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OVERSIGHT HEARING: NRC'S IMPLEMENTATION OF THE FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATIONS AND OTHER ACTIONS TO ENHANCE AND MAINTAIN NUCLEAR SAFETY

JOINT HEARING

BEFORE THE

SUBCOMMITTEE ON CLEAN AIR
AND NUCLEAR SAFETY

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

AND THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDRED THIRTEENTH CONGRESS

SECOND SESSION

JANUARY 30, 2014

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

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ONE HUNDRED THIRTEENTH CONGRESS
SECOND SESSION

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C O N T E N T S

Page

JANUARY 30, 2014

OPENING STATEMENTS

Boxer, Hon. Barbara, U.S. Senator from the State of California 1
Vitter, Hon. David, U.S. Senator from the State of Louisiana 3
Carper, Hon. Thomas R., U.S. Senator from the State of Delaware 4
Sessions, Hon. Jeff, U.S. Senator from the State of Alabama 5
Sanders, Hon. Bernard, U.S. Senator from the State of Vermont 7
Inhofe, Hon. James M., U.S. Senator from the State of Oklahoma 8
Wicker, Hon. Roger, U.S. Senator from the State of Mississippi 10
Fischer, Hon. Deb, U.S. Senator from the State of Nebraska, prepared statement 515

WITNESSES

Macfarlane, Hon. Allison M., Chairman, U.S. Nuclear Regulatory Commission 11
Prepared statement 14
Responses to additional questions from:
Senator Boxer 35
Senator Carper 57
Senator Gillibrand 61
Senator Vitter 71
Senator Sessions 192
Senator Boozman 210
Senator Fischer 225
Svinicki, Hon. Kristine L., Commissioner, U.S. Nuclear Regulatory Commission 228
Responses to additional questions from:
Senator Carper 229
Senator Vitter 231
Senator Sessions 312
Senator Boozman 325
Apostolakis, Hon. George, Commissioner, U.S. Nuclear Regulatory Commission 331
Response to an additional question from Senator Carper 332
Responses to additional questions from:
Senator Vitter 333
Senator Sessions 335
Senator Boozman 338
Magwood, Hon. William D. IV, Commissioner, U.S. Nuclear Regulatory Commission 341
Responses to additional questions from:
Senator Carper 342
Senator Vitter 346
Senator Sessions 461
Senator Boozman 474
Ostendorff, Hon. William C., Commissioner, U.S. Nuclear Regulatory Commission 486
Response to an additional question from Senator Boozman 487
Responses to additional questions from:
Senator Carper 488
Senator Sessions 491

OVERSIGHT HEARING: NRC'S IMPLEMENTATION OF THE FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATIONS AND OTHER ACTIONS TO ENHANCE AND MAINTAIN NUCLEAR SAFETY

THURSDAY, JANUARY 30, 2014

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

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

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

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

Senator BOXER. Hearing will come to order.

Today we are holding our eighth NRC oversight hearing since the earthquake, tsunami, and nuclear meltdown in Japan.

The third anniversary of Fukushima is coming, and Japan is still struggling. Failed efforts to prevent radioactive water from washing into the sea have led officials there to build a huge underground ice wall. And it will be at least 3 more years before 60,000 local residents can return to their homes safely.

We must learn from the tragic events in Fukushima and take all necessary steps to ensure the safety of our own nuclear facilities.

Now, more than 2 years ago the NRC charged its most senior nuclear safety officials with making recommendations to help prevent such a disaster here. Some of the 12 recommendations that NRC's task force proposed have been acted on. The NRC issued orders to enhance safety when plants lose electrical power and to increase the reliability of venting systems to prevent explosions. That is good.

But other measures have not moved forward. For example, the NRC has allowed 3 full years for seismic evaluations of nuclear reactors in the western United States to be completed. If a seismic evaluation finds that there is a seismic risk, the NRC provides an additional 3 years for yet more analysis. To me, this is an unac-

ceptable delay, because earthquakes aren't going to wait until your paperwork is done.

