulemaking activities to (1) require mitigation strategies for extended station blackout events, (2) require licensee integration of emergency procedures, and (3) enhance filtration strategies following a severe accident. In addition to the above, the NRC continues to evaluate whether to require further potential safety improvements identified in the Near Term Task Force report. The Commission has categorized these as "Tier 2" and "Tier 3" issues. Upon completion of its assessment of each issue, the staff will make a recommendation to the Commission regarding whether any additional regulatory requirements are needed.

Senator Benjamin Cardin

1. As I understand it, the Commission estimates that the risk of a fire-related meltdown is equal to all other risks combined. At the September 12, 2012 joint hearing of the full Committee and the Subcommittee on Clean Air & Nuclear Safety, "Oversight Hearing: NRC's Implementation of Recommendations for Enhancing Nuclear Reactor Safety in the 21st Century," Commissioner Apostolakis stated that the regulations the NRC promulgated following the fire at the Browns Ferry plant in Alabama in 1975 were, as he put it, "very difficult to implement". Those regulations, known as "Appendix R," date all the way back to 1980. Twenty-four years later, in 2004, the NRC proposed a second set of fire safety standards, known as the "NFPA (National Fire Protection Association) 805 option". Commissioner Apostolakis described the NFPA 805 standards as "voluntary" and I believe what he meant is that the NRC allows plant operators to decide whether they will comply with Appendix R or with the more "risk-informed" NFPA 805. So we're dealing with one set of so-called "deterministic" regulations that are 33 years old and another set of "risk-informed" regulations that are nearly a decade old. Either way, that's a long time. I would like the Commission to tell the Committee, for each commercial reactor licensed to operate in this country, (1) which ones currently comply in full either with Appendix R or NFPA 805; (2) what the timetable is for bringing the other reactors into compliance; and (3) what the NRC will do with regard to those reactor operators who have failed or will fail to meet their compliance deadlines.

   ANSWER:

   All plants are reviewed for compliance with the NRC's fire protection regulations as part of the Reactor Oversight Process. Currently, no plants have significant unresolved inspection findings associated with fire protection regulations. The NRC issued a license amendment per 10 CFR 50.48(c) for Shearon Harris Unit 1 and Oconee Units 1, 2, and 3 in June and December 2010, respectively. Currently only these two sites are licensed to meet 10 CFR 50.48(c) – NFPA 805. All other plants are licensed to their historical fire protection licensing basis. Fire protection findings of very low safety significance are resolved under licensee corrective action programs. Licensees receive regular inspections to assess licensee corrective action programs and compliance with fire protection regulations under the baseline reactor oversight process.

   The accompanying table lists the plants that are currently pursuing a transition to 10 CFR 50.48(c) fire protection requirements.

   The staff is actively reviewing eighteen license amendment requests. The schedule for reviewing NFPA 805 license amendment requests (LARs) is two years, per the staff's February 24, 2012 paper to the Commission (SECY-12-0031), with a goal of completing all reviews by the end of fiscal year (FY) 2016.

   Licensees that are adopting 10 CFR 50.48(c) – NFPA 805 have submitted schedules for transitions to the risk-informed performance-based fire protection program. The NRC is assuring adequate safety by maintaining in place the current inspection program. If licensees fail to meet their committed submittal schedule, they can lose enforcement discretion per the NRC's Enforcement Policy and may be subject to additional inspections.

Plant	Plant
Arkansas Nuclear One Unit 1	Fort Calhoun
Arkansas Nuclear One Unit 2	Joseph M. Farley 1&2
Beaver Valley 1&2	Nine Mile Point 1
Browns Ferry 1,2,3	Palisades
Brunswick 1&2	Point Beach 1&2
Callaway	Prairie Island 1&2
Calvert Cliffs 1&2	R.E. Ginna
Catawba 1&2	Robinson 2
Cooper	San Onofre 2&3
D.C. Cook 1&2	St. Lucie 1&2
Davis Besse	Turkey Point 3&4
Diablo Canyon 1&2	V.C. Summer
Duane Arnold	Waterford 3

Senator Bernie Sanders

Many people believe that the Vermont Yankee nuclear power plant will close within a few years. Vermonters want to make certain that, once closed, the plant is decommissioned as rapidly and safely as possible, and for this reason we are very concerned that Entergy has suggested they may use the SAFSTOR approach.

SAFSTOR would leave the rotting hulk of the plant sitting there for decades. Vermonters overwhelmingly oppose this approach, and instead strongly support fully and expeditiously decommissioning the plant through the DECON method. By moving quickly to fully decommission the plant we will also likely maintain jobs for hundreds of workers currently employed at the plant. In this way, we would be prioritizing safety and putting Vermonters to work.

It is important to note that Vermont is not unique. Other communities across the country face the same set of problems with decommissioning, and would benefit greatly from a commitment to full and expeditious DECON decommissioning instead of the SAFSTOR method.

Given all of these considerations, the Nuclear Regulatory Commission should require the immediate decommissioning of the Vermont Yankee plant, and it should require the use of the relatively short-term DECON method rather than the multi-decade SAFSTOR approach at Vermont Yankee and across the country.

My questions:

1. What steps will you take to ensure that the Vermont Yankee plant is fully and expeditiously decommissioned using DECON? And what steps will you take to ensure that no other communities in this country are forced to deal with the risks and costs of a forty to sixty year SAFSTOR decommissioning process?

   ANSWER:

   I appreciate your concerns on this topic. Currently NRC regulations (10 CFR 50.82) require nuclear power plants to complete decommissioning within 60 years of permanent cessation of operations. The 60 year requirement is based on a 50 year safe storage period followed by 10 years to complete the decommissioning. The 50 year period allows for the decay of the shorter half-lived radioactive nuclides and will reduce the radiation dose rates by approximately 98% and the volume of low level radioactive waste by approximately 90% of the level that existed when the plant ceased operations. Taking advantage of this radioactive decay over time reduces the dose and risk to the workers during the decommissioning process following the SAFSTOR period and reduces the quantity of radioactive material that must be shipped through the surrounding community for disposal. However, the regulations do not prevent licensees from decommissioning sooner. I have discussed this issue with my colleagues and am in the process of understanding what alternatives the agency might consider.

2. The Commission's own Fukushima Task Force, consisting of NRC experts with 135 years of nuclear regulatory expertise among them, made a range of key recommendations for improving nuclear plant safety. Its report was released more than a year ago, and included 12 recommendations which ranged from requirements to upgrade seismic and flood protections to protections against the long power outages that were the ultimate cause of

the Japanese meltdowns. They also concluded that all of the recommendations were necessary for the "adequate protection" of nuclear power plants. Despite the repeated urging of its own experts, the Commission has so far refused to make these recommendations mandatory. What steps will you take to ensure that the Commission revisits this decision and does, in fact, adopt the Task Force's safety recommendations as mandatory?

ANSWER:

The Commission has already mandated, or is in the process of mandating action on the highest priority (Tier 1) recommendations from the Near-Term Task Force. The NRC has established plans for evaluating potential safety improvements identified in Fukushima lessons learned categorized as "Tier 2" and "Tier 3" issues. The NRC will continue to follow its established processes to determine whether any additional regulatory actions are warranted regarding both the recommendations of the Task Force and any other lessons identified from the Fukushima Dai-ichi event.

3. The Commission's internal procedures require the transmission, when requested by a member of a Congressional oversight committee, of sensitive documents as part of the committee's oversight efforts. It would be extremely difficult for this committee to fulfill its oversight responsibilities without access to such documents, but the Commission is now considering changing its guidance so that it can refuse to make such documents available in the future. The Commission's rationale is based on an interpretation of the Freedom of Information Act which the Department of Justice has explicitly rejected. What steps will you take to ensure that the Commission rejects this move toward secrecy, obfuscation, and obstructionism?

ANSWER:

Chapter VI of the Internal Commission Procedures sets forth the procedures that the Commission uses when transmitting sensitive documents to Congress. As noted, in the Commission's Internal Procedures Chapter VI, "The Commission's general practice is to provide sensitive documents requested by Members of its Congressional oversight committees." Recently, the Commission received a request from a Member of an oversight Committee, and very soon thereafter, a FOIA request from a news organization requesting the same information as requested by the Member. These near-simultaneous requests encompassed sensitive Privacy Act information, trade secrets and other sensitive information. Our Internal Commission Procedures do not specifically address this matter; by providing sensitive documents to individual Members of Congress, the Commission must necessarily consider implications arising under the Freedom of Information Act and other statutes. The Commission is deliberating on a path forward now. The Commission will continue to abide by the statutory requirement in Section 303 of the Atomic Energy Act to keep its Congressional oversight committees fully informed about all activities of the Commission.

4. Dr. MacFarlane, you co-authored a paper published in the Journal of Science and Global Security in 2003 with Robert Alvarez and other experts concluding that dry cask storage offers compelling advantages over wet pool storage: it is safer and it is less prone to failure. Your paper recommends that spent fuel should be transferred from wet pools to dry cask storage within 5 years of discharge to reduce the risk of fire and subsequent radioactive contamination of air and land. In fact, ten years after your paper, a study by

Oak Ridge National Laboratory found that spent fuel pool leaks are occurring at an increasing rate. I am particularly concerned about the spent fuel pool at Vermont Yankee because it contains more than 30 years of accumulated nuclear waste. It is one of the most densely packed radioactive waste pools in the nation. Your own paper's conclusions suggest that this spent fuel should be moved to dry cask storage. Why has the Commission refused to require the use of dry cask storage at Vermont Yankee, and what steps will you take to ensure the Commission requires dry cask storage after five years instead of permitting long-term use of overcrowded wet pool storage systems, which are much more dangerous and unreliable?

ANSWER:

The Commission has previously determined that public health and safety at US nuclear power plants is adequately protected with spent fuel stored in both pools and casks. This determination is based on NRC technical studies on the risks of spent fuel pool and dry cask storage accidents. However, the events at Fukushima Dai-ichi have renewed questions about the safety of spent fuel pools, and the potential benefits of accelerated transfer of spent nuclear fuel into dry cask storage.

The NRC staff is currently performing additional research into the performance of both spent fuel pools and dry cask storage. This is a significant analytical effort and NRC staff needs sufficient time to complete a detailed analysis on whether additional regulatory action is needed to ensure spent fuel pool safety. The staff currently plans to release a draft spent fuel pool consequence scoping study for public comment and hold a public meeting this summer. The staff will then provide the Commission with an analysis of whether a substantial increase in public health and safety can be achieved by transferring fuel from a spent fuel pool to dry cask storage.

Senator David Vitter

Qualifications

I am wondering after a year as Chair what you think it takes to be Chair of the NRC...

1. Do you think an NRC Commissioner should have strong technical expertise relevant to the NRC's mission to protect the public health and safety and be knowledgeable about the nuclear industry it regulates?

   ANSWER:

   Yes, an NRC Commissioner would be well served to have a technical background. As Chairman of the NRC, I have drawn upon my technical and scientific expertise and associated analytical skills, environmental policy experience, interpersonal skills, and knowledge of the nuclear industry to work collegially with my fellow Commissioners and effectively lead the talented men and women at the NRC. If confirmed, I would continue to benefit from and utilize these skills.

2. Please describe the technical expertise and industry knowledge you had before you joined the commission.

   ANSWER:

   My technical expertise is focused on the back end of the nuclear fuel cycle, though I am familiar with the front end processes as well. I have published extensively on technical issues associated with the storage and disposal of spent nuclear fuel. I have also examined economic issues associated with storage and disposal of spent fuel. I have published technical articles on nuclear energy in general. I have consulted for industry, as well. I am the only individual with a background in geology to serve on the Commission. I hold a doctorate in geology from the Massachusetts Institute of Technology and a bachelor's of science degree in geology from the University of Rochester.

3. Do you think the NRC Chair should have organizational leadership and management experience sufficient to oversee a large, complex organization with important public safety responsibilities?

   ANSWER:

   The leadership of the NRC is a complex task that requires an array of skills. Prior to joining the NRC last July, I led a variety of different organizations and worked with many employees who reported directly to me. As Chairman of the NRC for the past ten months, I have broadened and strengthened my management and interpersonal skills. If confirmed, I believe my strong leadership, management, and interpersonal skills will enable me to work well with my fellow Commissioners, the NRC's senior managers, and the talented and dedicated NRC staff, as we fulfill our mission to protect public health and safety and promote the common defense and security.

4. Please describe your organizational and leadership experience before you joined the NRC.

ANSWER:

Before becoming Chairman of the NRC I had experience running complex multi-year research projects that involved coordinating teams of researchers, managing budgets, and contracting with different entities, and I chaired the Science and Security Board of the Bulletin of the Atomic Scientists. Although the Bulletin's Board and the research projects I led were smaller in scale than the NRC, the skills I learned in these contexts were transferable to the NRC, where they scaled up.

NRC Post-Chairman Jaczko

The Jaczko regime was marked by contentious, adversarial, arbitrary unilateral actions by the Chair. This seems to have abated since you have assumed leadership and everyone appreciates that. However, the Commission has work to do to restore the NRC's reputation for integrity, professionalism, and independence.

As chair what will you do to:

5. Stabilize the workforce and implement knowledge preservation and transfer programs?

ANSWER:

Currently, our workforce is stable and we do not have a critical skills gap (or shortage). NRC's attrition rate for this fiscal year is projected to be around 5.5 percent, which continues to be below the government average. If confirmed, I would continue to support the agency's ongoing knowledge management efforts to ensure that the staff learns important institutional knowledge and skills from one another. As Chair, I have implemented a plan to revitalize the goals and strategies of the current knowledge management program, with the vision of increasing NRC effectiveness and efficiency, maintaining and improving organizational capacity, and innovating by continuously improving management of NRC's high value/high risk knowledge and skills to better accomplish the NRC mission. I will continue to ensure we have strategies in place to replace NRC's critical knowledge and skills. I believe these efforts, coupled with past experience and current economic conditions, will enable the agency to maintain our critical positions with highly qualified individuals.

6. Build employee morale by publicly recognizing exceptional service by Staff who may have legitimate professional differences with the Chairman rather than attempting to fire them or accusing them of not caring about safety?

ANSWER:

I value hearing a broad range of views on all issues. In fact, I believe it is important to cultivate an environment where agency staff are encouraged to understand all aspects of an issue, including both the pros and cons of various options. The NRC maintains both a nonconcurrence process and a differing professional opinions process to ensure all staff views are given an adequate airing.

In this tight budget environment where our ability to provide monetary awards is limited, we have focused on finding ways to acknowledge, as specifically as possible, employees'

contributions and to thank them. Some approaches include recognizing accomplishments at staff meetings, providing certificates of appreciation and issuing limited time off awards where appropriate. A key example of such an award is the Team Player Award, which the NRC established in 2008 to recognize the value of differing views. This award is designed to recognize and show appreciation for individuals who have supported an open, collaborative work environment by exhibiting team player behaviors in promptly raising differing views, fairly considering differing views, and respecting differing views. Recipients are nominated by fellow employees and are presented with the NRC Team Player Award and a Certificate of Appreciation from the Executive Director for Operations. The award symbolizes the value of considering varied approaches in the decision-making process.

7. Initiate junior staffer exchange programs with industry so NRC people work in industry facilities and industry people work at the NRC?

ANSWER:

NRC fulfills its responsibilities through a system of licensing and regulation that involves the enforcement of regulatory controls and restrictions on activities conducted by the nuclear industry. The integrity of these regulatory functions is a matter of public stakeholder interest and trust. In order to maintain regulatory integrity, the NRC must ensure that our actions do not potentially create a real or perceived appearance of impropriety. Providing a resident worker exchange could create such an impression.

At the same time, the NRC needs to maintain an effective working relationship with the regulated community. This is done by maintaining productive and collaborative relationships with the industry and other stakeholders consistent with NRC's principles of good regulation (being independent, open, efficient, clear, and reliable) and NRC's performance goals (maintain safety; increase public confidence; improve efficiency, effectiveness, and realism; and reduce unnecessary regulatory burden). NRC staff members routinely meet with nuclear industry groups on issues related to the industry. A few examples of such meetings include: the Regulatory Information Conference, staff working-level meetings with applicants and licensees, technical exchanges between the NRC and industry working groups, review of licensee performance meetings, "drop-in" meetings, inspector exit meetings, and NRC management visits to a licensee facility.

8. Curb "Teach Me" RAIs (request for additional information) sent to applicants for NRC staff education purposes, or "Zombie" RAIs seeking information that has already been requested, provided, and acted upon?

Requests for Additional Information (RAIs) are necessary to ensure that the staff has all relevant information needed to make a regulatory decision on a license amendment request or technical evaluation associated with a Confirmatory Action Letter. The staff is expected to follow specific guidance on the content of RAIs, that RAIs should in particular be directly related to the applicable regulatory requirements associated with the amendment request. RAIs should also be consistent with the plant's licensing basis and applicable codes, standards, and guidance (e.g., Regulatory Guides, Standard Review Plan). RAIs should not be used as general information requests or as a means to encourage commitments from licensees.

9. Manage the NRC's Difference of Professional Opinion (DPO) process so a single dissenter can't cause lengthy licensing delays?

ANSWER:

The NRC uses several strategies to ensure that differing views are considered in a timely way to support the decision-making process and reduce the possibility that a dissenting opinion could inadvertently delay regulatory actions. Employees are expected to promptly raise concerns with their immediate supervisors during the deliberative process. Employees can also choose to pursue concerns before agency positions have been established through the Open Door Policy and the Non-Concurrence Process. As a more robust process, the NCR's Differing Professional Opinions (DPO) Program is reserved for differing views on established, mission-related issues. Another way the DPO process prevents delays is by ensuring that the scope of the DPO is limited to the employee's original issues identified in the submittal. The NRC also oversees the timeliness goals for various milestones in the process. Notwithstanding timeliness goals, the NRC recognizes that the DPO process (and the Open Door Policy and the Non-Concurrence Process) exists to inform and support management's decision-making process and that management has the obligation to take the time necessary to support sound regulatory decisions.

10. Avoid press releases criticizing applicants regarding normal review issues, or press releases characterizing applicants as unresponsive or calling applications "poor quality"?

ANSWER:

As Chairman, the Office of Public Affairs reports directly to me. If confirmed, I will continue to work with this office to ensure that press releases and other communication tools, including social media, build upon the agency's public engagement efforts and the commitment to openness and transparency. My direction will include ensuring that media communications are appropriate for the circumstances.

11. Bring an end to the practices of your predecessor as identified in IG Bell's Report to make NRC processes, particularly with respect to Yucca Mountain, the only license that Congress has mandated that the NRC act upon, more open and transparent to enable interested representatives of the media and public to find out what's going on inside the NRC?

ANSWER:

I have and will continue, if confirmed, to devote my energies to serving on the Commission with the attributes that I consider important to good governance – openness, efficiency, and transparency.

12. Defend the independence of the NRC against political interference that would compromise its mission to promote safe nuclear development or its duty to obey the law?

ANSWER:

I believe the intrinsic value of a nuclear regulator is in its independence from undue influence from politics and the industry it regulates. My decisions will be guided by our safety mission and in conformance with relevant legal requirements.

It is well-known that the atmosphere at the NRC was fairly tense under the previous Chairman.

13. Has this improved, in your opinion, since you became Chairman?

ANSWER:

Yes, I believe it has improved. Last June, I committed to you that I would foster a collegial, productive working environment at the NRC. The NRC faced challenges, and I committed to meet them. I believe we have alleviated these challenges and are now focused on our important safety and security mission.

14. What have you done to address this?

ANSWER:

From the day I arrived at the agency I have sought and held regular, periodic meetings with my fellow Commissioners. I have asked that my personal staff also meet regularly with their counterparts from the other Commission offices and we make every effort to share information with the other Commissioners as well. I also meet regularly with NRC staff office directors, and conduct regular "walk-arounds," during which I take the time to meet the staff working in a particular group at the agency.

I maintain an open door policy and have met with many members of the NRC staff, some of whom have shared concerns or suggestions for improvement. I work with the Executive Director for Operations to address issues that are raised by members of the staff, and I encourage those with differing views to share them. I believe that our ability to discuss and consider all sides of the technical, safety, and policy issues we address makes us stronger, more effective regulators, and helps ensure that we develop the best approach for fulfilling our mission to protect public health and safety.

15. What is your philosophy of chairing the NRC -- what are your responsibilities as chair versus the responsibilities of your fellow Commissioners?

ANSWER:

Chairing the NRC is a complex task that requires multiple skills and orientations. The Chairman has a significant role in senior personnel appointments, and it is the chair's job to make sure that the senior professional staff is accountable for managing effectively and efficiently, that deadlines are met, that divisions perform their work with rigor, and that morale within the organization is sustained at high levels. Beyond these tasks, the Chairman also has to promote collegial working relationships and a rigorous process of discussion and debate among the five Commissioners as they engage in the policy-making process.

I consult widely before acting decisively, and empower personnel, while holding them accountable. In order to keep abreast of issues at all levels at the agency, I am

approachable and accessible, taking time to walk the floors in the buildings, eat with employees in the cafeteria, and maintain an open door policy available to employees who wish to raise issues with me. I promote intellectual rigor in technical decision-making, through regular briefings on a wide array of topics and I do not hesitate to ask tough questions. If confirmed, I will continue with this approach.

As for my relationship with the other Commissioners, in accordance with my academic background, I see myself somewhat like a university department chair as a *primus inter pares*. We discuss our decisions as a collegial body and my main authority is the power of intellectual suasion. As a practical matter, I have demonstrated that agency decision making is advanced by full consultation with my fellow Commissioners on important matters before the agency. If confirmed, I will continue to do so.

16. How is staff morale?

ANSWER:

Staff morale is much improved from when I arrived. I can confidently state that staff morale is high. One point of reference is that the U.S. Office of Personnel Management currently places the NRC first in "global satisfaction" and second in "employee engagement" across the federal government, based on the most recent government-wide Federal Employee Viewpoint Survey (FEVS).

17. Are differences of opinion aired and discussed, even valued?

ANSWER:

Yes, differences of opinion are aired, discussed, valued, and encouraged at the NRC. I certainly encourage my own staff to share their views, I listen to the differing views of my colleagues on the Commission, and the NRC has policies in place to ensure that differing views are valued and carefully considered. I believe that our ability to discuss and consider all sides of the technical, safety, and policy issues we address makes us stronger, more effective regulators, and helps ensure that we develop the best approach for fulfilling our mission to protect public health and safety.

The NRC strives to establish and maintain an open collaborative work environment that encourages all employees and contractors to promptly speak up and share concerns and differing views without fear of negative consequences. This goal is routinely communicated and modeled within the NRC and is posted on the NRC's public web site (see more information at: http://www.nrc.gov/about-nrc/values.html#open).

Sequester

At many agencies right now, and here in Congress, budget is a hot topic these days –

18. How are you managing the impacts of sequestration at the NRC?

ANSWER:

The NRC is managing the sequestration reductions in a manner that preserves the agency's ability to accomplish its mission of protecting the public health and safety,

promoting the common defense and security, and protecting the environment for operating nuclear facilities and uses of nuclear material. This includes ensuring normal operations in performing oversight of safety and security of existing licensees. NRC is not planning any staffing or personnel actions, such as furloughs, as a result of sequestration. The NRC reduction was taken from contractor support resources, which will delay and/or defer non-mission critical activities.

19. Is the sequester impacting your safety reviews or inspections? Will it?

ANSWER:

The NRC sequestration strategy for FY 2013 was to ensure the agency's ability to successfully accomplish its critical safety and security missions. Therefore, there has been no impact on safety reviews or inspections for existing and near term licensee actions. My understanding is that a sustained sequester-level funding cap could, however, significantly delay new licensing activities.

20. Are there other areas facing cutbacks?

ANSWER:

The funding reductions are reducing or delaying contractual funding for the following activities: new reactor licensing of large light water reactors, design certifications for advanced reactors, long-term and/or discretionary research, assistance for the International Atomic Energy Agency, some agency infrastructure support functions, and support for the Grants to Universities program and Minority Serving Institution program.

I know several years ago, the NRC was ramping up staffing in order to handle the work associated with the expected number of applications for new plants. Most of these applicants have asked for their reviews to be suspended.

21. Did you reduce your staff or your budget as it became apparent that the number of new plant applications to review was going to be much lower than originally expected, at least in the near term?

ANSWER:

The New Reactors budget was reduced to reflect schedule changes and suspensions in applications for large light-water reactors. However, this was partially offset by growth in activities for small modular reactor designs.

22. What is this staff that was designated to work on new plants doing now?

ANSWER:

Most staff assigned to work on new reactors remain assigned to new reactor safety and environmental reviews. Some staff supporting new reactor applications were reassigned to support other licensing activities for large light-water applications and infrastructure

development associated with small modular reactor designs projected to arrive next year. In addition, some contract work was diverted to in-house staff. Some staff were also reassigned to support the Fukushima task force recommendations and the waste confidence directorate.

Emergency Evacuation Policy

Across the US fleet, there are universal safety mandates like the Station Blackout Rule; and then there are unique safety requirements based on size, type of plant, location, environment and community.

23. When it comes to evaluating emergency evacuation plans throughout the fleet, how to you balance the need for the public to be informed in case of emergency and the need for evacuations to be appropriate to the incident at hand?

ANSWER:

A successful response to emergency conditions requires effective communication with the affected public. It is important that area residents understand what is expected of them and their community should an emergency occur at the nuclear power plant. To ensure that emergency response actions, including evacuations, are successful, the NRC relies on a well-defined and practiced defense-in-depth strategy for protecting the public as outlined in guidance issued jointly with the Federal Emergency Management Agency (FEMA). This guidance outlines the basis for each site's approved onsite and offsite emergency plans, and specifies that State and local emergency plans shall establish a capability for implementing protective measures based upon EPA-issued protective action guides and other criteria.

This joint guidance also provides specific criteria for the evaluation of onsite and offsite emergency plans with regard to the ability to implement protective measures for people living within the likely plume exposure pathway (i.e., the emergency preparedness zone (EPZ)). Licensees are required to recommend specific protective actions for the public based on plant conditions or a postulated radiological release. Offsite authorities will evaluate these recommendations and issue a protective action decisions based on the event circumstances (e.g., impact of severe weather on roadways, hostile action at the plant site, rapidly progressing severe accident). This may include a decision to evacuate, shelter-in-place, or conduct a staged evacuation. The detailed planning provided within the plume exposure pathway EPZ would also provide a substantial basis for expansion of response efforts by offsite authorities in the event this proved necessary.

Finally, the joint guidance also states that onsite and offsite emergency plans shall provide for coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what actions they should take during an emergency. This information shall include, but is not necessarily limited to: educational information on radiation; points-of-contact for additional information; descriptions of possible protective measures (e.g., evacuation routes and relocation centers, sheltering, respiratory protection, radio-protective drugs); and information on obtaining assistance for the special needs of the handicapped.

24. How closely does the NRC work with local law enforcement, state offices of emergency services or homeland security, federal lands agencies and other levels of government on planning for and executing any emergency response scenarios?

ANSWER:

The ability of Federal, State, and local agencies to coordinate and align their respective roles and responsibilities is vital to managing incidents that could range from the serious but purely local, to large-scale terrorist attacks or catastrophic natural disasters. The NRC, on a daily basis, works with its Federal, State, and local response partners under the National Response Framework to ensure that plans and strategies for executing emergency response scenarios are reliable and executable.

Current regulations require a defense-in-depth strategy for emergency response capabilities that protect citizens around nuclear power plants (NPPs) with the primary responsibilities being assigned to the nuclear facility licensee and the State and local organizations within the defined EPZ. The NRC and FEMA joint guidance states that onsite and offsite emergency plans shall indentify the Federal, State, local, and private sector organizations (including utilities) that are intended to be part of the overall response organization for the defined EPZs. In accordance with the above regulations, guidance, and an established memorandum of understanding, the FEMA provides oversight of the offsite response plans that support the NPPs, while the NRC reviews and approves the onsite plans. These plans are reviewed, assessed, and exercised periodically by the NRC and FEMA to ensure compliance with relevant regulations and guidance. These interactions allow reliable and consistent coordination between nuclear power plants, Federal, State, and local government partners.

Post-Fukushima Regulations

Japan vs. U.S. Policy

The decision also tasked the staff to, "document its comparison of U.S. and Japanese regulatory requirements that were in effect at the time of the accident..., "and further tasking the staff to describe how the differences were factored into the NRC's post-Fukushima actions. It also stated that its purpose was to, "facilitate public communications."

I'm glad you finally commissioned a comparison, but fail to see why there's a limitation on its purpose.

25. Would not such a comparison been of great value as you began to evaluate post-Fukushima recommendations to determine whether they are/were of relevance or as important for U.S. reactors?

ANSWER:

Certainly some of the regulatory requirements in Japan at the time of the Fukushima accident were not the same as those in the U.S. Nonetheless, operational experience is essential for understanding the potential issues and accident scenarios that can befall reactors. The accident at Fukushima provided valuable operational experience for all nuclear regulators worldwide. It is no accident that nuclear regulators in all countries with

substantial nuclear power programs have come to similar conclusions in their recommendations for changes required at nuclear power plants.

The Fukushima accident illustrated that we need to consider the potential for more than one unit at a plant to fail simultaneously. Prior to the Fukushima accident, the NRC had only considered scenarios involving failure of one unit. Consideration of multi-unit accidents has implications for emergency procedures, staffing, communications, and back-up emergency equipment requirements. The Fukushima accident also demonstrated the potential for prolonged station blackout and the impacts of external events such as earthquakes and flooding, impacts the NRC had not fully and adequately taken into account.

26. Will it not be of value to evaluate so-called Tier Two and Tier Three recommendation, as well as other added initiatives form the staff or public?

ANSWER:

See answer to (25).

27. Will you work with your colleagues to remove the limitation on the purpose of the comparison?

ANSWER:

The Commission came to its decision to not extend the request further on this issue after thoughtful consideration and deliberation.

28. Will you commit to work with your colleagues to modify, add, or drop from consideration any recommendations that the comparison reveals as not-applicable to the U.S. due to the differences in regulatory philosophies and requirements that existed at the time of the accident?

ANSWER:

I believe the Commission is effectively managing the Fukushima lessons-learned and with the appropriate due caution to not over-reach. I further believe that as the Commission identifies the need to make changes to the current plans, it will not hesitate to do so.

29. Will you work with your colleagues to provide additional guidance to the staff for your expectation on milestones for these tasks?

ANSWER:

In issuing a Staff Requirements Memorandum, the Commission receives feedback from the staff on issues such as the need for additional guidance. At the current time, I believe that the staff has adequate guidance to complete their work.

30. Would you agree that releases from the damaged Fukushima reactors have had an immeasurably small impact on public health and safety?

ANSWER:

It would be premature at this time, relatively early in the process of understanding the impacts of the accident, to say that the accident has or has not had an impact on public health and safety. Data is still being collected and analyzed; ultimately this issue will be debated among scientists and medical experts. Therefore, knowledge of this topic is neither complete nor mature.

Economic Consequences

The Commission's recent decision on economic consequences contained a number of important statements by the Commission on how it believes the staff should approach its regulatory responsibilities in this regard. Specifically, "The Commission finds that economic consequences should not be treated as equivalent in regulatory character to matters of adequate protection of public health and safety." I applaud that finding.

31. Will you commit to working with your colleagues to formally incorporate this finding into Commission regulation or policy?

    ANSWER:

    Because this finding was noted in the staff requirements memorandum dated March 20, 2013, it is already Commission policy.

32. Will you commit to work with your colleagues to formally incorporate this finding into Commission regulation and/or policy?

    ANSWER:

    Because this finding was noted in the staff requirements memorandum dated March 20, 2013, it is already Commission policy. The decision said that the Commission endorses the Near-Term Task Force conclusion that the "...NRC's current approach to land contamination from reactor accidents is sound."

33. Will you work with your colleagues to ensure the staff adopts this endorsement and should guide its rulemaking effort on filtered vents?

    ANSWER:

    Any rulemaking on filtered vents will be reviewed and approved by the Commission, and the Commission will ensure that any decision on that rulemaking is consistent with Commission policy on economic consequences.

Cumulative Impact

In comments made recently (at the Nuclear Energy Assembly, you referenced the "cumulative impact" of regulations and stated, in discussing lessons learned from Fukushima, that "After all the analyses are done and the reports are written, the changes we implement must be appropriate, effective and sustainable."

34. What is the process for determining "appropriate" and "sustainable" regulations?

35. How and when does cost-benefit analysis factor into this decision?

ANSWER FOR 34 and 35:

The NRC's rulemaking process begins with the regulatory basis stage. The purpose of this stage is to determine whether there is a legitimate safety or security issue that warrants regulatory action. If the NRC determines that regulatory action is necessary, it will then consider costs, unless the Commission has determined that the proposed changes are necessary for reasonable assurance of adequate protection of public health and safety and the common defense and security.

Where the proposed NRC regulatory action constitutes backfitting but is *not* needed for adequate protection, then the NRC first determines whether the proposed regulatory action provides a substantial increase in protection to the public health and safety or common defense and security. If there is a substantial increase, then the NRC evaluates whether the costs of the regulatory action are justified given the increase in safety or security. Benefits and costs are evaluated both qualitatively and quantitatively, consistent with longstanding Federal practice and guidance.

36. When it is used, how does the NRC estimate cost?

37. Where does this information come from - and have estimated costs historically reflected actual cost of implementation?

38. I understand that was one issue with the recent filtered vents decision - the industry believed cost estimates were lower than costs of implementation would be. Is there a better way to gather cost information?

39. Have you looked at previous cost estimates used by the NRC and reconciled with actual cost of implementation? If not, will you?

ANSWER FOR 36, 37, 38, 39:

The NRC prepares, and publishes for comment, a draft regulatory analysis with proposed rules that are published in the *Federal Register*. For the initial cost estimates, the NRC's technical staff identifies implementation and operation (both initial and recurring) steps, and estimates costs based on technical expertise, for the proposed requirements. During the development of the draft regulatory analysis, the NRC technical staff may request cost estimates from the public during public meetings. The draft regulatory analysis is then published concurrent with the proposed rule in the *Federal Register*. Any member of the public may comment on the cost and schedule estimates within the draft regulatory analysis. In fact, the NRC, as part of the Cumulative Effects of Regulation (CER) process enhancements, includes a specific request for comment (i.e., a targeted question) on the regulatory analysis in the proposed rule's *Federal Register* notice. The NRC then uses those comments to revise the final regulatory analysis.

In response to a staff policy paper titled, "Implementation of the Cumulative Effects of Regulation Process Changes," dated October 5, 2012, the Commission directed the staff

to seek volunteer facilities to perform case studies to review the accuracy of cost and schedule estimates used in NRC's regulatory analysis. The NRC conducted a public meeting on May 8, 2013, and engaged attendees in this effort. At this time, the power reactor industry has expressed interest in participating.

40. What do you mean by "effective" regulations?

ANSWER:

An "effective" regulation can be thought of as one that addresses a safety or security issue without being overly burdensome (i.e., imposing requirements beyond the minimum needed to address the problem).

Again in reference to Fukushima lessons learned and implemented, I understand that work on the first tier, or top priority, issues is underway with orders issued and requests for additional information pending.

41. How will the NRC determine the safety benefits gained from the implementation of these orders?

ANSWER:

The NRC's regulatory process for evaluating potential safety improvements at nuclear power plants considers existing regulatory requirements that the NRC has approved as part of the plant's design and licensing basis. As such, the NRC's processes ensure that appropriate consideration is given for existing plant safety systems and equipment before imposing additional regulatory requirements.

42. Will not the implementation of these orders address some issues raised in Tier 2 and Tier 3 recommendations - or at least possibly impact or resolve the issues raised in the later tiers?

ANSWER:

The NRC has recognized and documented that upon full implementation of the Tier 1 Orders additional regulatory requirements related to Near Term Task Force recommendations in Tier 2 and 3 may not be necessary. As the staff moves forward with its plans to evaluate the remaining Tier 2 and 3 issues, it will apply the NRC's established regulatory processes for considering the safety enhancements already achieved when evaluating the need for any additional regulatory requirements.

43. Are the safety benefits gained from implementation of the Tier 1 recommendations considered as the NRC moves forward on Tier 2 and Tier 3 issues?

ANSWER:

The NRC has recognized and documented that, upon full implementation of the Tier 1 Orders, additional regulatory requirements related to Near Term Task Force recommendations in Tier 2 and 3 may not be necessary. As the staff moves forward with its plans to evaluate the remaining Tier 2 and 3 issues, it will apply the NRC's established

regulatory processes for considering the safety enhancements already achieved when evaluating the need for any additional regulatory requirements.

44. If yes - how can they be if the plants are just beginning to work on these recommendations and in some cases the final requirements are not yet known?

ANSWER:

In its March 2012 orders, the NRC has established the requirements for safety enhancements licensees are expected to make to their facilities. In accordance with its established processes, the NRC staff will appropriately consider these requirements as it evaluates the remaining Fukushima lessons learned and considers whether any additional regulatory actions are warranted.

Also, from these comments: "Our objective in addressing Fukushima's lessons has been to enhance nuclear power plant safety worldwide in a way that will stand the test of time without distracting from other safety or security priorities."

45. How does the NRC do this?

46. What are you doing to ensure that the cumulative impact of regulatory demands does not have unintended safety consequences?

ANSWER For 45 and 46:

As a first step, the Commission prioritized post-Fukushima actions to implement improvements of higher safety significance first. The NRC worked closely with the industry and interested public and has taken into account the availability of resources in developing plans and guidance for post-Fukushima activities. The NRC recognizes the potential overlap of certain activities and is currently working with industry to develop an implementation plan that avoids unwarranted cumulative impacts. As I have said on numerous occasions, it is important that we do not let Fukushima related activities distract us or our licensees from day-to-day safe plant operation.

47. Previously, you and other NRC Commissioners have stated that the US fleet is safe.

ANSWER:

That is correct.

48. Do you continue to believe this?

ANSWER:

Yes, I believe that the U.S. fleet is safe. Our most recent performance data demonstrates that the majority of plants are performing well.

49. What do you believe the agency's top priority should be over the next year? next five years?

ANSWER:

Consistent with our mission, the NRC's top priority always has been, and will remain, ensuring the day-to-day safety and security of our licensed facilities. If confirmed, I will hold this as my primary focus.

50. How does the Commission intend to insure that the Commission's policies will be pursued by the agency's staff with continued vigor?

ANSWER:

The Cumulative Effects rulemaking process enhancements have been memorialized to ensure they are understood at the office level. Initially, the NRC staff established the rulemaking process enhancements to address the Cumulative Effects of Regulation (CER) in a policy paper entitled, "Consideration of the Cumulative Effects of Regulation in the Rulemaking Process" (SECY-11-0032). The Commission approved these enhancements in the associated staff requirements memorandum dated October 11, 2011, and directed the staff to revise office-specific rulemaking procedures to reflect the rulemaking process enhancements.

In a policy paper to the Commission dated October 5, 2012, the NRC staff informed the Commission that each program office revised its rulemaking procedures and templates to include a list of generic CER-related questions. The Commission provided direction in a paper, dated March 12, 2013, in which the Commission instructed the staff to continue to develop and implement outreach tools that will allow the NRC to consider more completely the overall impacts of multiple rules, orders, generic communications, advisories, and other regulatory actions on licensees and their ability to focus effectively on items of greatest safety import. The Commission also directed the staff to engage with Agreement States on the cumulative effects of the NRC's regulatory actions on the conduct of their Agreement State programs.

51. What will the Commission's role be in providing oversight over the staff's implementation of its cumulative impacts policies?

ANSWER:

The Commission will continue to be involved with these efforts through formal communications with the NRC staff. The Commission's role is to set policy and strategically guide the NRC. The Commission directed the staff on March 12, 2013, to move forward with plans to address issues associated with cumulative effects of regulations. The Commission will work closely with the EDO's office, which has day-to-day oversight of the staff activities to ensure Commission guidance is implemented.

52. What is the NRC's plan to account for non-rulemaking activities in assessing regulatory burden?

ANSWER:

The staff is now beginning to consider how to extend the cumulative effects of regulation principles to other areas of NRC's regulatory framework, including orders, guidance,

generic communications, and others. The NRC will seek public comment in deciding on which areas to focus.

53. Can you explain why the NRC did not identify any candidate rules or a process to do so, and if the agency does have a specific plan for taking a retrospective look at its regulatory requirements, what that plan is?

ANSWER:

As part of its voluntary response to Executive Order 13579, "Regulation and Independent Regulatory Agencies," the NRC published an initial Plan in November 2011. On November 23, 2012, the NRC published a draft Plan for public comment. The draft Plan for public comment discusses the ways in which the NRC, through its existing rulemaking processes, already identifies, simplifies, and updates outdated regulations in order to make them more effective and less burdensome. Public participation throughout the process facilitates the exchange of ideas and contributes to the retrospective review of the NRC's regulations. The NRC received eight comments on its draft Plan and is now evaluating the comments and preparing the final Plan. The NRC expects to publish a final Plan by December 2013.