Now, when the NRC is made aware of a new seismic risk, as it was for the Diablo Canyon Nuclear Facility near San Luis Obispo in my State, it should require immediate steps be taken to protect the people who live and work near these facilities.

On another issue, our ability to conduct oversight is being impeded by a lack of cooperation from the NRC. During my investigation of the San Onofre Nuclear Power Plant in California, I learned that NRC's general counsel directed NRC staff to withhold documents that I requested. My investigation into why flawed equipment was installed at San Onofre is very important, as it will provide lessons learned for the Commission's future safety decision-making activities.

The NRC's response to my investigation is not the only recent example of the agency's effort to avoid congressional oversight. Last fall, the NRC attempted to unilaterally change its policy on providing information to Congress from one that generally made non-public documents available to one that did not. The new policy even added restrictions that could have been used to withhold information from the chair and ranking member of this oversight committee, even though each of you, as you were up for your confirmation, absolutely agreed to make all documents available; and my counsel tells me, whether you were sworn in or not, it is considered a sworn statement.

Congress unambiguously rejected this new policy when it rescinded that policy, your policy in the appropriations, and I want to thank the bipartisan leadership of that committee for making sure that you can't do that.

NRC still has not responded to my document requests in a manner that is consistent with congressional direction, and I will not back down on this matter. In recent letters, the NRC cites non-specific constitutional separation of powers as a basis for continuing to withhold documents from our committee. However, there is simply no constitutional basis that this is applicable to the documents in question.

Finally, I note that excessive travel by NRC commissioners is of concern. I am going to ask you about your travel. It has been difficult to schedule oversight hearings because one or the other is somewhere in the world. I am also mystified as to why the travel records provided to me are marked "non-public." I plan to ask questions about the lack of transparency and scheduling of your travels.

During a period where reactors are closing unexpectedly due to adverse safety or economic conditions, the NRC's role as a strong safety regulator has never been more important. However, I am concerned that whistleblowers who have raised safety and other concerns within the NRC have been ignored.

So those are issues of deep concern to me. I intend to ask you about all of them. I look forward to hearing your open and complete answers.

And I would turn to my ranking member.

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

Senator VITTER. Thank you, Madam Chair, for convening today's hearing. I also want to thank our NRC commissioners for being so accommodating with your schedules after the previous hearing was postponed to facilitate the majority's vote on the nuclear option. Thank you for coming back.

As the chair alluded, many of these hearings have been scheduled and canceled because of the chair's ongoing pursuit of documentation from the NRC. While I disagree with the chair on many aspects of that issue, I do want to note for the record her aggressive fight for complete transparency of agencies under the jurisdiction of this committee, and I welcome her to that position and look forward to following up on that, with regard to the EPA, as well.

I want to briefly revisit some of the points I made during the November hearing before we get to your testimony.

The NRC's compliance with the U.S. Court of Appeals for the D.C. Circuit's decision is a very important step forward in addressing the long-term management of nuclear waste in the legal commitment to Yucca Mountain. More importantly, it is a step in the right direction for the Federal Government, after years of political games, quite frankly, taking precedent over good policy and agency stewardship. To date, Yucca Mountain has resulted in over $15 billion of spending, with very little forward movement. It is really irresponsible and a failure of leadership that the Yucca Mountain safety evaluation report was halted in the first place, and it shouldn't have required a court ruling for the agency to comply with that law.

Nuclear energy has become an indispensable contributor to our base load electricity needs, and it will continue to be for years to come. As the Commission continues to develop new regulations, it should certainly keep in mind the negative consequences that have resulted in specific cases from misguided regulations and Federal interferences. We have seen, in recent years, what clearly negative results can ensue when either the Commission loses sight of its clear mission or partisan politics sway decisions.

Regulations for the sake of regulating can become a profound burden on our fellow Americans who rely on nuclear energy to meet their everyday needs, and the negative effects of an unwarranted plant closure can result in more than just a diminished power supply, but economic hardship, loss of jobs, negative environmental impacts. The very nature of the NRC requires its leadership to operate independently of political and ideological pressures, and in a transparent manner, that focuses on the safety and energy reliability needs of all of our communities.