54. Also, please explain how retrospective review and cumulative impacts have been integrated.

ANSWER:

As described in the previous response to question 53, the draft retrospective review Plan for public comment discusses the ways in which the NRC, through its existing rulemaking processes, already identifies, simplifies, and updates outdated regulations in order to make them more effective and less burdensome. Public participation throughout the process facilitates the exchange of ideas and contributes to the retrospective review of the NRC's regulations.

The draft Plan discusses the NRC's longstanding focus on assuring that its regulations are effective, efficient, and up-to-date and also recognizes the processes that have contributed to the NRC's comprehensive regulatory infrastructure. The draft Plan also refers to actions recommended by the Commission in light of events at the Fukushima Dai-ichi Power Plant in Japan following the March 11, 2011, earthquake and tsunami.

The public may request a revision to existing regulatory requirements at any time using the 10 CFR 2.802, "Petition for Rulemaking" process. On May 3, 2013, the NRC published a proposed rule to streamline and clarify its process for addressing petitions for rulemaking. Proposed changes to the process aim to improve transparency and make the process more efficient and effective.

The draft Plan also describes the many opportunities that the NRC offers interested parties and the public to comment on rulemaking activities, frequently even before the proposed rule stage.

55. Along these same lines, what regulations has the NRC amended or rescinded as a result of its regulatory review? Why were these regulations rescinded?

ANSWER:

As noted in the answer to question 53, the NRC published in late 2012 a draft Plan for public comment. The draft Plan for public comment discusses the ways in which the NRC, through its existing rulemaking processes, identifies, simplifies, and updates outdated regulations in order to make them more effective and less burdensome. The NRC is now evaluating the comments it received and preparing the final Plan. The NRC expects to publish a final Plan by December 2013.

Qualitative Factors

I was pleased to see in the Commission's decision on the Filtered Vents matter that the Commission directed the staff to, "seek detailed Commission guidance regarding the use of qualitative factors..." I was disappointed that the direction provided no milestones or deadlines and did not direct if or how to collect input licensees on the subject.

56. Please answer yes or no that you will work with your colleagues to set meaningful milestones for this project, that the licensee community and other knowledgeable individuals will have the opportunity to contribute to this effort, and that a deadline will be set for completion?

ANSWER:

As with all matters before the Commission, if confirmed, I will work collegially with my fellow Commissioners and the NRC staff. The public, including the licensed community, will have an opportunity to comment on the proposed policy and guidance. I note that the Commission has provided guidance on the timing of the rulemaking on filtering strategies in the Staff Requirements Memorandum on this topic.

57. Please answer yes or no that, in the interim, you will use qualitative factors only for evaluating those issues that cannot be quantified.

ANSWER:

With respect to regulatory analysis, the NRC does not limit itself to using <u>only</u> quantitative factors, even when costs and benefits can be quantified. Current NRC guidance and practice with respect to regulatory analysis, which is consistent with Federal government-wide guidance on regulatory analysis, provides for the presentation of both quantitative and qualitative factors. The NRC has a long history of considering both quantitative and qualitative factors without restriction.

The NRC's guidance on the application of the backfit rule and regulatory analyses is contained in NUREG/BR-0058, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission." There are a number of situations where the guidance indicates that qualitative factors should be used either by themselves or in addition to quantitative factors. In particular, the guidance notes that "...to supplement any available quantitative information, qualitative insights should be used for issues involving external events." The accident at Fukushima was such an external event.

Qualitative Analysis

Having introduced artificial uncertainties into the quantitative analysis of filtered vents, you then jumped ahead and justified the use of qualitative analyses because of, as you put it, "the uncertainties and sensitivities of modeling economic consequences is best done qualitatively."

58. This would seem to make your view unique among economic activity and impacts of events. Why do you believe that reactor regulation is unique and what reactor operation, reactor management, or reactor regulatory expertise guides you to such a conclusion?

    ANSWER:

    The Atomic Energy Act was established by Congress with the recognition that the regulation of nuclear energy is a unique and challenging field that is different from the regulation of other economic activity.

59. Do you support the recent Commission decision affirming that, "economic consequences should not be treated as equivalent in regulatory character to matters of adequate protection of public health and safety?

    ANSWER:

    Yes, although I voted for a different approach, I fully support the Commission's decision.

Quantitative Analysis

First of all, let me say that I would be pretty outraged if U.S. auto insurance companies started using another nation's accident record as a basis for setting U.S. rates, wouldn't all of you? I fail to see how using foreign nuclear performance as a basis for re-evaluating U.S. requirements is much different

You set out a tenet that you termed, "important," in your vote on filtered vents that the world has seen three severe accidents at nuclear facilities in 33 years. You build on that to assert that this record versus the, "theoretical" (as you term it) performance at U.S. reactors, highlights the reason why uncertainties justified use of qualitative factors.

60. We regulate U.S. reactors to U.S. standards, correct?

    ANSWER:

    Yes, but the NRC's consideration of future regulatory requirements may also include evaluation of international practice. In addition, voluntary consensus standards bodies, such as IEEE (Institute of Electrical and Electronics Engineers) and ISO (International Organization for Standardization) may be international in scope and membership. In conformance with the National Technology Transfer and Advancement Act (Pub. L. 104-113), the NRC always reviews such standards for technical and regulatory adequacy and may impose conditions on their use.

61. The operating record at U.S. reactors since the beginning of the civilian nuclear power era isn't "theoretical," is it? Isn't it actual data?

    ANSWER:

The reference to the word "theoretical" is related to the use of predicted core damage frequency values used in probabilistic risk assessment.

In its paper on filtered vents, the NRC staff performed the cost-benefit analysis using two different core damage frequency values, 2×10^{-5}/year and 2×10^{-4}/year, to demonstrate the sensitivity of the results to these uncertain values. For both cases using a core damage frequency of 2×10^{-5}/year, the staff did not find the enhancements to be cost-beneficial, while for both cases using a core damage frequency of 2×10^{-4}/year, the staff found the enhancements to be cost-beneficial. Given the uncertainty of estimating an actual core damage frequency, I argued that the results of the cost-benefit analysis demonstrate that the proposed modifications are cost effective.

One core damage event in the United States (the Three Mile Island accident) over the number of reactor years of operation in the United States indicates that actual data supports a higher core damage frequency than the value used in these cost-benefit analyses.

62. Then why are you attempting to contort our U.S. record by importing an accident in the now-defunct Soviet Union, at a reactor that would have never been built for the U.S. power fleet and caused by an operation that no U.S. operator would contemplate? Why are you also importing an accident that significant government-sponsored studies conclude would not have occurred had the reactors been upgraded to U.S. post 9/11 standards?

ANSWER:

Observations of operational experience are important to ensure that the U.S. nuclear reactor fleet operates safely and securely. All operational experience is considered by NRC staff and the lessons learned, if deemed necessary by the Commission, are integrated into regulations for U.S. reactors.

Noting that the one severe accident in the U.S. at a reactor built and operated to U.S. standards resulted in negligible harm to the public, I'd then ask you:

63. Why should U.S. ratepayers and licensees have to bear the burden of the mistakes of other countries' regulatory and operational shortfalls?

ANSWER:

Again, operational experience is key to ensuring a safe operating fleet of reactors. The NRC has used a deliberative process to determine that the U.S. fleet of nuclear power reactors needs to upgrade portions of its safety systems, emergency response capabilities, and other aspects of the facilities by holding more than 50 public meetings, seeking input from the full spectrum of individuals interested in nuclear power, and relying on the latest technical information available, the NRC staff has evaluated lessons learned and proposed appropriate safety enhancements for nuclear power plants. Although the Commission has not approved every staff recommendation, the Commission determined that some actions are necessary for adequate protection, while other actions can provide a substantial increase in protection to public health and safety. This approach is consistent with the NRC's mission to license and regulate the Nation's civilian use of radioactive

materials to protect public health and safety, promote the common defense and security, and protect the environment.

NRC Cost Estimate Practices

The accuracy of the NRC staff's cost estimates in the cost-benefit analysis in the filtered vent matter was subject of criticism during deliberation on the issue. Specifically, it seems that the NRC staff may have simply asked vendors what a filtered vents would cost and did not consider all of the associated effort in planning, permits, procedures, and training, etc., that goes into making such an extensive change. Since the industry had no NRC regulatory guide developed to guide its own estimates, as the staff was in a hurry to issue an Order, owners had to play "catch-up" in developing more accurate estimates.

The underestimation of costs is nothing new at the NRC. When you issued your recent Hours of Work Rule, site costs were as much as 3 times the staff estimate. Site costs for implementing your security rule exceeded staff estimates by a factor of 10. These deficiencies seem to call out for more than just, "case studies, by the staff as you called for in your direction to the staff on addressing cumulative effects.

64. Doesn't the wide variation in cost estimates by your staff versus the actual implementation costs by the industry indicate a problem that calls for more direct action than reviewing some additional, "case studies?"

    ANSWER:

    The NRC is performing these case studies to determine if there is a better methodology for estimating implementation costs. In addition, the NRC has recently taken a number of actions to assist in ensuring that cost estimates by the NRC staff reflect expected implementation costs. As referenced in earlier answers, the NRC's implementation of the Cumulative Effects of Regulation (CER) directs the NRC staff to include questions within a proposed regulation on the estimated costs for the proposed regulation to encourage public comment on, among other things, the draft regulatory analysis. Also, because CER directs the NRC staff to provide a draft Regulatory Guide with the proposed regulation, it will ensure that the NRC staff estimates, and public responses, are based on the actual associated efforts in developing the estimated implementation costs.

65. Given the staff's record in this regard, is it capable of conducting an accurate assessment of case studies or a more extensive review?

    ANSWER:

    Yes. The NRC is capable of accurately assessing these case studies and, if necessary, a more extensive review. For example, in NUREG/CR-6890, "Reevaluation of Station Blackout Risk at Nuclear Power Plants," the NRC staff reviewed the previously implemented Station Blackout Rule. This retrospective review of that regulation showed that the regulation was more effective than originally estimated. For these planned case studies, and for any more extensive review, the NRC must rely on the nuclear industry to provide the requested information to ensure a complete review can be conducted.

It seems that much of the regulatory burden created by the agency is created not through formal regulatory means like rules or orders, but in inspection and licensing activities. These activities

typically only affect a specific licensee, rather than the whole industry, but they can create additional regulatory burden. A typical example of this would be an individual plant inspector coming up with his or her own interpretation of an existing NRC requirement that effectively results in new requirements being imposed on licensees without any regulatory analysis being applied. My understanding is that those type of inspection activities are not subject to any meaningful cost-benefit analysis and do not get evaluated through the agency's own backfitting procedures unless forced to do so by the affected licensee.

66. How is the agency ensuring that management is performing proper oversight over staff activities to ensure that the agency staff and licensees are focused on the most safety-significant issues and that new agency positions are not being furthered without a complete examination of their regulatory impact?

ANSWER:

The NRC is dedicated to protecting public health and safety. However, addressing the CER issues is also important. To address CER issues, the NRC formed a CER steering committee that consists of senior managers who oversee the work of the CER staff-level working group. The working group and the steering committee meet regularly with the Executive Director for Operations. Further, in response to the staff policy paper titled, "Implementation of the Cumulative Effects of Regulation Process Changes," dated March 12, the Commission directed that "NRC senior management should carefully monitor the CER approach to ensure that no significant unintended consequences occur."

67. Are new interpretations that arise through inspection and licensing activities subject to the NRC's regulatory analysis and back fitting requirements, and if not, why?

ANSWER:

Yes, all mechanisms that would effect a change in the use of resources by NRC licensees require an accompanying regulatory analysis. A high quality regulatory analysis requires the agency to meaningfully look at the costs that are associated with implementation of a new requirement. Licensees are generally in the best position to provide accurate estimates of implementation costs. Backfitting is defined at 10 CFR 50.109(a)(l) as "the modification of or addition to systems, structures, components, or design of a facility; or the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct or operate a facility; any of which may result from a new or amended provision in the Commission rules or the imposition of a regulatory staff position interpreting the Commission rules that is either new or different from a previously applicable staff position..." If a change in interpretation falls within this definition for a single plant, then this plant-specific backfit is performed in accordance with NRC Management Directive 8.4.

68. In development of a regulatory analysis, how does the NRC ensure that it has obtained accurate implementation costs estimates?

ANSWER:

For the initial cost estimates, the NRC's technical staff identifies implementation and operation (both initial and recurring) steps, and estimates costs based on technical

expertise, for the proposed requirements. During the development of the draft regulatory analysis, the NRC technical staff may request cost estimates from the public during public meetings.

69. Does the staff ever go out to sites to assess first-hand what the implementation impact might be, or speak directly with licensees during this process?

ANSWER:

The staff does not go out to sites to assess first-hand what the implementation impact (in terms of costs) might be. The draft regulatory analysis is published concurrent with the proposed rule in the *Federal Register.* Any member of the public may comment on the cost and schedule estimates within the draft regulatory analysis. In fact, the NRC, as part of the Cumulative Effects of Regulation (CER) process enhancements, includes a specific request for comment (i.e., a targeted question) on the regulatory analysis in the proposed rule's *Federal Register* notice. The NRC then uses those comments to revise the final regulatory analysis.

70. Do you consider the Advisory Committee on Reactor Safeguards (ACRS) a key source of advice to the NRC?

ANSWER:

The NRC meets with the ACRS on proposed requirements as part of the final rule process, and during the proposed rule and regulatory basis stages if requested by ACRS. The NRC always appreciates feedback from the ACRS, and considers all ACRS comments during the development of the prospective rules.

71. Please explain your position on the hardened vents issue and how your position differs from the ACRS position.

ANSWER:

I support the NRC's efforts to require hardened vents. The first Order issued on March 12, 2012, requiring hardened vents occurred before my tenure on the Commission. On January 29, 2013, I voted to approve the expansion of hardened vents to be severe accident capable. That Commission vote was unanimous and the revised Order will be issued in the coming weeks. The ACRS recommended approval of the Order in 2012 and the modification to the Order in 2013.

72. Do you agree with the NRC cost benefit rule that prevents the NRC from mandating changes unless the safety benefits outweigh the costs?

ANSWER:

The NRC's backfitting and issue finality provisions ("cost-benefit rule") do not always prevent the NRC from mandating changes unless the safety benefits outweigh the costs. The NRC may require backfitting without consideration of costs and benefits in several circumstances. One circumstance is where the NRC-mandated change (the "backfit") is needed for adequate protection; another is where the backfit is needed for the licensee to be in compliance with legally-binding portions of its licensing basis. The NRC may, as a

matter of discretion, consider the costs and benefits for mandating compliance, and may exercise enforcement discretion if appropriate. In addition, the licensee may request an exemption from compliance if the NRC's established exemption criteria can be met (for nuclear power reactors, the exemption criteria are in 10 CFR 50.12 and 10 CFR 52.7).

73. Is that the standard in the Atomic Energy Act?

ANSWER:

The Atomic Energy Act of 1954, as amended, does not provide that NRC regulatory requirements may only be imposed if the safety benefits outweigh the costs. Additionally, the Court of Appeals for the D.C. Circuit has held that costs may not be a factor in determining if a requirement is needed for adequate protection. The NRC does, however, consider costs of alternative ways of achieving adequate protection, and may consider costs in determining if safety enhancements in addition to the minimum needed for adequate protection are warranted.

San Onofre Nuclear Generating Station (SONGS)

Process

As we understand it, the NRC has held at least eight public meetings on SONGS either in southern California or at NRC Headquarters and all of those have been available on webcast and documented on a SONGS-specific website maintained and updated by the NRC.

74. Is this typical of the NRC's public process? Or have you taken extra steps to ensure the public is informed?

ANSWER:

In an unusual situation such as that at SONGS, in which a reactor is experiencing a prolonged outage, the technical and legal aspects of the outage are complex, and public interest in the situation is high, the NRC typically responds with multiple public meetings.

75. Are there examples of NRC processes similar to this for other plants around the country?

ANSWER:

This was the practice during the Millstone reactor issues in the 1990s, for example, and this is the practice at SONGS right now.

Public Participation

Building and maintaining public trust is critical to carrying out NRC's mission. To be an effective steward for nuclear safety, the public must have confidence in NRC's regulatory actions. Public participation in the regulatory process is critical to the process and by all accounts appears to be very robust in the SONGS.

76. As various advocacy groups ask for more transparency or public participation, do you believe the NRC is sufficiently responsive within its existing process?

ANSWER:

I believe that the NRC has been responsive to the public's concerns about the SONGS reactors. The overwhelming amount of mail the agency receives on a daily basis on SONGS attests to the intensity of public interest in the situation. As time has progressed, the situation regarding the reactors has grown more complex, with technical reviews, license amendment requests, Atomic Safety and Licensing Board decisions, and Office of Investigations and Office of Inspector General investigations. To continue to engender trust in the integrity of NRC's regulatory oversight, the NRC should continue to explain this situation to the public to ensure that the interested public is fully informed of the processes playing out at SONGS. The efforts underway notwithstanding, the NRC can continue to improve in its efforts to interact with the public.

Prejudicial Regulation

I am informed that your Licensing Board reached a decision the other day regarding a matter the Commission referred to it asking for a decision on a matter that has actually been rendered moot since your referral. I don't want to dwell on the decision as it's still in the adjudicatory process.

I cannot understand why this matter was even referred to the Board in the first place. As it deals with an actual regulatory matter that involves a great deal of additional information sharing between licensee and regulator, the question itself seems to prejudged the outcome of that give and take by asking the Board to decide if the matter constituted a different form even while the actual matter was evolving.

77. "What kind of regulatory stability is this?"

78. I want you to justify for me how truncating an actual regulatory process by deciding on its presumptive, rather than actual, outcome enhances stability.

ANSWER to 77-78:

As these questions observe, the issues decided in the Licensing Board's recent decision, designated LBP-13-7, remain in adjudication. Under the NRC's regulations, the Commission has an appellate role in proceedings brought before the Licensing Boards, and the Commission must remain impartial to maintain the integrity of the adjudicatory process. As such, I cannot discuss here the specific issues raised in the Board's decision. That said, in regard to Question 77, the type of arguments raised by the Petitioners in their original pleadings before the Commission included questions of fact, which are routinely referred to Licensing Boards to create an adjudicatory record. Given historical precedent, referrals of this type are consistent with the NRC's regulatory process, and thereby support regulatory stability and predictability. A Licensing Board generally has more time and tools available to it to focus on the specific issues assigned to it, hear all pertinent arguments, and issue a decision on the matter, thereby developing a robust adjudicatory record that is reviewable by the Commission.

The staff's review of Southern California Edison Company's April 5, 2013, license amendment request is ongoing. In parallel, Edison must meet the terms of the NRC's March 27, 2012, Confirmatory Action Letter before returning SONGS Units 2 or 3 to service; the NRC staff is actively assessing Edison's response to the Confirmatory Action Letter and

subsequent NRC requests for additional information. The staff also is conducting inspections and completing its technical review of operational assessments for the steam generators. The NRC staff will document its review in inspection reports and technical evaluations, consistent with established regulatory processes, and will permit restart of SONGS Unit 2 or 3 only if the agency concludes that Edison has demonstrated that the facility can be operated safely and in compliance with NRC regulations. Compliance with these existing review processes ensures regulatory predictability and stability in agency decision-making.

Outside Influences and Request for Commitment for Objective Evaluation

79. Will you commit to basing any NRC decision on SONGS on an objective technical evaluation of the plant's capabilities and not on political or outside interference?"
Yes. The NRC adheres to the principles of good regulation: independence, openness, clarity, reliability and efficiency. I believe that the NRC's strength and effectiveness as a regulator depend in part on its independence from outside influence or interference. Our independence from the commercial entities we regulate and political concerns is vital to public confidence in our work as a safety regulator.

ANSWER:

The NRC adheres to the principles of good regulation: independence, openness, clarity, reliability and efficiency. Any NRC decision regarding SONGS will be based on a sound, objective, technical, safety evaluation. We will not allow either unit at SONGS to restart until we are certain that it can operate safely.

Adequate Protection

The NRC has been directed by Congress through the Atomic Energy Act to maintain "adequate protection" of the public health and safety, not "absolute" protection. As such, the NRC, like the rest of society, must be willing to accept some degree of risk when it decides whether it should impose new regulatory burdens. As part of its obligation to decide what is an acceptable amount of risk, the NRC must maintain its focus on only those matters of greatest safety significance, and it must establish clear priorities that it must stick to absent compelling reasons.

80. Do you agree that there are regulatory activities identified in the letter that should be deferred or eliminated because they are of low safety significance or redundant to other regulatory requirements?

ANSWER:

With regard to the potential regulatory actions identified in your February 4, 2013, letter, the NRC will rely on its established processes to evaluate whether any additional regulatory actions concerning lessons learned from the Fukushima Dai-ichi event are necessary. The NRC's process includes consideration of existing regulatory requirements. Until the staff has had the opportunity to fully evaluate these potential safety issues in accordance with the NRC's established processes and present this information to the Commission, it would be premature to say whether the potential regulatory actions identified in your February 4, 2013, letter should be deferred or eliminated.

81. How should the NRC be more mindful of the limits of its adequate protection charge when making regulatory decisions?

ANSWER:

The NRC has consistently iterated over time that "adequate protection" is neither "absolute protection," nor "no risk." Consistent with this principle, the NRC has developed a variety of "tools" and methodologies to help inform its decision on adequate protection. These include deterministic analysis, probability and risk analysis coupled with comparison against such measures as the Safety Goals (with both qualitative and quantitative goals), core damage frequency and large early release frequency, consideration of uncertainties, the use of expert panels, and consideration of defense-in-depth. Consideration of adequate protection is reflected in many Commission policy statements, and various backfitting and issue finality restrictions in the NRC's regulations. The NRC's internal guidance – in the form of various Management Directives, and the NRC's guidance on regulatory analysis – also reflect the Atomic Energy Act's direction on adequate protection.

Yucca Mountain

Chairman Macfarlane, we have been struggling with some agencies' shortcomings in the conducting their work in an open and transparent manner.

82. If reconfirmed as Chairman, will you commit to conduct the Commission's business in a completely open and transparent manner, including such things as the agency's conclusions resulting from safety analyses?

ANSWER:

Yes, as stated above in response to question 11, I am committed to continue effective, open and transparent regulation. This would include an agency decision to make final agency conclusions resulting from its safety analyses publicly available, to the extent permitted by law. If, for example, the staff's safety evaluation report were to include sensitive information, that information may need to be withheld from the public.

83. Does your commitment to transparency extend to the release of the NRC's conclusions regarding the Yucca Mountain Safety Analysis Report?

ANSWER:

Yes, my commitment to transparency would extend to any Commission decision to release final conclusions in a completed Safety Evaluation Report regarding the proposed repository at Yucca Mountain.

84. If not, why not?

ANSWER:

As noted above, I am committed to an open and transparent regulatory process.

85. If the Court requires the NRC to resume the license review, will you honor the Court's decision?

ANSWER:

I will await the final court decision, review it when it comes, and work with my colleagues on the Commission to determine the appropriate next steps for the agency.

Other Questions

86. Chairman McFarlane, do you believe the Nuclear Waste Policy Act (NWPA) is the "law of the land" as it relates to the siting and licensing of geologic repositories for the permanent disposal of spent fuel and high-level radioactive waste? Yes or No?

ANSWER:

I agree that, until it is amended or repealed, the NWPA is still applicable to the siting and licensing of geological repositories for the permanent disposal of spent fuel and high-level radioactive waste. However, I am advised by the NRC's General Counsel that the NWPA is not the only Congressional action on this topic and that Congressional appropriations legislation also governs the agency's activities relating to the licensing of geological repositories.

87. Has anything changed the NWPA in terms of the NRC's mandate that the NRC approve or disapprove the DOE Yucca Mountain license application?

ANSWER:

As stated in response to the previous question, the NWPA is still applicable and any requirements contained in the Act remain in effect, as do requirements imposed by other applicable legislation, including appropriations legislation.

88. Do you believe that the NRC should continue to comply with NWPA mandate? If not why not?

ANSWER:

I believe that the Commission should comply with its legal obligations.

a. Does the NRC have any layover funds regarding past Yucca appropriations?

ANSWER:

Yes

b. How much?

ANSWER:

See response to Question 88(c)

c. Could this money not be used to complete the technical review?

ANSWER:

The NRC currently has approximately $11.1 million in unobligated carryover funds (and $2.5 million in obligated, unexpended carryover funds) appropriated from the Nuclear Waste Fund. The precise portion of the $2.5 million that might ultimately become available will not be known until the completion of the audits associated with the closeout of certain contracts. The money could be used to fund some activities related to the Yucca Mountain project, including the completion of the technical licensing review.

89. What will you do to bring the agency into compliance with the law, NWPA?

ANSWER:

I will await the final court decision, review it when it comes, and work with my colleagues on the Commission to determine the appropriate next steps for the agency.

90. Do you believe that the NRC is an independent agency and that politics should not interfere with its congressionally mandates duties and responsibilities?

ANSWER:

Yes.

91. Do you believe that your predecessor's action to essentially suspend the licensing review of the Yucca license application by was an administrative decision or a policy decision?

ANSWER:

I do not have personal awareness in this matter, nor the logic behind the actions of my predecessor. As a practical matter, long before I was appointed Chairman, no new funding was appropriated for the licensing review and consequently NRC staffing and resources were directed elsewhere.

92. How much carry over funding for the licensing review of Yucca does your agency have current available?

ANSWER:

The NRC currently has approximately $11.1 million in unobligated carryover funds (and $2.5 million in obligated, unexpended carryover funds) appropriated from the Nuclear Waste Fund. The precise portion of the $2.5 million that might ultimately become available will not be known until the completion of the audits associated with the closeout of certain contracts.

93. What are you willing to do to bring your agency into compliance with the law?

a. Request funds from Congress to complete licensing review?

ANSWER:

I will await the final court decision, review it when it comes, and work with my colleagues on the Commission to determine the appropriate next steps for the agency.

b. Finish and issue SERs (Safety Evaluation Report) with complete with regulatory analyses?

ANSWER:

I will await the final court decision, review it when it comes, and work with my colleagues on the Commission to determine the appropriate next steps for the agency.

94. Do you acknowledge that repository siting is a Congressional responsibility and not an NRC responsibility?

ANSWER:

I acknowledge that Congress has selected a site for a repository, and that the NRC has no role in choosing a site.

95. Do you agree that the NRC's responsibility to make a determination about the proposed Yucca design is safe?

ANSWER:

I agree that the responsibility to make determinations concerning the safety of the construction and operation of a proposed geologic repository belongs to the NRC.

96. Do you agree that the NRC has a substantial record before it on the safety to the Yucca project, and a Staff safety evaluation report (SER) on the DOE design? And that the record has been available since 2008? And that the SER has been ready for public review since 2010?

ANSWER:

It is my understanding that in June 2008, DOE submitted its application for a proposed geologic repository at Yucca Mountain and that once the application was docketed, the NRC's technical staff initiated a comprehensive review. The application is available on the NRC's public website. I am also aware that the NRC issued one volume of its SER related to the "General Information" section of the DOE license application, which contains introductory and overview information about the proposed facility and its operation. The NRC has neither completed nor issued Volumes 2, 3, 4, and 5 of the SER. It is my understanding that the NRC completed orderly closure of its Yucca Mountain review activities by the end of Fiscal Year 2011. As part of orderly closure, the NRC documented and published publicly three volumes of a Technical Evaluation Report.

97. Would you agree that your main technical expertise relevant to service on the NRC is your understanding of geology and particularly the geology of the Yucca site?

ANSWER:

In addition to my expertise as a geologist, I have spent most of my career analyzing policies and technical issues related to nuclear waste and energy from a scientific

viewpoint. From 2010 to 2012 I served on the Blue Ribbon Commission on America's Nuclear Future, created by the Obama Administration to make recommendations about a national strategy for dealing with the nation's high-level nuclear waste. My research has focused on policies and technical issues related to the back end of the nuclear fuel cycle from a scientific viewpoint as well as other aspects of nuclear energy in general.

98. If you are confirmed to the NRC, do you agree to give Congress and the public the benefit of your expertise by voting to restart the Yucca licensing proceeding, releasing the SER, and participating in a final decision on the safety of the Yucca project?

ANSWER:

As I stated in my June 2012 testimony, my work in this area predates the DOE license application for Yucca Mountain by six years. I have not analyzed the license application or the NRC's analyses. As Chairman, I remain impartial about whether DOE's application meets the NRC's regulatory requirements. Further, I believe it is prudent to wait for the D. C. Circuit Court's decision before determining a course of action with respect to these issues. Once the court renders its decision, the Commission will determine the appropriate next steps for the agency.

Last June the Court of Appeals rejected the NRC's updated waste confidence ruling. The NRC had found that there is reasonable assurance that spent fuel will be removed from reactor sites even if the Yucca repository is not licensed. Without waste confidence, there is more uncertainty about NRC new plant licensing.

99. To restore confidence that new reactor sites will not become graveyards for spent nuclear fuel, would you be willing to make decisions in reactor licensing cases beginning now, before the hearings, decisions and appeals on Waste Confidence are complete? If not, why not?

ANSWER:

The Commission formally directed the NRC staff to prepare an environmental impact statement and updated rule to address the issues identified by the Court of Appeals. Resolving these issues generically, through the NRC's rulemaking process, continues to be the shortest path to the resumption of licensing activities. However, the Commission recognized that there could be some circumstances where a site-specific review would be warranted, and instructed the staff to identify licensing proceedings where there is an exceptional or compelling need for a site-specific analysis. To date, the NRC staff has not identified any proceedings that would merit a site-specific review. The Commission is continuing to monitor the progress of the generic environmental impact statement and rule, which is on schedule to be completed in September 2014.

100. Well, if the NRC is not going to complete the Yucca license, is not going to act on reactor construction, uprates, or plant life extensions, why should Congress appropriate any funds for those activities?

ANSWER:

In an August 7, 2012 Order, the Commission directed the NRC staff to continue its technical review of applications for initial and renewed licenses during the Waste

Confidence rulemaking proceeding, to expedite issuance of final licenses or license renewals if appropriate, once the updated Waste Confidence rule is completed. The Commission remains on schedule to resume licensing in September 2014, upon completion of the Waste Confidence final rule. Based on the status of the ongoing staff technical reviews of the applications, the Commission anticipates that there will be little to no delay between the issuance of the revised Waste Confidence rule and the issuance of initial and renewed licenses. Any reactors seeking renewal will continue operating after the expiration of their initial licenses under the timely-renewal provisions of the Administrative Procedure Act.

An IG report detailed the ways Chairman Jaczko manipulated the Commission's decision making process to prevent a vote on the DOE motion to withdraw and to suspend the Yucca licensing proceeding.

101. As NRC Chair, would you be willing to have a new vote on whether to restart the Yucca proceeding and release the Staff SER on the Yucca project?

102. Are you willing to schedule the vote before the Court of Appeals in the Aiken County case orders you to restart the Yucca proceeding?

103. Can you offer any reason why the Commission should not release the Staff SER on the Yucca Project?

104. Wouldn't release of the Staff SER be in the interest of openness and science?

105. Would you have any problem or objection if a Congressional Committee released a copy of the Staff SER?

106. If you are unwilling to schedule a vote on the Yucca license?

107. Why should the Senate schedule a vote on your nomination until there is a vote on Yucca?

ANSWER for 101-107:

Your questions 101-107 touch on matters that are currently being deliberated in Federal court. As I noted during my May 23, 2013 confirmation hearing with the Committee, the agency's actions to close the review of the Yucca Mountain license application have been challenged in the D.C. Circuit Court. We are awaiting a decision by the court. Once that decision is rendered, I will work with my Commission colleagues to review the decision and determine the appropriate next steps for the agency.

New line of questions

108. Is Angela Coggins, former chief of staff to former chairman Greg Jaczko, still employed at the NRC? If so, please indicate in which office and on what subject matter her group works on.

ANSWER:

Yes, Ms. Coggins, a career NRC employee, has returned to the NRC's Office of General Counsel (OGC). Ms. Coggins is a staff attorney working in OGC's Division of High-Level Waste, Fuel Cycle, and Nuclear Security. This Division provides advice on matters pertaining to high-level waste storage and disposal, transportation of nuclear materials, fuel cycle applications and licenses, and security of nuclear facilities and materials.

Flooding

One area at which the NRC has understandably taken a hard look as a result of the Fukushima accident is the potential impact of a flood at U.S. nuclear power plants. I understand that as part of this, the NRC is currently assessing the possibility and consequences of the failure of one or more dams upstream from several nuclear power plants. This is a subject obviously not only of interest to the NRC and its licensees, but other federal agencies such as the Army Corp of Engineers and the Department of Homeland Security also have a strong interest in this subject. It would appear most logical, therefore, if all federal agencies were coordinating their efforts with respect to the upstream dam failure issue, so that Agency A didn't reach a completely different conclusion as Agency B.

109. How is the NRC coordinating its research and regulatory efforts regarding upstream dam failures with other organizations that may have an interest and expertise in the subject so that the federal government speaks with one voice on this?

ANSWER.

I agree that coordination with other agencies is important. The NRC staff is coordinating its efforts through the Interagency Committee on Dam Safety (ICODS) to ensure that the federal government is aligned and speaking from one voice. ICODS consists of the following ten federal agencies: Department of Agriculture; Department of Defense; Department of Energy; Department of Interior; Department of Labor; Federal Emergency Management Agency; Federal Energy Regulatory Commission; Nuclear Regulatory Commission; Tennessee Valley Authority; and International Boundary and Water Commission.

Proliferation

Based on your experience in international affairs and proliferation:

110. Would you agree that the best thing to do with the plutonium in spent nuclear fuel is to bury it in a repository?

ANSWER:

The NRC's role does not include promoting a specific national waste management policy. Accordingly, I do not have any particular view about the "best" approach for addressing plutonium in spent nuclear fuel.

111. Doesn't that argue for prompt completion of the Yucca licensing process so the US can be an example for the rest of the world?

ANSWER:

NRC policy is that spent nuclear fuel can be stored safely until a permanent solution for disposal is developed. I do not have any particular view about what the "best" approach is, or whether the NRC should serve as an example for the rest of the world, and leave those judgments to Congress.

There are reports in the media that you may delay a vote on the Global Laser Enrichment Wilmington, NC facility license in order to study its proliferation impacts.

112. Is that true?

ANSWER:

No. The NRC issued the license on September 25, 2012, without performing any additional proliferation analyses.

113. What is the legal basis for holding up a license on proliferation grounds?

ANSWER:

The NRC in making its licensing determination must determine whether issuance would be inimical to the common defense and security of the United States.

114. What is the factual basis for believing the facility would present a proliferation risk?

ANSWER:

After carefully examining the application, including a thorough analysis of security and safeguards measures, the NRC concluded that construction and operation of the facility would not be inimical to common defense and security.

115. Do you have an opinion from the NRC Office of Counsel indicating such authority exists and that the requirement of such and impact study can be imposed on the Wilmington applicant at this late stage of the licensing process?

ANSWER:

The NRC granted the license without performing any new proliferation-related reviews at late stages in the license application review process.

<u>Linear No Threshold Theory (LNT)</u>

116. As a scientist, can you point us to any scientific evidence that supports use of the Linear no threshold theory in establishing radiation protection standards?

    a. If Yes: What evidence do you have?

b. If no: Will you order a review of NRC standards based on radiation dose levels that have demonstrated levels of harm?

ANSWER.

The linear no-threshold hypothesis (LNT), used by the NRC, is endorsed by organizations such as the National Council on Radiation Protection and Measurements (NCRP) and the International Commission on Radiological Protection (ICRP), as well as most regulatory authorities worldwide. This hypothesis falls within the domain of the precautionary principle, which states that if data on the harmful effects of low doses of an agent are not available, it should be assumed that the agent is harmful, until data show otherwise.

The NRC monitors the latest scientific information on radiation cancer risks to ensure its regulatory programs continue to adequately protect public health and safety. Toward that end, NRC staff participate in and monitor the activities and research efforts of scientific and standard setting organizations—such as the National Academy of Sciences, the United Nations Scientific Committee on Exposure to Atomic Radiation, the ICRP, the NCRP, and the International Atomic Energy Agency. The NRC also monitors the U.S. Energy Department's Low Dose Program, including its epidemiological study of one million nuclear workers, which is now underway.

Licensing

The reactor licensing process schedule continues to be unpredictable, sometimes taking 18-24 months beyond the original commitment dates:

117. If you are confirmed, what would you do as Chair to create a more sustainable, efficient predictable process to license the remaining and expected reactor license applications?

ANSWER:

The NRC initiated a review of lessons learned to identify potential enhancements to our licensing process and contribute to more effective and efficient reviews of future applications. As part of this review, the NRC conducted an extensive outreach effort to solicit feedback from external and internal stakeholders on their experiences using the new reactor licensing process. In April 2013, the NRC issued a report titled "New Reactor Licensing Process Lessons Learned: 10 CFR Part 52" that describes several planned and potential actions that can be used to enhance the licensing process and improve the efficiency of future licensing reviews.

The NRC has also been working on a lessons learned from the first year of construction inspection that will have implications for the licensing process. This report is still in draft and is expected to be issued shortly. The NRC will continue to look for efficiencies and effectiveness enhancements as we continue to license and oversee the construction of new nuclear power plants.

Would you consider:

118. Establishing cost effective and technology neutral standards for small and advanced reactor designs?

ANSWER:

The NRC recently issued a proposed a design specific review standard (DSRS) for the mPower™ small modular reactor design for interim use and comment. The DSRS process uses risk insights coupled with significant pre-application interactions with the applicant to identify design details to align the review focus and resources to risk-significant structures, systems, and components and other aspects of the design that contribute most to safety in order to enhance the effectiveness and efficiency of the review process. The mPower™ DSRS reflects current staff review methods and practices based on the integration of risk insights and, where appropriate, lessons learned from NRC reviews of design certification and combined license applications completed to date.

The NRC continues to work with the Department of Energy for technology standards for small and advanced reactor designs. In August 2012, the NRC issued a "Report to Congress: Advanced Reactor Licensing." This report addresses our overall strategy for and approach to preparing for the licensing of advanced reactors, anticipated over the next 1 to 2 decades, as well as potential licensing beyond 20 years.

119. Developing lessons learned from the recent licensing proceedings to improve the quality of applications and enable more efficient reviews?

ANSWER:

As discussed in the answer to Question 117, the NRC is pursuing lessons learned both in the licensing and first year of construction oversight of new reactor power plants.

120. Establishing firm licensing process milestones to make the process more predictable and progress toward completion more transparent?

ANSWER:

For each review, the NRC staff establishes interim milestones and the dates for these milestones are made publically available. My understanding is that the NRC line organizations take these schedules seriously. Success in meeting these established schedules depends on resource availability and applicant responsiveness to licensing review questions. My understanding, however, is that resolution of safety and environmental issues raised during the application review will not be restricted by the review schedule.

121. Creating fast track procedures for applications that have few unidentified risks, e.g. existing sites or design changes that are not safety related?

ANSWER:

My understanding is that the 10 CFR Part 52 licensing process, which includes design certifications, early site permits, and combined licenses, was established by the NRC for this purpose. For example, a combined license can incorporate by reference a certified design, thus limiting the review of the scope of information within that certification to the site-specific information. A second example is the use of an early site permit for early resolution of siting issues before a combined license application is submitted.

122. Making the NRC pre-docketing review of applications more thorough?

ANSWER:

My understanding is that high-quality applications are a significant contributor to overall project performance. To that end, the staff plans to assess the NRC's acceptance review guidance implementation since 2006 and the level of application detail that assures greater acceptance review consistency. The staff will also engage future applicants on to the best timing for pre-application audits.

123. Identifying weaknesses or inadequate documentation earlier should enable the NRC and the applicant to manage the time and resources required to complete the licensing process?

ANSWER:

As discussed in the answer to Questions 117 and 122, my understanding is that the pre-application audits and a robust acceptance review will provide early identification of weaknesses or inadequate documentation. We recognize that early identification and timely resolution of complex technical issues can minimize impacts on the review schedule. To that end, the staff is taking action and will also update its guidance to more quickly engage higher levels of NRC and applicant management, when necessary, to resolve complex technical issues.

124. Establishing a fixed fee structure for licenses to encourage more efficient reviews.

ANSWER:

The NRC annually reviews its fee structure and proposes amendments to the fee schedule to implement the Omnibus Budget Reconciliation Act of 1990, which in turn forms the basis for NRC rulemakings that implement the fee rules in 10 CFR Parts 170 and 171. The NRC believes it has established a fixed fee structure for those licensing actions where a fixed fee structure ("Flat Fee"), is appropriate, and an hourly fee structure where appropriate to cover the costs of inspections and applications for new licenses, license renewals and requests for amendments.

125. Beginning preparing staff Safety Evaluation Reports (SERs) earlier in the process.

ANSWER:

My understanding is that the NRC currently prepares and issues chapters of the safety evaluation reports early in the review process to clarify what portions of the reviews

are complete and what items remain to be addressed. Additionally, the NRC shares the status of issues with the applicants throughout the review process.

126. Developing guidelines to incorporation of new information into the licensing process.

ANSWER:

As discussed in the answer to Question 117, timely development and maintenance of regulatory guidance are important to support the development of a high-quality application as well as contribute to an efficient regulatory review. To that end, my understanding is that the staff plans to update its guidance for applicants and also incorporate experience staff has gained since 2006 in reviewing applications, in both the safety and environmental review areas, consistent with budgeted resources.

Senator James Inhofe

1. Do you believe our nuclear fleet is safe or do you agree with Greenpeace that we are on a seven-year countdown to the next nuclear disaster?

   ANSWER:

   I believe the commercial nuclear power reactor fleet is safe. The mission of the NRC is to protect public health and safety, promote the common defense and security, and protect the environment. The staff and the Commission take this mission very seriously. Our inspectors are reviewing plant operations and inspecting facilities every day to ensure that the plants are meeting our regulations and our Commission policy on safety goals.

   a. Beyond learning from the experiences, successes, and mistakes of other nations, do you believe the risk profile of other nations' nuclear power systems should be a key component of measuring the risk of the U.S. nuclear fleet?

      ANSWER:

      The NRC believes that the U.S. nuclear fleet is safe. We also believe that the NRC should learn from the experiences, successes, and mistakes of other nations.

   b. Can you clarify your decision to vote in favor of ordering filtered vents following the Fukushima disaster, in which you at least partially justified your decision on the idea that the U.S. nuclear fleet is at a significantly greater risk of accident than many experts believe?

      ANSWER:

      My vote never claimed that the U.S. fleet is at a significantly greater risk of accident than experts believe. My vote agreed with the staff's analysis that installation of filters on Boiling Water Reactors with Mark I and II containments would be protective of public health and safety.

2. As I mentioned in my opening remarks, one of the major long term issues facing the nuclear industry is storing spent fuel. We know that there is plenty of money at NRC to complete the safety evaluation report for Yucca Mountain, as required under the Nuclear Waste Policy Act. The courts are currently hearing a case related to NRC's obligation under the law despite efforts by the Administration to stall these efforts. Will you agree to respect the court's decision on whether to move forward with the pending studies related to Yucca Mountain?

   ANSWER:

   I will await the final court decision, review it when it comes, and work with my colleagues on the Commission to determine the appropriate next steps for the agency.

3. As I mentioned in my introductory remarks, the cumulative impact of regulations on the regulated community is a major concern to me. I'm pleased the NRC has begun

considering the cumulative cost of the rules it imposes, but I'm concerned that this appears to apply only to rulemakings and not to orders and other NRC actions.

a. What is the NRC's plan to account for non-rulemaking activities in assessing regulatory burden?

b. Will you consider NRC actions beyond rulemakings when measuring the cumulative cost of your regulations in the future?

ANSWER:

Recently, the Commission directed the staff to "continue to develop and implement outreach tools that will allow NRC to consider more completely the overall impacts of multiple rules, orders, generic communications, advisories, and other regulatory actions on licensees and their ability to focus effectively on items of greatest safety import." As such, the NRC staff is beginning to explore the expansion of cumulative effects of regulation to other regulatory actions (i.e., non-rulemaking). Of note, when the NRC developed the orders and guidance documents stemming from the lessons learned activities associated with the tragic accident in Japan, the NRC held a great number of public meetings, and issued several draft documents prior to final publication. These interactions help the NRC assess the regulatory burden and help inform the implementation of the Orders.

Senator John Barrasso

1. Given the NRC's mission to protect public health and safety, what principles have guided your decision-making as Chairman?

   ANSWER:

   I have been guided by the principles of good regulation: independence, openness, clarity, reliability and efficiency. While each of these principles is important, I believe that the NRC's strength and effectiveness as a regulator depends significantly on it being independent from outside influence or interference. I also believe that our openness and ability to communicate clearly are vitally important, and that the industry and the public have the right to expect that we will be reliable and efficient in our regulatory decision making. If confirmed, I will continue to be guided by these principles.

2. How would you characterize your management style?

   ANSWER:

   My approach is to operate in a collaborative and collegial manner, always reaching out to others for input and ideas. If confirmed and designated Chairman, I intend to continue meeting regularly with my fellow Commissioners, seeking their thoughts on major issues facing the NRC, and benefiting from their expertise.

   I am committed to an open and collegial working environment. I believe that our ability to discuss and consider all sides of the technical, safety, and policy issues we address makes us stronger, more effective regulators, and helps ensure that we develop the best approach for fulfilling our mission to protect public health and safety.

3. My home State of Wyoming has an abundance of domestic uranium, yet the permitting of these sites has met with bureaucratic delay and red tape. These sites can provide good paying American jobs for folks in my state and other states where uranium is found.

   Do you believe that domestic uranium production is preferable to being dependent on the importation of foreign uranium from countries like Russia?

   ANSWER:

   The NRC is focused on ensuring that the domestic use, possession, title, and transfer of source material within the Nation are carried out in a manner consistent with the protection of the public health and safety, the promotion of the common defense and security, and the protection of the environment. The NRC makes licensing decisions based on these considerations. The NRC is currently reviewing a number of new and renewal applications for uranium recovery facility licenses. With respect to the policy of importation of foreign uranium, the U.S. Department of Energy is the lead agency responsible for assessing the impact of the U.S.-Russia Highly Enriched Uranium Purchase Agreement on the U.S. nuclear fuel industry and for reporting that assessment to Congress.

4. With regard to all the proposed post-Fukushima regulations, there has been a lot of debate between industry, Congress, and the Commission as to what regulations to move forward on and in what order.

   Industry alone has suggested at least a dozen proposals be given higher priority, or modified. They have also proposed that an equal number be eliminated, reassessed or deferred.

   What principles guide your determination as to what to move forward on and in what order?

   ANSWER:

   The main principle that guides our development of regulations at the NRC is to be protective of public health, safety, and security, and to be protective of the environment.

5. What assurances can you provide this Committee that you will not unduly delay Commission decisions and will ensure that you will not be swayed by political pressure in making decisions about

   a. nuclear safety

   b. nuclear storage

   c. and the licensing of nuclear power plants?

   ANSWER:

   In carrying out these responsibilities, if confirmed, I will continue to seek to render decisions on Commission matters on nuclear safety, nuclear storage and licensing of nuclear power plants in a timely manner, consistent with legal requirements and Commission policy. I will base my decisions on these matters solely on an objective, unbiased evaluation of all relevant facts and opinions.

Questions with Senator Fischer

6. The NRC is charged with regulating in situ uranium recovery. Yet, we have recently seen the EPA take a more aggressive role in evaluating in situ uranium projects. The EPA has seized on its authority to approve aquifer exemptions as a back door way to regulate the industry. Unfortunately, the EPA lacks expertise about in situ mining.

   How can the NRC work more closely with the EPA to reduce redundancy in the regulatory process and ensure projects are evaluated on a timely basis?

   ANSWER:

   The NRC is responsible for the oversight and licensing of uranium recovery under the Atomic Energy Act (AEA), of 1954, as amended by the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978. EPA has two distinct regulatory roles with respect to uranium *in situ* recovery sites. In situ recovery of uranium requires permits from an EPA primacy state or EPA and an aquifer exemption that can only be approved by EPA,

under the Safe Drinking Water Act. The EPA is also authorized under the UMTRCA to develop generally applicable standards to address radiological and non-radiological hazards associated with uranium milling.

EPA is currently working on a proposed draft rule for groundwater protection at in situ recovery sites. Once finalized, the NRC will draft a revision of 10 CFR Part 40, Appendix A to conform to EPA's generally applicable standards. If confirmed, I will work with my colleagues and NRC staff to attempt to reduce redundancy by extensive information sharing with primacy states (i.e. Wyoming and Nebraska) and with EPA for non-primacy states. I anticipate that such information would include application acceptance issues, application quality issues, and requests for additional information. Through these information sharing and rulemaking efforts, I will promote greater efficiency in our major license application reviews.

7. NRC staff has stated publicly that resources are extremely limited for the licensing of uranium recovery facilities. The staff has said that to address this resource limitation that they will be prioritizing currently licensed activities and deferring new applications, and that can potentially create financial harm for those operators. If NRC is a 90% fee recovery agency, is it not a reasonable expectation of a current and new licensee would have sufficient resources to proactively advance all applications?

   ANSWER:

   Each fiscal year, the NRC receives its appropriation from Congress based on projected workload including expected licensing and inspection activities; these resources are distributed to the various programs to support the mission of the agency. The Omnibus Budget Reconciliation Act of 1990, as amended, requires the NRC to collect approximately 90 percent of its budget authority through fees assessed to licensees. These fees, including those collected from uranium recovery licensees and applicants, go directly to the US Treasury and do not directly fund NRC activities.

   Within the uranium recovery program, priority is given to currently licensed activities since those facilities are active and the staff gives preference to ensuring health and safety of operating facilities. However, current licensees and applicants should expect that processing of their new facility and expansion applications will be conducted in a manner that optimizes resources, which complements the agency's mission to protect public health and safety and the environment.

8. The timely licensing and relicensing of uranium mines is very important to the regulated facilities and to the communities who rely on these mines for jobs and tax support. In Nebraska, one facility has been waiting on NRC since 2007 for a licensing determination. The National Historic Preservation Act 106 process has been ongoing for years, even though, according to NRC, "there are no tribal or cultural resources of significance located either at, or immediately adjacent to, the licensed Cameco Crow Butte facility or expansion area." Likewise, the National Environmental Policy Act (NEPA) process has taken years, even though, according to NRC, "in-situ recovery operations licensed by the NRC have not impacted underground sources of drinking water or private wells."

   a. What improvements can be made to the National Historic Preservation Act Section 106 process, including the consultation process with the Tribes?

ANSWER:

Since 2010, the NRC has gained knowledge and experience related to NHPA Section 106 during the licensing of *in situ* uranium recovery facilities in the Great Plains region, and has applied lessons learned from related Section 106 Tribal consultations. The NRC has received input from stakeholders, including Tribal governments and industry representatives, suggesting that the NRC should standardize its approach to Section 106 Consultation. The NRC has worked to improve communications and coordination with Tribal governments, and is in the process of developing Section 106 guidance for consultations related to the licensing of ISR Uranium Recovery facilities. Additionally, the NRC is in the process of developing an agency-wide Tribal Policy Statement and updating existing staff guidance related to Tribal interaction to facilitate more effective consultation and coordination with Federally-recognized Tribes. In each of these efforts, the NRC has solicited or will seek public comments, including input from Tribal governments and organizations.

b. What improvements can be made to the National Environmental Policy Act process?

ANSWER:

The National Environmental Policy Act (NEPA) process has also been impacted by the NHPA Section 106 process because cultural resource impacts is one of the areas that must be addressed in the NEPA process. Improvements in the Section 106 process would therefore also help improve the NEPA process. The NRC has discussed these issues thoroughly with the Council of Environmental Quality (CEQ) in order to understand CEQ's current expectations for fulfilling the agency's duties under NEPA. The NRC also utilizes a NEPA Steering Committee consisting of Senior Executives who oversee the staff-level work on these issues to ensure current understanding of CEQ expectations and consistency in conducting NEPA reviews across our Program offices.

Senator Jeff Sessions

1. Following your confirmation hearing in June of last year, I submitted a set of written questions for the record (QFRs) to you. You provided a set of written responses that I received on June 18, 2012. With the benefit of a year of service now behind you, please review your responses to the QFRs I submitted last year, and as needed, please list any new information that relates to those questions or provide any other revisions or clarifications with respect to any of your previous responses that no longer fully and accurately capture your current views or knowledge.

   ANSWER:

   I have updated below my June 18, 2012 responses to QFRs 1 through 11 that you submitted last year.

   June 2012 Question 1. Please list all conference panels, meetings, public rallies, or other public events that you have attended at which nuclear energy or nuclear waste issues were discussed.

   ANSWER:

   As I stated in my response to this QFR on June 18, 2012, during my career I have attended many events related to nuclear energy or nuclear waste and do not have an exhaustive record or recollection of every single one. The following list supplements the list I provided last June with additional panels, meetings, rallies, and public events that I have attended between June 18, 2012 and today, at which nuclear energy or nuclear waste issues were discussed. If I discover any additional panels, meetings, rallies, or other public events at which nuclear energy or nuclear waste issues were discussed, I will provide that information to the Committee as well.

   NRC Commission public meetings:

   Full Commission Meetings

   Rockville, MD – July 10, 2012
   Rockville, MD – August 7, 2012
   Rockville, MD – September 11, 2012
   Rockville, MD – September 25, 2012
   Rockville, MD – October 2, 2012
   Rockville, MD – October 23, 2012
   Rockville, MD – November 5, 2012
   Rockville, MD – November 27, 2012
   Rockville, MD – December 6, 2012
   Rockville, MD – January 8, 2013
   Rockville, MD – January 9, 2013
   Rockville, MD – January 31, 2013
   Rockville, MD – February 1, 2013
   Rockville, MD – February 7, 2013
   Rockville, MD – February 20, 2013
   Rockville, MD – April 2, 2013
   Rockville, MD – April 22, 2013

Rockville, MD – April 23, 2013
Rockville, MD – May 20, 2013
Rockville, MD – May 29, 2013

Speaking Events

5/13 Senate Environment and Public Works Committee Hearing, Washington, DC

5/13 Nuclear Energy Institute, Nuclear Energy Assembly, Washington, DC

4/13 American Nuclear Society International High Level Radioactive Waste Management Conference, Albuquerque, NM

4/13 George Mason University Fairfax, Annual Gortner Lecture, Fairfax, VA

4/13 Carnegie International Nuclear Policy Conference, Washington, DC

3/13 U.S. Japan Roundtable on Nuclear Energy, Howard Baker Forum, Washington, DC

3/13 Nuclear Regulatory Commission, Regulatory Information Conference, Rockville, MD

3/13 Massachusetts Institute of Technology, Rising Stars in Nuclear Science and Engineering Symposium, Cambridge, MA

3/13 Harvard University Center for the Environment, Future of Energy Lecture Series, Cambridge, MA

2/13 House Energy and Commerce Committee, Washington, DC
Subcommittee on Energy and Power and Subcommittee on Environment and the Economy Joint Hearing

2/13 Nuclear Energy Institute (NEI), Washington, DC
Long Term Nuclear Power Plant Operation/Subsequent License Renewal Forum

1/13 Center for International Security and Cooperation, Stanford University, Stanford, CA

1/13 Nuclear Engineering Department, University of California, Berkeley, Berkeley, CA

12/12 International Atomic Energy Agency (IAEA), Koriyama, Japan
Fukushima Ministerial Meeting

12/12 U.S. NRC and Japan Nuclear Regulatory Authority (JNRA), Koriyama, Japan
Inaugural Steering Committee Meeting

12/12 Carnegie Institution for Science, Washington, DC

12/12 American Nuclear Society DC Chapter, Rockville, MD

12/12 American Society of Mechanical Engineers (ASME), Washington, DC

12/12 U.S. NRC, International Regulators Conference on Nuclear Security, Rockville, MD

11/12 President's Council of Advisors on Science and Technology (PCAST), Washington, DC

11/12 Institute of Nuclear Power Operations (INPO), Atlanta, GA
Institute of Nuclear Power Operations CEO Conference

10/12 Nuclear Energy Institute (NEI), Washington, DC
NEI Strategic Issues Advisory Committee Meeting

10/12 Nuclear Energy Institute (NEI), Washington, DC
Nuclear Energy Institute Executive Committee Meeting

9/12 International Atomic Energy Agency (IAEA), Vienna, Austria
International Nuclear Safety Group (INSAG) Forum

9/12 Senate Committee on Environment and Public Works, Washington, DC
Senate Environment and Public Works Hearing

7/12 House Energy and Commerce Committee, Washington, DC
House Energy and Commerce Joint Subcommittee Hearing

June 2012 Question 2. Please provide copies (written, audio, or video) of all speeches you have made concerning nuclear energy, nuclear safety, spent nuclear fuel, Yucca Mountain, nuclear waste, or other issues of relevance to the work of the Nuclear Regulatory Commission.

ANSWER:

Enclosed please find a CD that contains a copy of speeches I have made between June 2012 and today for which I have been able to locate a written record. To the extent that I identify text for any additional speeches, I will provide that text to the Committee.

June 2012 Question 3. Please provide a list of all organizations (with an interest in nuclear energy, nuclear waste, nuclear safety, or related matters) of which you are, or have been a member?

ANSWER:

As indicated on my Committee questionnaire, from January 2013 to the present, I have served as Chairman of the Multinational Design Evaluation Program, and prior to June, 2012, I have been a member of the Blue Ribbon Commission on America's Nuclear Future, the Bulletin of the Atomic Scientists, Keystone Center Energy Board, National Academy of Sciences, and the Keystone Center.

I have also held professional memberships with the American Nuclear Society, the American Geophysical Union, the Geological Society of America, and the Society for the

Social Studies of Science. In the past I have been a paid member of the Natural Resources Defense Council and the Sierra Club, and participated in the Resident Advisory Board discussions in Watertown, Massachusetts.

June 2012 Question 4. Do you support expansion of nuclear power generation in the United States, at the present time, in a manner that would ensure that nuclear energy remains a significant component – in the range of 20% or greater – of the Nation's electric generation mix?

ANSWER:

I'd like to reiterate that it's not the role of the NRC to determine the overall national energy policy. As I indicated in June 2012, and as I have written and said in the past, I continue to believe that a diverse supply of energy, including nuclear power, is necessary for the security and continued growth of the United States.

June 2012 Question 5. Has any member of your immediate family received funding, either directly or indirectly, from organizations opposed to licensing Yucca Mountain as a repository for spent nuclear fuel or from organizations opposed to licensing new nuclear reactors? If so, please describe.

ANSWER:

As I stated in June 2012, I consider my immediate family to consist of my husband, my sister, and my mother. To the best of my knowledge, they have not received funding from organizations opposed to licensing Yucca Mountain or new nuclear reactors.

June 2012 Question 6: The law of the land – the Nuclear Waste Policy Act – established Yucca Mountain in 1987 as the designated site for the nation's geologic repository. You have stated that "it was clearly a mistake for Congress to select only one site to characterize" and that Congress did so because Nevada was "politically weak" at that time.

June 2012 Question 6a: Do you stand by these words?

ANSWER:

As I indicated in June 2012, I am not certain about the source of the first quotation. The second comes from my co-edited book, *Uncertainty Underground*, Chapter 6, where I discussed a number of potential political reasons behind the 1987 amendments to the Nuclear Waste Policy Act. I stand by the June 18 earlier remarks. As for the quoted statements, those remarks were made before DOE submitted its application to the NRC. The role of the NRC is not to choose a particular site, but to ensure through its licensing review of DOE's application that public health and safety and the common defense and security are protected. As Chairman, I remain impartial regarding the sufficiency of the application.

June 2012 6b: Would you agree that the law has not changed – that Yucca remains the only lawful repository for spent nuclear fuel?

ANSWER:

As I recognized previously, the Nuclear Waste Policy Act, as amended in 1987, only calls for the consideration of the Yucca Mountain site.

June 2012 6c: Wouldn't you agree that, if Congress had maintained 3 possible sites, the federal government would have spent a great deal more of the taxpayer's money than the $14 billion spent on Yucca, without achieving an operational repository?

ANSWER:

As I indicated in June 2012, I cannot speculate on how much would have been spent or on whether we would have an operational repository if consideration of three sites had been continued.

June 2012 6d: If confirmed, will you follow and implement the statutes of this nation, as written, not as you would like them to be?

ANSWER:

I can reiterate that if reconfirmed, I will continue to work with my fellow Commissioners to faithfully fulfill and implement the mission of the NRC and the laws of the United States.

June 2012 Question 7: You stated in 2003, as part of a Senate field hearing, that you are "not against nuclear power" and that it is a "viable source of energy...as long as the problems are solved, and one of the problems is nuclear waste." What are other "problems," besides waste, that would not make nuclear power a "viable source of energy?" Do you believe that, as the laws and regulations of the nation and NRC currently exist, that license for new nuclear reactors can be issued?

ANSWER:

As I stated in June 2012, nuclear energy is an important component of energy diversity, and the issuance of reactor construction licenses in Georgia and South Carolina confirms that licenses for new reactors can be issued under our existing laws and regulations.

June 2012 Question 8: You stated at the 2003 Senate field hearing that "DOE has underestimated...the future infiltration of water into [Yucca] mountain from precipitation, because they have not adequately accounted for the effects on the climate...from the extreme carbon dioxide levels that the planet will likely experience in only 100 years." You also state that DOE has not "adequately accounted for the effects of increasing CO2 levels on climate warming." Do you continue to have these concerns?

ANSWER:

As I stated in June 2012, the studies discussed in my 2003 testimony were issued about 10 years before I testified and before DOE's license application was submitted. I have not analyzed the license application or the NRC's analyses. As Chairman, I remain impartial about whether DOE's application satisfies regulatory requirements.

June 2012 Question 9: Do you support the idea, endorsed by the Blue Ribbon Commission, of establishing a new federal corporation to focus solely on nuclear waste management? In your view, what should be the purpose, role, jurisdiction, and authority of such a federal corporation?

ANSWER:

I stand by the findings and recommendations of the Blue Ribbon Commission, a body on which I had the privilege of serving. As a member of the Nuclear Regulatory Commission, I recognize that the responsibility for establishing a national waste policy resides with Congress.

June 2012 Question 10: In a December 2004 article in MIT Technology Review entitled "A New Vision for Nuclear Waste" which discusses concerns with Yucca Mountain, you are quoted as saying, "If it goes on for another 50 years, it doesn't matter. It could go on for 100 or 200 years, and it's probably for the better....We've got plenty f time to play with it." Could you explain what you meant by this statement in 2004, and do you stand by that statement today?

ANSWER:

I have nothing to add to my June 18, 2012, response.

June 2012 Question 11: Probabilistic Analysis:

June 2012 Question 11a: Are you familiar with the NRC guidance to the staff on the use of Probabilistic Risk Assessment (PRA) (60 Fed. Reg. 42628), which states that this kind of analysis should be increased in all NRC regulatory matters?

ANSWER:

As Chairman, I have had the benefit of many invaluable conversations with Commissioner Apostolakis, other Commissioners and the NRC staff regarding the appropriate expansion of the agencies use of risk analysis in its regulatory decision making. Together with defense in depth approaches, probabilistic risk assessment is a useful tool in establishing regulatory requirements. At the Commission's direction the NRC staff is now evaluating the recommendations of the task force led by Commissioner Apostolakis.

June 2012 Question 11b: You have criticized this approach. For example, in Chapter 6 in the book you edited, Uncertainty Underground, you contend that DOE erred by using "probabilistic" analysis to review the Yucca project. How would you approach this issue as a member of the NRC – would you seek to revise existing NRC guidance regarding probabilistic assessment?

ANSWER:

As I stated above the Commission has directed the staff to evaluate the Task Force recommendations. I continue to believe that the Commission is should base its decisions on up-to-date science, including the use of probabilistic risk assessment, when appropriate.

Independence

2. The first of the NRC's five Principles of Good Regulation is "Independence."

   a. What does that principle mean to you?

      ANSWER:

      As a responsible regulator with a very important safety and security mission, our decisions are guided solely by the highest possible standards of ethical performance and professionalism. All available facts and opinions must be sought openly from licensees and other interested members of the public. The many and possibly conflicting public interests involved must be considered. Final decisions must be based on objective, unbiased assessments of all information, and must be documented with reasons explicitly stated.

   b. Would you agree that the Commission should not allow political meddling from Congress or other parts of the executive branch to interfere with the NRC's independent decision-making processes?

      ANSWER:

      Yes.

   c. Do you commit to zealously guard the independence of the NRC and oppose any efforts to undermine it?

      ANSWER:

      Yes

Commission Operation

3. The Energy Reorganization Act of 1974, as amended, provides: "Each member of the Commission, including the Chairman, shall have equal responsibility and authority in all decisions and actions of the Commission, shall have full access to all information relating to the performance of his duties or responsibilities, and shall have one vote." The Act reserves "to the Commission its functions with respect to revising budget estimates and with respect to determining upon the distribution of appropriated funds according to major programs and purposes." You testified during your confirmation hearing that one measure you have taken to restore collegiality on the Commission is to share all information received by your office with the other members of the Commission in a timely manner. Do you commit to sharing with all Commission offices, for their information, the input provided to you by the NRC staff in developing a budget proposal for the Commission's consideration?

   ANSWER:

   Yes, the NRC staff budget proposal will be provided to the Commission along with my budget proposal for Commission review and approval. The Commission's internal procedures specify that "Upon request of a Commissioner after submission of the

Chairman's budget proposal, the Commission shall be provided all budgetary input provided to the Chairman or otherwise used for the purpose of formulating the Chairman's budget proposal." I have followed this procedure and will continue to do so, if confirmed.

4. The Energy Reorganization Act of 1974, as amended, provides that the Chairman has no role in the "supervision of personnel employed regularly and full time in the immediate offices of Commissioners other than the Chairman" and the Commission's Internal Procedures recognize that "Each Commissioner's office will track their individual expenditures." Do you commit to restrain from any attempt to exert supervision or control over the budget execution or staffing decisions of the individual offices of other members of the Commission?

   ANSWER:

   If confirmed, I will execute my duties as the principal executive officer with respect to the Commissioners' budgets, including staffing decisions, in a manner that does not attempt to exert supervision or control over individual offices of other members of the Commission. The Chairman and Commissioner Office staffing and funding levels are approved by the Commission as part of the budget process and established controls for budget execution.

5. In your view, when does the chairman of the NRC have the authority to take unilateral action?

   ANSWER:

   In my view, the Chairman's ability to take unilateral action is limited. Applicable law assigns authority for policy formulation, most rulemakings, and adjudications to the full Commission, and assigns other authorities (most notably, executive and administrative authorities) to the Chairman, with much of that authority then required to be delegated to the Executive Director for Operations, subject to the Chairman's "direction and supervision." In all respects, the Chairman is responsible to the Commission and shall be governed by the general policies of the Commission. Only in matters falling outside of the Commission's rather broad set of functions would the Chairman truly possess "unilateral" authority. Even then, the Commission possesses statutory authority, in areas of doubt, to determine by majority vote what the scope of its authorities will be.

   The authority of the Chairman of the NRC is specified by the Energy Reorganization Act of 1974, and the Reorganization Plan No. 1 of 1980. Under these statutes, the Chairman of the NRC is granted particular duties as the official spokesman of the Commission and as the principal executive officer with respect to the NRC's executive and administrative functions. The Chairman is also assigned sole authority to initiate the appointment of specified senior agency officers and exclusive authority over the NRC's Office of Congressional Affairs and Office of Public Affairs. In addition, section 3 of the Reorganization Plan provides the Chairman with significant emergency powers not provided to the entire Commission.

6. Would you agree that the chairman does not have the power to take unilateral action on most policy and plant-specific issues?

   ANSWER:

   Yes. As indicated in response to Question 5, the Commission as a collegial body has statutory authority for policy formulation, most rulemakings, and adjudications. Most policy and plant-specific issues would fall within these three categories, giving the Commission broad authority to determine how the agency will address such issues. The Chairman individually may possess executive and administrative authority associated with policy and plant-specific issues, or authority delegated from the Commission, as discussed in response to Question 5. As also discussed in response to Question 5, emergency functions also fall to the Chairman under Reorganization Plan section 3.

7. What is your view of an NRC chairman's authority to exercise "emergency powers"?

   ANSWER:

   My understanding of the NRC Chairman's authority to exercise emergency powers is derived from the Reorganization Plan No. 1 of 1980 and the NRC's Internal Commission Procedures. Reorganization Plan No. 1 of 1980 gives the Chairman of the NRC the sole discretion to determine when to declare an emergency, and sets forth the basic legal requirements regarding the Chairman's exercise of emergency functions. I view the statutory transfer of emergency authority to the Chairman as an important principle of law, derived from lessons learned from the agency's response to the 1979 accident at Three Mile Island. Section 3 of the Reorganization Plan defines the terms of that authority.

   Section 3(a) of the Reorganization Plan transfers "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." Section 3(c) of the Reorganization Plan then provides: "To the maximum extent possible under the emergency conditions, the Chairman or other member of the Commission delegated authority [to exercise emergency powers], shall inform the Commission of actions taken relative to the emergency." Section 3(d) also states that "[f]ollowing the conclusion of the emergency, the Chairman [or other Commissioner to whom emergency authority was delegated] shall render a complete and timely report to the Commission on the actions taken during the emergency."

   Our Internal Commission Procedures provide that the Chairman is responsible for all functions pertaining to an actual 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 all related actions.

   If confirmed, if I ever find myself in the difficult circumstance of needing to exercise that authority, I would, of course, do so consistent with the Reorganization Plan's terms. I will immediately notify my Commission colleagues and the NRC staff if it becomes necessary during my chairmanship to declare an emergency and invoke the use of

emergency powers. Throughout the duration of such an emergency event, I would make every effort, as emergency conditions allow, to keep my Commission colleagues informed as the agency's response unfolded and utilize their expertise when assessing potential emergency-response actions. Once I ceased exercising my emergency authority, I would promptly notify them and provide a complete and timely report. I would expect any Acting Chairman I designate to do the same.

8. Recently, the Nuclear Regulatory Commission's budget was subject to sequestration under the Budget Control Act of 2011, resulting in the cancellation of FY2013 budget authority. Can you briefly describe how the Commission implemented those reductions? And can you describe the decision-making process by which the particular reductions were determined?

   ANSWER:

   The NRC reductions were taken from contractor support resources, and no staff furloughs are planned. In general, the NRC is absorbing the reductions by deferring or eliminating work on licensing new nuclear facilities, by deferring or eliminating research that is intended to refine or enhance the analytical tools and information used by NRC to confirm the safety and security of authorized uses of nuclear material and facilities, by deferring some infrastructure support activities, and by eliminating support for the Grants to Universities and Minority Serving Institutions programs.

   Agency senior management met to determine the agency's lowest priority work in FY 2013 that could be delayed/deferred to achieve the reduction as required by sequestration. Senior management ensured that the agency's mission of safety and security was not compromised by any of the recommended reductions. The list of activities was finalized and submitted to the Commission for their vote, which they approved.

Yucca Mountain Repository

9. During your June 2012 confirmation hearing, I asked you whether "it would be prudent for the NRC and the Energy Department to maintain and preserve the work that has been done on the Yucca project," and you answered: "Absolutely." Do you still agree? What steps have you taken to ensure that the Yucca licensing materials are preserved?

   ANSWER:
   Yes, I agree. I am aware that prior to my coming to the Commission, the NRC completed the orderly closure of our licensing review of the proposed repository at Yucca Mountain by the end of Fiscal Year 2011. I am also aware that as part of that process, knowledge capture was a priority. It is my understanding that the NRC's non-sensitive Yucca Mountain-related documents are being preserved and made available to the public as part of the NRC staff's activities to retain the accumulated knowledge and experience gained as a result of its Yucca Mountain-related activities. I am aware that the NRC documented and published publicly the results of the NRC review in one volume of the Safety Evaluation Report and three volumes of a Technical Evaluation Report. My understanding is that over 40 additional documents containing existing technical data were prepared to describe the status of the technical review at the time the staff suspended the review of the license application.

10. In your June 2012 responses—responding to question #8 concerning the Yucca Mountain repository—you wrote: "I have not reviewed either the DOE's license application, nor the NRC's technical analyses, both of which post-date my analyses. I would have to analyze both of these documents to see if the questions raised during my testimony were addressed." Have you since reviewed the Yucca Mountain license application or any of its sections? Have you reviewed any of the NRC staff recommendations (whether draft or otherwise) with respect to any aspect of the Yucca licensing proceeding?

    ANSWER:

    No, I have not reviewed the Yucca Mountain license application or any of its sections, nor have I reviewed any recommendations with respect to any aspect of the Yucca Mountain proceeding.

11. Do you agree that the NRC should complete the Safety Review for the Yucca license, and when do you believe that should occur?

    ANSWER:

    The NRC is currently awaiting the decision of the court. Upon receipt of the court's decision, the Commission will determine the appropriate next steps for the agency.

12. What amount of unobligated balances in the Nuclear Waste Fund or other funds is available to be used to make progress in the Yucca Licensing Review?

    ANSWER:

    The NRC currently has approximately $11.1 million in unobligated carryover funds (and $2.5 million in obligated, unexpended carryover funds) appropriated from the Nuclear Waste Fund. The precise portion of the $2.5 million that might ultimately become available will not be known until the completion of the audits associated with the closeout of certain contracts. These funds could be used for a variety of activities related to the Yucca Mountain project, including the completion of the technical licensing review.

Cumulative Impacts of Regulations

13. Does the NRC have plans to remove unwarranted regulations from its books?

    ANSWER:

    On July 11, 2011, President Obama issued Executive Order. 13579, which recommends that independent regulatory agencies develop submit a preliminary plan under which the agency will periodically review its existing significant regulations to determine whether any such regulations should be modified, streamlined, expanded, or repealed so as to make the agency's regulatory program more effective or less burdensome in achieving the regulatory objectives. Therefore, on November 16, 2011, in response to E.O. 13579, the NRC made available an initial Plan on the NRC's Public Web site. A draft Plan was published on November 23, 2012, for a 60-day public comment period. The draft Plan

described the processes and activities that the NRC uses to determine whether any of its regulations should be modified, streamlined, expanded, or repealed. The NRC is in the process of finalizing the Plan and will publish it in the Federal Register by the end of calendar-year 2013.

14. What steps will the Commission take to evaluate the issue of cumulative impacts of regulations?

    ANSWER:

    In 2011, the Commission approved the staff's proposal to establish rulemaking process enhancements to address the Cumulative Effects of Regulation (CER). These enhancements include publishing draft guidance with proposed rules and final guidance with final rules, increased interaction throughout all phases of the rulemaking process, specific questions on CER in *Federal Register* notices of proposed rules, and a public meeting on implementation during the final rule stage.

    Recently, the Commission directed the staff to "continue to develop and implement outreach tools that will allow NRC to consider more completely the overall impacts of multiple rules, orders, generic communications, advisories, and other regulatory actions on licensees and their ability to focus effectively on items of greatest safety import." As such, the NRC staff is beginning to explore the expansion of CER to other regulatory actions (i.e., non-rulemaking).

15. As the NRC evaluates potential new regulations, do you believe the NRC should prioritize those rules with the greatest safety significance? How do you believe the NRC should proceed with prioritizing its regulatory actions?

    ANSWER:

    The NRC already prioritizes rules according to their relative contribution to safety and security, using the Common Prioritization of Rulemaking (CPR) process during budget execution and for the development of rulemaking budget estimates. The CPR process considers four factors and assigns a score to each factor. Those factors include support for the NRC's Strategic Plan goals; support for the Strategic Plan organizational excellence objectives; a governmental factor representing interest to the NRC, Congress, or other governmental bodies; and an external factor representing interest to members of the public, non-governmental organizations, the nuclear industry, vendors, and suppliers.

<u>Cost-Benefit Analysis</u>

16. Your fellow Commissioners disagreed with your use of qualitative factors in your recent vote on filtered vents. Commissioner Magwood described your use of qualitative factors as an "extraordinary step" that "goes well beyond previous [NRC] guidance..." He also noted that your analysis could be used to "justify essentially any regulatory change."

    a. Do you agree that NRC guidance currently provides that qualitative factors should be used only as a "last resort"?

ANSWER:

The NRC guidance on regulatory analysis, which is consistent with Federal government-wide guidance on regulatory analysis, provides for the presentation of both quantitative and qualitative factors. The NRC guidance does not explicitly provide that qualitative factors should be used as a last resort in backfit analysis.

b. Do you agree that NRC guidance suggests that qualitative factors should only be used when the costs and benefits are not quantifiable?

ANSWER:

As discussed in the response to Question 16a, the NRC guidance on regulatory analysis, which is consistent with Federal government-wide guidance on regulatory analysis, provides for the presentation of both quantitative and qualitative factors. The NRC guidance does not explicitly provide that qualitative factors should be used as a last resort in backfit analysis. I believe there are a number of situations where the guidance indicates the use of qualitative factors should be used either by themselves or in addition to quantitative factors. In particular, the guidance notes that "...to supplement any available quantitative information, qualitative insights should be used for issues involving external events." The accident at Fukushima was such an external event.

c. What was the basis for your conclusion that, for an issue like filtered vents, the costs and benefits are not quantifiable and that qualitative factors should be used?

ANSWER:

The NRC staff recommended the use of qualitative factors. I believe that certain costs and benefits lend themselves to accurate numerical calculation and other costs and benefits do not. Some of the numbers used in quantitative analyses are, by their nature, qualitative in origin and based on judgment by those doing the analyses. Therefore, quantitative factors should never be used in a vacuum.

In my vote, I noted that, "The Commission should weigh quantitative and qualitative factors for all of its decisions, since relying solely on one or the other would be only looking at half the equation. While I do not find that the use of qualitative factors in this instance sets a new precedent, I agree that the Commission should be cautious and deliberative in its use of qualitative factors. The thorough analysis by the staff in this paper meets these criteria and gives the Commission a solid foundation on which to base a decision that incorporates both quantitative and qualitative factors."

I also noted that, "The uncertainties in attempting to quantify an accident frequency should be offset by prudent defense-in-depth. Being a geologist, I have an acute appreciation for the challenge of predicting the Earth's behavior. Since the Earth is constantly changing and our recorded knowledge represents roughly one millionth of the Earth's history, there is much we don't know. In light of this, we must be wise in balancing confidence in our engineering prowess with the humble recognition that natural systems have repeatedly demonstrated the ability to confound us. The staff also points out the large uncertainties involved in estimating the economic consequences given a large release of radioactive material (using the existing NRC

economic consequences framework). Any increase in either the event frequency or economic consequences of a severe accident at a nuclear power facility could easily push a filtered vent into cost-beneficial space."

d. Is it correct to say that, in order to be "fully consistent with written regulations," a change to existing regulations that is not necessary for the adequate protection of public health and safety must be consistent with the Backfit Rule?

ANSWER:

No. There are several different situations where the Backfit Rule would not apply to changes in (or new) regulations governing nuclear power reactors. If a change to an existing regulation (or a new regulation) is imposed on future power reactor licensees ("forward fit"), then the Backfit Rule does not apply to the forward fit, and the regulatory analysis decision criteria apply to the forward fit.

If a change to an existing regulation (or a new regulation) is imposed on existing licensees ("backfit"), then the Backfit Rule applies. Under the Backfit Rule, a backfit analysis is not needed if the backfit: (i) involves adequate protection; or (ii) is needed for compliance with existing and applicable requirements.

If a change to existing regulations (or new regulation) is not imposed on existing licensees but may be voluntarily adopted by a licensee (often called a "voluntary alternative"), then the Backfit Rule does not apply to the changed (or new) regulation.

I also note that existing regulations (or new regulations) may apply to future licensees but not be imposed on existing licensees. An example of a new regulation applied to future licensees but not to existing licensees is the Aircraft Impact Assessment Rule, 10 CFR 50.150.

e. Does the NRC's Backfit Rule require that the benefits of the proposed action outweigh its costs?

ANSWER:

The Backfit Rule, 10 CFR 50.109, requires that the benefits of a proposed backfit constitute a "substantial increase" in protection to public health and safety or common defense and security." Thus, the Backfit Rule provides a more stringent test for imposition of backfits than the criteria for regulatory analysis, which is that benefits are equal to or greater than the cost of the proposed action.

f. Has the NRC previously imposed changes to the licensing bases of nuclear power reactors based on a backfit analysis in which qualitative factors were determined to override quantitative analysis?

ANSWER:

Yes. In fact, in the staff requirements memorandum dated March 19, 2013, the Commission approved a modification to Order EA-12-050, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents," to require licensees of Boiling Water Reactors with Mark I and Mark II Containments to upgrade or replace

the reliable hardened vents required by Order EA-12-050, with a containment venting system designed and installed to remain functional during severe accident conditions. In reaching this decision the Commission voted unanimously for this change. This change was not shown to be fully quantitatively cost-justified, and the Commission agreed with the NRC staff that the qualitative benefits of this changed requirement outweighed the costs.

Rulemaking

17. Your vote on filtered vents suggests that you are willing to impose costly new mandates without a public, deliberative rulemaking process. The other Commissioners disagreed. Public notice and comment, which provides full involvement for all stakeholders, is a critical component of good governance at any agency, but especially the NRC which has to deal with such highly complex and technical issues. When, in your view, should the NRC abandon rulemaking in favor of a direct order?

    ANSWER:

    I consistently challenge the staff to employ public, deliberative processes. While public interaction is not required as part of the issuance of Orders, there is nothing preventing the NRC from interacting with industry and other interested parties before the issuance of Orders. In fact, this is how the Commission handled the post-Fukushima Orders of March 12, 2012. Those draft Orders were the subject of public meetings and opportunities to comment prior to their issuance. I would have welcomed this same process for a filtered vents Order.

    Ultimately, choosing to proceed via the Order process versus the rulemaking process is a policy decision made by the Commission after weighing both the quantitative and qualitative factors involved in the decision. I advocated for the Order process since it could have allowed for interaction between all interested parties while achieving a safety outcome sooner.

    Although rulemaking is an appropriate process to address most complex issues, rulemaking is also a lengthy process. The NRC does not always have several years to study a complicated problem; request, receive, and analyze public input; assemble the documents needed to support the proposed rule; obtain Commission approval to publish the proposed rule; request, receive, and analyze public input on the proposed rule; assemble the documents needed to support the final rule; obtain any required OMB approval; obtain Commission approval to publish the final; and then publish the final rule. When public health and safety or the common defense and security would be better served by more immediate regulatory action (e.g. following substantial security or safety events such as 9/11 or Fukushima), orders are an appropriate response.

    With respect to the question of filtered vents there has already been a significant amount of public participation.

18. "Openness" is another of the NRC's five key principles of good governance. As Commissioner Apostolakis wrote in his vote: "Vibrant debate continues to take place on this issue and there remain technical questions to be resolved... Pursuing such requirements through the rulemaking process will give all stakeholders the opportunity to

discuss [these technical issues]. The issuance of orders constrains the extent of stakeholder interaction ..." You have also said that you believe US nuclear plants are operating safely. What, in your view, is detrimental or problematic about proceeding with rulemaking for filtered vents?

ANSWER:

The fleet of U.S. nuclear power reactors is operating safely, but the NRC issued Orders to nuclear power reactor licensees to require them to install vents or improve their existing venting system, install enhanced spent fuel pool instrumentation, and develop strategies to mitigate beyond-design-basis external events. These Orders were issued because they were found to be necessary or represented a substantial increase in protection to public health and safety. As I stated in my voting record, filtered vents would represent a cost-beneficial substantial increase in protection to public health and safety and an immediate Order would provide these benefits much sooner, especially when technical experts already agree that filtered vents would enhance public health and safety.

I advocate for openness and challenge the staff to find new and better ways to offer opportunities for public interaction. While public interaction is not required as part of the issuance of Orders, there is nothing preventing the NRC from interacting with stakeholders before the issuance of Orders. In fact, this is how the Commission handled the post-Fukushima Orders of March 12, 2012. Those draft Orders were the subject of public meetings and opportunities to comment prior to their issuance. In my vote for this new Order, I balanced the ability to meaningfully involve licensees and the public with a desire for exigent resolution of this important safety issue.

19. The New York Times reported on April 8, 2013, that the former Chairman, Greg Jaczko, stated that all 104 US nuclear reactors should be phased-out and replaced. The article states: "All 104 nuclear power reactors now in operation in the United States have a safety problem that cannot be fixed and they should be replaced with newer technology, the former chairman of the Nuclear Regulatory Commission said on Monday. Shutting them all down at once is not practical, he said, but he supports phasing them out rather than trying to extend their lives." Do you agree with Dr. Jaczko's view, as described in that article?

ANSWER:

The Commission has continued to assure the U.S. public that the fleet of reactors in operation in the U.S. is safe. I agree with the Commission on this issue.

20. The NRC's Principles of Good Regulation include "Reliability," and state that "Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition." Do you agree that this Commission, and each Commissioner, has a responsibility to ensure that the NRC maintains an appropriate degree of regulatory stability?

ANSWER:

Yes, the NRC should maintain regulatory stability to the extent possible. When the licensed community knows what requirements apply to it, the licensees can plan

accordingly. Not only can they focus on safely operating their facilities, but they can also reliably schedule training and the installation of voluntary and required safety enhancements. However, responsible regulation also dictates that in the aftermath of unimaginable, catastrophic events regulators are compelled to take steps to prevent similar catastrophic circumstances from occurring in the future at their regulated facilities. In situations like this, some regulatory instability in the short-term can result but is necessary to further public health and safety and the common defense and security.

Senator Mike Crapo

1. Chairman McFarlane, the Nuclear Regulatory Commission currently utilizes radiation services overseas at Halden, Norway. In Idaho, the Advanced Test Reactor has been designated a National Scientific User Facility and is providing irradiation services to Department of Energy programs, industrial companies and universities. Would you be willing to work with me and my staff to see if we could find ways to encourage the NRC to use ATR and INL's post-irradiation examination capabilities instead of sending that business overseas?

   ANSWER:

   The NRC technical staff works closely with its counterparts at the Idaho National Laboratory (INL) and is aware of the Laboratory's activities and capabilities. Furthermore, the Department of Energy (DOE) recently briefed the Commission about the capabilities at INL.

   The NRC and its predecessor, the Atomic Energy Commission, have been participating in the Organization for Economic Co-operation and Development (OECD) Nuclear Energy Agency Halden Reactor Project (HRP) since its inception in 1958. Throughout this period, the NRC has used numerous research products from this internationally-funded cooperative effort, which is supported by more than 130 organizations in 19 countries. By participating in a consortium, the NRC benefits from not only shared funding but shared technical interest and expertise. In recognition of the advantages of such an arrangement, the DOE also participates in the Halden Program, and has encouraged technical exchanges between Halden and INL.

   When the NRC began irradiation assisted degradation studies, the Advanced Test Reactor (ATR) was not available for the NRC's use. Soon after the ATR became available, the staff initiated a program to assess the suitability of the ATR neutron flux for the NRC's work. The NRC staff is currently working with INL researchers to ascertain what, if any, effects are introduced by the higher ATR neutron flux. The staff is also working with INL researchers to ascertain if post-irradiation testing can be conducted at INL. I also note that samples irradiated at Halden for the reactor vessel internals program are currently tested at Argonne National Laboratory, not at Halden.

   If confirmed, I would welcome the opportunity to update you and your staff as the NRC explores possible use of ATR and INL's post-irradiation examination capabilities.

Senator Roger Wicker

1. I understand the NRC staff currently is working on a revised waste confidence rule, as directed by the U.S. Court of Appeals, and that a new rule is anticipated by September 2014. Since no final approvals for licensing actions, including license renewal reviews, can be completed until this new rule is issued, I am interested in seeing that the work on this rule be completed in the timely manner the Commission has previously indicated.

   This is of particular interest to me as the Grand Gulf Nuclear Station (GGNS) in Mississippi currently has a license renewal application pending before the NRC. It was submitted on October 31, 2011. A delay in the approval of the Grand Gulf license renewal application would result in added costs and, further, such a delay does not provide certainty.

   Can you provide assurances that sequestration will not impact the staff's work on addressing the deficiencies in the waste confidence rule and delay the issuance of a revised rule past September 2014?

   ANSWER:

   The NRC's effort to develop a generic environmental impact statement and revised waste confidence rule is on schedule and will not be delayed by sequestration.

Senator Deb Fischer

1. What steps is NRC taking to analyze the cumulative impacts of its regulatory activities? Specifically, what efforts are being made to account for non-rulemaking activities (including orders and required analyses that licensees must undertake) in assessing regulatory burden?

   ANSWER:

   The NRC established rulemaking process enhancements to address the Cumulative Effects of Regulation (CER) in staff policy paper titled, "Consideration of the Cumulative Effects of Regulation in the Rulemaking Process". These enhancements include publishing draft guidance with proposed rules and final guidance with final rules, increased interaction throughout all phases of the rulemaking process, specific questions on CER in *Federal Register* notices of proposed rules, and a public meeting on implementation during the final rule stage.

   The Commission approved these enhancements in the associated staff requirements memorandum. In response to that Commission direction, the staff is beginning to explore expanding the CER process enhancements to other regulatory actions (i.e., non-rulemaking actions).

2. As facilities work to implement new safety enhancements, we need NRC to focus on high-priority matters of the greatest safety significance. What actions are being taken to develop risk-informed prioritization and scheduling processes? What actions are being taken to ensure licensees have the regulatory flexibility to defer actions that would result in negligible safety benefits?

   ANSWER:

   The NRC already prioritizes rules according to their relative contribution to safety and security, using the Common Prioritization of Rulemaking (CPR) process during budget execution and for the development of rulemaking budget estimates. The CPR process considers four factors and assigns a score to each factor. Those factors include support for the NRC's Strategic Plan goals; support for the Strategic Plan organizational excellence objectives; a governmental factor representing interest to the NRC, Congress, or other governmental bodies; and an external factor representing interest to members of the public, non-governmental organizations, the nuclear industry, vendors, and suppliers.

3. A high quality regulatory analysis requires the agency to meaningfully look at the costs that are associated with implementation of a new requirement. Licensees are generally in the best position to provide accurate estimates of implementation costs. In development of a regulatory analysis, how does the NRC ensure that it has obtained accurate implementation costs estimates? Does the staff go out to sites to assess first-hand what the implementation impact might be or engage directly with licensees during this process?

ANSWER:

The NRC prepares, and publishes for comment, a draft regulatory analysis with proposed rules that are published in the *Federal Register*. For the initial cost estimates, the NRC's technical staff identifies implementation and operation (both initial and recurring) steps, and estimates costs based on technical expertise, for the proposed requirements. During the development of the draft regulatory analysis, the NRC technical staff may request cost estimates from the public during public meetings. The draft regulatory analysis is then published concurrent with the proposed rule in the *Federal Register*. Any member of the public may comment on the cost and schedule estimates within the draft regulatory analysis. In fact, the NRC, as part of the CER process enhancements, includes a specific request for comment (i.e., a targeted question) on the regulatory analysis in the proposed rule's *Federal Register* notice. The NRC then uses those comments to revise the final regulatory analysis.

In response to the staff policy paper titled, "Implementation of the Cumulative Effects of Regulation Process Changes," dated October 5, 2012, the Commission directed the staff to seek volunteer facilities to perform case studies to review the accuracy of cost and schedule estimates used in NRC's regulatory analysis. The NRC conducted a public meeting on May 8, 2013, and engaged attendees in this effort. At this time, the power reactor industry has expressed interest in participating.

4. I greatly appreciate the work NRC is doing to move the Fort Calhoun plant toward a safe restart, but there continues to be a frustrating lack of certainty about the outstanding obligations and timeline. What improvements can be made to help plant operators understand obligations at the outset so more accurate predictions can be made about a realistic restart date?

ANSWER:

NRC Inspection Manual Chapter (IMC) 0350, "Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns," provides a process for the NRC to communicate a unified and consistent position in a clear and predictable manner to the licensee, public, and other interested parties.

The NRC conducts periodic public meetings to discuss the licensee's progress toward satisfactory completion of its improvement and restart programs. The NRC normally issues a Confirmatory Action Letter (CAL) to confirm the mutual understanding of the activities required for restart. On February 26, 2013, the NRC issued a CAL to Omaha Public Power District (OPPD) confirming the actions OPPD would take prior to restart of Fort Calhoun Station.

The predictability and time for a licensee to complete the actions needed to address the IMC 0350 process and gain NRC authorization for restart is largely dependent on the thoroughness and completeness of the licensee's approach to evaluating the issues and root causes related to the extended period of shutdown.

Senator BOXER. Thank you.

I want to talk to you about San Onofre which is a cause of great alarm for a lot of people there and even the group, the judges, the Administrative Law Judges, that you, the NRC, all of you, asked to comment on whether there needs to be a public hearing about what is going on there before the plant is opened.

So, there is seriousness here. And the population in just San Diego County and since the original plant was approved has increased by more than 300 percent. And so again, we have 8 million people there and when I asked the sheriff, the county sheriff, what would the evacuation look like if there was a problem, she pointed to the road and said that is the evacuation plan. And anyone who knows California roads knows that it is always crowded there and God forbid in case of any kind of emergency what would happen.

So, as the population near the plant has dramatically expanded, we have learned more and more about the threats of operating nuclear reactors there. We better understand the full extent of the seismic risk because there was a new report done several years ago that discovered another fault. We know the plant is located in a tsunami zone. This thing is really disturbing. And we know after Fukushima the devastating impact these two forces of nature can have on nuclear power plants. So, you put it all together and to me it says one word, danger.

Now, I was very pleased that you and every one of your colleagues on the Commission assured me at our last oversight hearing that you will not let this plant start up unless you are absolutely convinced it is safe to operate. I asked each one of you then, will you let this plant start up if you are not absolutely convinced it is safe to operate. Everyone said they were with me, they would not allow it to open.

Now, in an October letter to me, you reaffirmed, this is your words, reaffirmed the Commission's commitment that the agency will not allow a restart at San Onofre until the investigation is completed and the facility is safe to operate.

Now, I want all of the investigations to be completed before the plant is restarted. And it is very important that the Commission not back pedal on this.

Southern California Edison, who runs this plant, wants to rush to restart. We have seen documents over the last several months that reveal that SoCal Edison is trying to get approval to restart without ensuring that the problems are fixed.

They have actually asked to operate the plant before the investigation is completed at 70 percent of power. And they said something like this, I am paraphrasing, we will start it at 70 percent and we will see what happens. We will see how it goes. That is like saying I think I fixed the damaged brakes on your car but do not drive it over 40 miles per hour. Do whatever when you get in the car.

And as I said, three Administrative Law Judges just recently on the Atomic Safety and Licensing Board who were chosen by your Commission and who are distinguished experts in nuclear safety found Southern California's proposal to startup at 70 percent was "an experiment."

Well, maybe there are some people here would like to experiment on my people. But I am not going to let it happen. Let us be clear. And this group, this Atomic Safety and Licensing Board, which is selected by the NRC, also ruled that the public should be provided with a meaningful hearing opportunity before the NRC makes a restart decision.

So we have talked about this a lot. You know of my concern for the 8 million who live within 50 miles of the plant. So, do you agree that the NRC's Atomic Safety and Licensing Board ruled that the San Onofre Restart Plan should be considered a license amendment that gives the public an opportunity for a hearing? I am not asking whether you agree with them. I am asking, do you agree that they ruled that the Restart Plan should be considered a license amendment that gives the public an opportunity for a hearing?

Ms. MACFARLANE. Yes, I agree.

Senator BOXER. NRC's Office of Investigations is currently looking into whether SoCal Edison provided the Commission with complete and accurate information. So, do you believe that the investigation should be completed by your Office of Investigation on this issue before any decision is made to restart?

Ms. MACFARLANE. Senator, it is my personal belief that the technical staff should have all the conclusions from the Office of Investigation investigation available to them prior to any restart decision. And my understanding, currently, is that based on what we know today, that these two, the restart decision and the Office of Investigation investigation, will conclude around the same time.

Nonetheless, if the Office of Investigation investigation is not complete when the technical staff is ready to make a restart decision, the technical staff will, following their procedures, talk to the Office of Investigation's staff and ask are there any significant safety issues that should affect our restart decision.

That said, the technical evaluation and the Office of Investigation investigation are two separate processes and it is very important that the agency maintain the integrity of these processes.

Senator BOXER. Well, I do not say that the, I agree that there should be integrity. I do not agree under any circumstances that there ought to be a restart until the entire investigation is complete. So, we have a bit of a difference.

But let me just say here, lawsuit. There is no way, at all, that any judge, in my view, reading the NRC's Atomic Safety and Licensing Board ruling that calls all of this an experiment, is going to allow this to go.

So, just let me tell you this. I respect what you said. I do not agree with what you said. An investigation is an investigation. If it has subpart a, b, c and d, they have to be completed because it is very important, if we find, let us just say, the SoCal Edison was not honest in what they said to the Commission but you allow them to restart until you really know, it is a problem. So, we disagree on that.

Now, NRC is also investigating allegations of willful wrongdoing, willful wrongdoing, at San Onofre. Do you believe the results of investigations into potential criminal conduct are relevant to SoCal Edison's credibility to build and operate nuclear reactors?

Ms. MACFARLANE. Again, I would, just as I have done, said yes, it is my personal belief that these investigations, in an ideal world, would be complete and inform, be available to inform the technical staff's restart decision prior to that restart decision.

Senator BOXER. OK. Well, I just do not agree with what you are saying because the bottom line is they have to finish this up, not that they are relevant, it goes to the heart of letting this outfit open up San Onofre.

So, let the record show I do not agree with you. To me, it is pretty simple. All the parts of the investigation have to be complete, the criminal part, the part that deals with complete and accurate information and the rest of it, and what you call the technical part, whether or not they can open up at 70 percent without a new license.

So, we do have disagreements here. I do appreciate your willingness to discuss these with me. I do appreciate the fact that you are telling me the way you feel. And let that be a lesson to some of my colleagues with other nominees. I do not agree with you. But I think that you are a good leader of this Commission. But I do not agree with you, on the way you are handling this, to be honest.

The last question I have is, I am going to ask you for some documents. They are in the public, they have to be in the public domain. And I am going to ask you about some communications that went back and forth. Would you wait until after this hearing is over so I can tell you which documents I want, then I will put it in writing, you and your staff?

Ms. MACFARLANE. Sure.

Senator BOXER. Thank you. Senator Vitter.

Senator VITTER. Thank you, Madam Chair.

Chairman Macfarlane, I am not a nuclear scientist. I am not a safety expert. I am not going to try to go to the substance of San Onofre——

Senator BOXER. San Onofre.

Senator VITTER. San Onofre.

[Laughter.]

Senator BOXER. It is Lake Pontchartrain and San Onofre.

Senator VITTER. OK.

[Laughter.]

Senator VITTER. I am not going to try to go to the substance of those scientific issues. I do want to ask you about the process and how it should be guided by the science and by the experts. You made remarks relevant to this on March 20 of this year at a U.S.-Japan roundtable where you described what you believe is required for a regulatory body to be effective.

Specifically, you stated "To be effective, a regulatory body must be independent from economic, policy and political interests. Its decision must not be subject to undue influence that can compromise safety." Do those remarks adequately represent your opinion on how the NRC should operate?

Ms. MACFARLANE. Yes, absolutely.

Senator VITTER. And will you commit today to upholding this principle, even when faced with outside political pressures?

Ms. MACFARLANE. Yes, absolutely.

Senator VITTER. Great.

Madam Chairman, on Yucca Mountain, we have been struggling with some agencies' failure to conduct their work in an open and transparent manner. And that is why I ask, if reconfirmed as Chairman, will you commit to conduct the Commission's business in a completely and transparent manner including such things as the agency's conclusions resulting from safety analyses?

Ms. MACFARLANE. If confirmed, I will conduct the agency's processes in an open and transparent manner. Absolutely.

Senator VITTER. Right. And does that commitment to transparency extend to the release of the NRC's conclusions regarding the Yucca Mountain Safety Analysis Report?

Ms. MACFARLANE. We are awaiting the court's decision on the Yucca Mountain case and the NRC will follow the law.

Senator VITTER. OK. So, specifically, if the court requires the NRC to resume the license review, will you honor that court decision?

Ms. MACFARLANE. We will follow the law. We are very aware of the importance of this court decision, not only to the NRC, to the public, but to the Nation as a whole. Before making any final decisions, of course, I have to consult my fellow Commissioners. We are a collegial body of five and at this point in time I do not want to prejudge any decisions until I have seen the court decision.

Senator VITTER. But the court decision would represent the law and you would follow it?

Ms. MACFARLANE. We would follow the law.

Senator VITTER. OK. And going back to the Yucca Mountain Safety Analysis Report, if there is nothing in the court decision that prohibits that release of the NRC's conclusions, will you release those conclusions?

Ms. MACFARLANE. We will follow the law. Yes.

Senator VITTER. Well, I am not sure exactly what that means. If the law does not prohibit the release of those conclusions, will you release them in the spirit of transparency?

Ms. MACFARLANE. Again, Senator, with all due respect, I will need to see the court's decision, I will need to discuss it with my fellow Commissioners, and at this point in time I do not want to prejudge anything about the court's decision until we have it in hand.

Senator VITTER. OK, that is fine. Again, to be clear, all I am asking is if there is nothing in the court decision that prohibits that, I would specifically request that and urge that.

Ms. MACFARLANE. Thank you.

Senator VITTER. OK, that is all I have, Madam Chairman. Thank you.

Senator BOXER. Thank you, Senator Vitter. Senator Carper.

Senator CARPER. Is that your husband sitting right behind you?

Ms. MACFARLANE. It is. Yes.

Senator CARPER. What is his name?

Ms. MACFARLANE. Hugh Gusterson.

Senator CARPER. Mr. Gusterson, thank you very much for sharing your wife, a remarkable woman, with our Country.

I think you said in your statement you have been the Chairman for about 10 months now and I just want to ask you to highlight for us, if you will, over that period of time how the NRC has

strengthened the safety culture at a number of nuclear power plants. Just give us some examples of how you think you strengthened the safety culture at those plants.

Ms. MACFARLANE. Sure. We oversee the safety culture at our nuclear power plants in part through our reactor oversight process and we evaluate what goes on at the plants and ensure that there is an operating safety culture, that there are not any chilling effects, that employees feel free that they can bring up problems and will not be discriminated against. And these are issues that we look for on a day-to-day basis at the reactors.

Senator CARPER. All right. Are there some other things that we ought to be doing or that we could be doing? Not just you as the Chair, not just the NRC Commissioners, not just the folks who work with you, but including us here in the Congress, especially on this Committee. What are some things that we might be doing to better ensure that our nuclear plants are safe that you are aware of or mindful of at this time?

Ms. MACFARLANE. I think one of the most important things that certainly we at the NRC can do and I think the industry can do and you and Congress, to the degree that you can and it would be helpful, is to work on communication.

I think communication is extremely important in the issue of regulating nuclear facilities. We need to be clear about what everybody's role is and we need to be clear about the issues and we need to engage the public and all concerned folks on these issues and make sure that each of us understands the concerns of each other.

Senator CARPER. Did you tell us in your statement that you are looking forward to going and visiting the construction sites for the four new nuclear plants down in, what is it, South Carolina and Georgia?

Ms. MACFARLANE. In Georgia, yes. I will be there the first week of June.

Senator CARPER. Just give us a brief, just a brief update in terms of how those projects are coming along in terms of expected schedule, cost, problems that they are facing, successes that they have achieved, please.

Ms. MACFARLANE. Yes, this has been a good process. There are four reactors under construction, two in South Carolina, two in Georgia. In March, both sites poured their nuclear concrete and the South Carolina site has laid the basket to receive the containment vessel. So, they are progressing nicely.

There have been some issues where the plant had to submit a license amendment request. We are following a new process in licensing and constructing these plants now and that is in response to industry request. We now have a combined operating license.

So, the licensee will submit a design to the NRC and we hold them to building that design. That is what we have evaluated, that is what they are going to build because then they will be able to operate once it is constructed.

And there were some issues with the construction not being built to the design and we have dealt with them. We are moving forward. We are examining "lessons learned" ourselves at our agency. So, I think it is a success story overall.

Senator CARPER. Good. Thanks. One last question. As you know, we have already referred to here to extreme weather events such as the horrific tornado in Oklahoma earlier this week and Super Storm Sandy which visited my part of the Country which seem to be occurring with greater frequency these days. Folks tell us extreme weather events are expected to remain and maybe even get worse as we move into the future.

Could you talk for a moment about what the NRC has done or is doing to better ensure that our nuclear facilities are safe as we face these extreme weather episodes and what more, if anything, can or should be done or is being done?

Ms. MACFARLANE. I appreciate that question. As an earth scientist, I appreciate the question. And I have a particular view as an earth scientist.

I would not call these events extreme. I would call them normal. They may be extreme because we have very limited experience on this earth with them, but they are normal events. And being normal events means we need to, at the NRC, make sure that we are accounting for them and that our facilities are prepared to deal with them.

And so, we are in the process of evaluating and updating and requesting that our facilities update their evaluations. Right now, we are in the process of requesting that our facilities update their evaluations of their seismic hazards and the flooding hazards and, as we work through our Fukushima activities, we will move on to examining other external events such as missiles generated by tornados and hurricanes and that kind of thing.

Senator CARPER. OK. Thanks very much. Thanks for your responses to our questions. Thanks for being here. Thanks for your service and for your willingness to serve further.

Ms. MACFARLANE. Thanks.

Senator BOXER. Thank you, Senator. Senator Fischer, you have questions, and then we will have Senator Boozman conclude with his questions at that time.

Senator FISCHER. Thank you, Madam Chairman.

As you know, Nebraska has uranium. And in the regulation of facilities that recover uranium using in situ recovery technology, the NRC has asserted regulatory jurisdiction over all aspects of their operations in a Commission vote in 1999, including activities that are regulated by our State, the State of Nebraska, and other States under their primacy authority granted by the Safe Drinking Water Act.

To date, this has created a duplicative regulatory environment for our State and for also the licensee. It delays licensing, complicating enforcement and extending decommissioning timelines. In other areas where there is a duplicative regulation of activities by State and Federal agencies, there are Memorandums of Understanding where there is clarification of regulatory jurisdiction. But that is not the case here with this uranium recovery.

Is this regime sustainable and would the Commission be willing to provide some clarity regarding the State and Federal jurisdiction so we know how to handle these situations in the future to make it easier?

Ms. MACFARLANE. Certainly, Senator. The way that we handle State versus Federal requirements is that some States are what we call Agreement States and those States are given the opportunity to oversee nuclear issues and we provide them, we provide oversight of the Agreement States. And then those States that are not Agreement States, we provide direct oversight, like Wyoming, for instance. So, we are the ones who deal with the uranium recovery applications directly.

Senator FISCHER. So, where is Nebraska on that?

Ms. MACFARLANE. Nebraska is, I believe, not an Agreement State. So, we are ensuring that the licenses and applications, we oversee them ourselves.

Senator FISCHER. So, even though we have regulations in Nebraska and the licensee has to go through that process, you are saying that because we are not an Agreement State they also have to go through the Federal process?

Ms. MACFARLANE. Through the Federal process, yes.

Senator FISCHER. How does a State become an Agreement State?

Ms. MACFARLANE. There is a set process to apply and become that. I know Wyoming is in the process of considering becoming an Agreement State. It takes 3 or 4 years to get through that process.

Senator FISCHER. Is it your Commission, then, that would grant that?

Ms. MACFARLANE. Yes.

Senator FISCHER. Is it an easy process to go through?

Ms. MACFARLANE. I am not sure what the definition of easy is.

[Laughter.]

Senator FISCHER. If it takes 3 or 4 years in this regulatory environment, that sounds pretty easy.

Ms. MACFARLANE. Then it is easy.

[Laughter.]

Senator FISCHER. A lot of things take a lot longer. What is involved in that, do you know?

Ms. MACFARLANE. We have to be assured that the State understands our oversight processes, our regulations, that they have adequate staffing to ensure that the materials licensees, etcetera, are going to be overseen on a regular basis, and that kind of thing.

Senator FISCHER. OK. Thank you for that information.

Your staff has stated publicly that resources are extremely limited for the licensing of uranium recovery facilities. Yet, 90 percent, I believe, of your money comes from fee recovery and that is how your agency is funded. So, how can we help to advance that process through your agency? I guess I am questioning if you really have limited resources, since you have that 90 percent fee recovery.

Ms. MACFARLANE. In terms of uranium recovery?

Senator FISCHER. Yes.

Ms. MACFARLANE. We do have resources to do uranium recovery right now. We can process between 8 to 10 applications at a time. We have received 14 applications since 2007 for new licenses and four for license renewals and we have processed seven to completion and three are halfway complete.

And, you know, it depends on what the future brings. Right now we have been told to expect another 15 license applications by 2015

or so. And then there may be some kind of delay. But it all largely depends on what we get.

Senator FISCHER. And you know we have a facility in Nebraska that it has taken some time to go through the process. So, hopefully, that will move along.

Ms. MACFARLANE. Right.

Senator FISCHER. OK. Thank you very much, Doctor.

Ms. MACFARLANE. Thank you.

Senator BOXER. Senator Boozman.

Senator BOOZMAN. Thank you, Dr. Macfarlane, thank you being here. We do appreciate your willingness to serve and this is such an important thing that you are in charge of and working hard to do a good job.

You talked about the importance of using qualitative analysis versus quantitative analysis, not just, you know, quantitative analysis but the other also when you analyze issues. This has been called an extraordinary step in regard to the NRC guidance documents urging the use of qualitative analysis only after the quantitative analysis has been exhausted.

And I guess, you know, and you can argue with this, but to me, I think what you are saying is facts versus opinion and common sense, to some degree. In fact, I would characterize that. But again, my concern is that you seem to be breaking from the NRC precedents of exploring and exhausting the quantitative analysis first before you get into the other. I am sorry, I am confusing myself. Again, common sense versus the facts, common sense versus an opinion, versus the facts.

Ms. MACFARLANE. The Commission has made a number of decisions using both quantitative and qualitative analysis in cost benefit analysis, what we call back fit analysis. And I think you may be referencing, in particular, the recent Commission decision on filtered vents and that decision was actually a two-part decision.

The first part of that decision was, and it was a unanimous decision, the Commission voted unanimously to move forward to make sure that containment vents are hardened and made severe accident-capable. And that analysis that was done for that decision, included both a quantitative and a qualitative portion. So, the entire Commission supported the qualitative analysis of the hardened vents.

Senator BOOZMAN. Again, I guess we agree then, you agree with the precedents of using primarily, as you can, you exhaust the quantitative analysis, the facts, you know, the data that you can drive, before you get into the other. The problem is, and you are a scientist and you know, you understand this very well, if you do not do that, then you can essentially do whatever you want to do.

Ms. MACFARLANE. I will just note that this was not a precedent-setting decision. There have been a number of decisions in the past at the Agency that have relied on qualitative analysis. And I would happy to get those, to get a list of those together for you for the record.

Senator BOOZMAN. Right. And again, I am not arguing with you. But like I say, I mean, you agree that you would exhaust the facts and then get into the other.

Ms. MACFARLANE. In general, that is the methodology that the Agency uses.

Senator BOOZMAN. Yes, which is the scientific methodology which we all use as researchers and things like that.

Let me ask you, just very quickly. You came into the Agency, or you took control at a very interesting time. I think we would all agree that it had significant problems and this and that and we were thrust into a very difficult situation. Tell me what you have learned from that. Tell me some of the changes you have made to try and get things back on the right track.

Ms. MACFARLANE. Well, it has been an interesting experience and it has been an excellent experience, frankly. From the first day I arrived, I started meeting with my fellow Commissioners on a regular basis and I made sure that I do, I try to meet weekly with them if they are in town, if we are all in town.

Not only that, but my staff meets, all of our staffs meet on a daily basis. And I have made it a priority for my staff to make sure that they work well with their colleagues on the 18th floor. They are all above us on the 18th floor. We are on the 17th floor. So, it has been very important to me to make sure that we establish a good relationship, an open relationship, a transparent relationship. We have made sure that we share all documents with them in a timely manner, and we follow Commission procedures.

But then there is also the staff piece and it has been a wonderful experience for me to get to know the staff at the NRC. They are a dedicated, extremely capable group of folks all the way down to the resident inspectors at the reactor sites. Those are fantastic people dedicated to the mission of ensuring public health and safety. And I have enjoyed talking with the staff and having detailed technical discussions, that is my favorite thing to do, and establishing a good, open working environment.

Senator BOOZMAN. Good. Thank you very much and again, we thank you for your efforts.

Thank you, Madam Chair.

Senator BOXER. Thank you.

So, I have just two quick questions and then I am going to turn to Senator Gillibrand. We have a vote coming up shortly.

I wanted to ask you because, I guess that Senator Boozman did not agree with the Commission decision to require hardening of vents. Is that what I am gathering?

Senator BOOZMAN. No, no, not at all. I think what I was trying to do was just make sure, especially now, having ability to make sure that we have processes in place where we are using facts versus opinion, using the scientific data. We can come to the right conclusion in a lot of different ways. But again, just reinforcing how important it is that we have reproducible things that we can have confidence in the decision.

Senator BOXER. OK, well let me just back that up. I mean, we need to go with the science and safety science. But the vents hardening is pretty important and frankly, the filtering of these vents is important because you keep out the radiation with the filter. But I do agree, you want to have the experts tell us what we need to do and we have to learn from things like Fukushima of what failed.

And I am dealing with a failed plant right now and I can tell you, it is not a pleasant experience.

And the other thing I want to do is say that I had a meeting with the California Energy Commission yesterday and happily they said they have a plan in place. I want to tell you this because this is not really what would motivate you, but they have a plan in place to get us through the summer. San Onofre provides about 8 percent of the State's energy and they have made a summer assessment they feel, they say operating electricity margin is expected to be above the level at which service interruptions could occur.

So, I really want to praise them. They are really, they are good at their job there. Twenty-five percent of the replacement energy is from solar and wind and the rest has to do with restarting up other plants.

So, I want to just put on the record, let us not have scare tactics to rush to open a plant. We are going to be OK. And I want to praise Governor Brown and his team for just saying look, we are not in this fight, we do not know whether the plant is going to open or not, but we are going to make sure that our people have the electricity. So, that is good news.

If we could then go to Senator Gillibrand.

Senator GILLIBRAND. Thank you, Madam Chairwoman, for holding this essential hearing. It is so important.

The Government Accountability Office issued a report in March, as you know, that questioned the basis for assumptions about how many people would evacuate should an incident occur at Indian Point. Specific questions were raised about the residents of the shadow zone defined as outside the 10-mile radius.

According to the GAO, neither the Nuclear Regulatory Commission nor the Federal Emergency Management Agency has ever examined public awareness outside the 10-mile emergency zone. We are talking about New York City, 8 million people, Westchester, surrounding areas.

I wrote a letter to you May 6, I think you have gotten it, to Administrator Fugate of FEMA and Chairwoman Macfarlane, to actually take a review of this and look at independent data collection agencies to collect the information and data to better determine the potential reaction of residents in the shadow zone should an incident occur.

So, my fundamental question is, if you are reconfirmed, can you assure me that you will reassess the emergency planning and evacuation system as a priority, particularly in light of the GAO's report questioning the assumptions?

Ms. MACFARLANE. Thank you, Senator, for the question and yes, I think I received the letter yesterday or the day before. So, we are considering it at the Commission right now.

Let me assure you, to begin with, that we have been aware of the issue of shadow zone evacuations and at the NRC we have staff who have taken into account data from actual evacuations, more than 60 actual large-scale evacuations, in the United States in the past, I do not know, some decades, and looked at the experience there. And so we feed that information into our own analyses.

But, let me assure you also that, as part of our Fukushima follow-on plans, we are going to examine the 10-mile emergency planning zone as part of that and we will be looking into this situation.

Senator GILLIBRAND. A related question was, after Super Storm Sandy, obviously Westchester was largely shut down. There were very few, there was no public transportation, most emergency evacuation, the main evacuation routes were closed, almost all roads in the impacted counties were closed, and many of the communications systems were not functioning. The Governor and surrounding counties all declared states of emergency and urged people not to leave their homes.

I understand that the NRC determined that the weather situation did not meet your criteria for shutting down the plant. But one consideration that I do not believe you made is whether the emergency plan could actually be implemented if there is a problem.

So, I would like you to re-look at the standard because, just because Super Storm Sandy was not a significant enough hurricane to shut down your operations, the reality is if there was a problem, you would not be able to evacuate even the 10-mile radius with zero transportation infrastructure, next to zero communications ability. You would not be able to inform the community that there was a problem.

So, I think that must be included and I want your commitment that you will look at that issue and give me a response on that topic.

Ms. MACFARLANE. We will look at that issue.

Senator GILLIBRAND. Thank you, Madam Chairwoman, I appreciate your time.

Senator BOXER. Thank you.

Well, we want to thank you very, very much for being here today and we will have a markup soon on this nomination, get you to the floor and get you back to your desk. And we thank you very much.

And what I would like to do is talk to you and your staff about some of these requests that we have made that we have not yet received.

I do have to ask you a couple of questions.

Do you agree, if confirmed, to appear before this Committee or designated members of this Committee and other appropriate committees and provide information subject to appropriate and necessary security protection with respect to your responsibilities?

Ms. MACFARLANE. Yes.

Senator BOXER. Do you agree to ensure that testimony, briefings, documents and electronic and other forms of communication of information are provided to this Committee and its staff and other appropriate committees in a timely fashion?

Ms. MACFARLANE. Yes.

Senator BOXER. Do you know of any matters which you may or may not have disclosed that might place you in any conflict of interest if you are confirmed?

Ms. MACFARLANE. No.

Senator BOXER. OK. So, I am just saying, noting that you have said yes, I have asked you for documents. You just said you would certainly turn them over. I am going to be specific with you in

short order. So, thank you very much. We will come over to you in just a moment.

Thank you, colleagues.

[Whereupon, at 10:27 a.m., the committee was adjourned.]

[Additional statements submitted for the record follow:]

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

Madam Chairman, thank you for scheduling this hearing to consider the re-nomination of Dr. Allison Macfarlane to be Chairwoman of the Nuclear Regulatory Commission (NRC).

Nuclear energy has been critical to meeting our nation's energy needs. It is an emissions-free energy source that provides one-fifth of America's electricity. In my State of New Jersey, our four nuclear power reactors provide the State with more than half its electricity.

But—as we saw in Japan more than 2 years ago—we need to ensure the safe operation of these facilities. In addition to operating plants safely, the United States needs to have an effective policy for disposing of and storing spent nuclear fuel. Right now, most nuclear power plants store more than 1,000 tons of nuclear waste in spent fuel pools onsite. This is not a sustainable solution.

In New Jersey, nuclear waste is stored onsite at our four nuclear reactors. Some of it is in dry cask storage, but most is in spent fuel pools, which rely on a steady supply of water and electricity. Superstorm Sandy showed how important it is to ensure nuclear facilities are safe and resilient.

In Japan, when the tsunami knocked the power out, we saw rescue workers desperately spraying water from fire hoses into the spent fuel pools. More than 2 years later, there are still serious concerns about the safety of spent fuel at Fukushima.

One thing is clear: we must find better and safer ways to store nuclear waste to ensure that a disaster like the one that took place in Japan never happens here. That means finding more secure ways to store fuel onsite, finding agreeable places to store national spent fuel, and making sure that these sites have long-term viability.

We've now heard from the President's Blue Ribbon Commission, which made a number of recommendations that could provide a path forward. As a former Commission member, I look forward to hearing from Dr. Macfarlane on how she plans to approach the Commission's proposals and fulfill its mandate.

If re-confirmed, she will hear from industry interests that may oppose strong safety regulations. But do not forget—companies that are accountable to shareholders often have to focus on short-term costs and quarterly profits. In contrast, the NRC must be accountable to the people, and it must stay focused on ensuring the safety of this generation and the next.

So I expect Dr. Macfarlane, if re-confirmed, to always be on the side of safety. Relaxing regulations could harm the public and would do the industry no favors.

Nuclear energy has been critical to our nation's energy needs in the past. We must take the necessary precautions now in order for that to continue in the future.

STATEMENT OF HON. KIRSTEN GILLIBRAND,
U.S. SENATOR FROM THE STATE OF NEW YORK

Madam Chair, I am pleased to join you and my colleagues on this committee to examine the work Ms. Macfarlane has done on the Nuclear Regulatory Commission. Considering nuclear power's sizable footprint in New York State, I am very interested in Ms. Macfarlane's perspective on steps that can be taken to ensure the safety and transparency of this industry in the years to come.

Some topics I hope will be covered during this hearing include addressing what has seemed, at times, like the modest pace for the implementation of the post-Fukashima task force recommendations.

Emergency planning like this is incredibly important, especially as we continue to see the damage that natural disasters can wreak on our communities.

In the same vein, I hope we can work together to address concerns raised about the ability of local infrastructure to support implementation of the emergency planning, such as in the wake of Superstorm Sandy. I would also like to ensure that it will be a priority of Ms. Macfarlane's to address concerns raised by the Government Accountability Office (GAO) regarding emergency planning zones around plants, and the importance of understanding "shadow evacuation zones."

Finally, as Indian Point in New York is up for licensing renewal this year, I would like you to address the seemingly novel approach the NRC is taking with its "timely renewal provision." Specifically, I would like to know how using this provision will trigger other time limits, restrictions or regulatory compliance requirements while the plants are in this status. And, whether the NRC is evaluating the criteria used for relicensing, including the length of license duration.

Madam Chair, I know Ms. Macfarlane has spent a significant amount of time doing the hard, boots on the ground work. During her recent visit to New York, she met with many local elected officials, business leaders, and environmental organizations, providing the opportunity to speak directly to the Chairwoman. I applaud this effort, and I look forward to her continued work on the NRC's commitment to transparency and accountability.

Thank you.

○