Certainly, the effects of the 2011 Fukushima accident will continue to play a significant role in future regulation of the nuclear industry, and we all agree with that and we all care, first and foremost, by far, about safety. But we need to put that in proper context and understand our U.S. nuclear fleet, which is the safest in the world; was before Fukushima, is today.

Thank you all very much for being here.

Senator BOXER. Thank you very much, Ranking Member Vitter.

Senator Carper will go next; he is the subcommittee chair. And if it is OK with your side, Senator Sessions will then go; he is the subcommittee ranking member. All right.

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

Senator CARPER. Thank you, Madam Chair. Thank you very much for pulling this together today; it is nice to see all the members of our panel, and thank you for your service.

My colleagues have heard me say more than a few times, but it bears repeating today, that I believe the NRC plays a critical role in protecting the public and our environment, and impacting our energy security. It is with that in mind that we must continue to have the nuclear power and the mix of energy resources as part of the all of the above approach that the President referred to Tuesday night in his state of the Union address with respect to our Nation's energy policy.

I believe that again today, because sometimes here in Congress we lose sight of the importance of good governance, we lose sight of the important work that our Federal work force does on a day-in and day-out basis. When Congress decides not to do our basic job, like providing funding certainty for the Federal Government, Federal agencies like the NRC have a really difficult time in trying to do your jobs, and I would say that the NRC's job is one of the most important in our country.

But as many of you know, I do try to find, whenever I can, a silver lining in most situations, the Government's shutdown is no exception here. Despite the extreme obstacles that we in Congress put before the NRC and other Federal agencies this last October during the Government shutdown, the Commission and its employees at the NRC rose to the challenge and found ways to ensure that our nuclear facilities remained safe in this country. I hope we never have to go through that again, and I am sure you share that sentiment, but I would like to commend the leadership of the Commission and the NRC work force for their outstanding efforts during a particularly trying time.

Since October, Congress has passed a budget, as we know, and a spending plan that sees us through the near future. These accomplishments are stepping stones, we hope, toward a functioning Government and away from the model of governance that has led us moving literally from one crisis to the next.

Finally, I think we are starting to do our jobs, and when we do our jobs the NRC is better able to do its job. Right now, the NRC has plenty on your plate. Not only is the NRC ensuring existing reactors continue to run safely, but the Commission is implementing lessons learned from Fukushima and all of our reactors, overseeing the construction of the first new reactors in some 30 years, and trying to help our reactors grapple with their nuclear waste as we continue to debate our nuclear waste policy. All the while our nuclear reactors are facing economic and climate challenges that they have never seen before, putting additional challenges on the nuclear industry.

Today is an important opportunity to check in and see how the NRC is doing and how you are handling these challenges, and I

look forward to today's dialogue with the Commission and with our colleagues here on the panel.

One final word, and that is despite where my colleagues may sit on this dais and where we are on the issue of nuclear power, I believe we all want a safe nuclear fleet. I also believe that is true of the commissioners that are here before us. Sometimes we disagree on how to get there, but at the end of the day we all do share the same goal. And because nuclear power is a very sensitive and often a very technical issue, I have found that many of our disagreements are caused not by differing views, but because maybe of a lack of communications or breakdown in communications. That is why I encourage my colleagues and this Commission to continue to find ways to communicate better with one another and with the public that we serve.

As I have said a time or two before, I believe that our nuclear power plants are some of the safest, maybe the safest in the world. We look forward to working with the Commission, our colleagues, and the nuclear industry to ensure that we reap the benefits of nuclear power by ensuring that safety continues to be our No. 1 priority.

Thank you very much, Madam Chair.

Senator BOXER. Thank you very much, Subcommittee Chairman.

Now we turn to the ranking member on the subcommittee, Senator Sessions.

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

Senator SESSIONS. Thank you, Madam Chairman, and thank you, Senator Carper, for your leadership on the subcommittee. You are indeed an excellent chairman; work hard, you take responsibility for this, and, to a degree unusual in this Senate, you stay on top of the Commission and the activities, and you have invited me, in a bipartisan way, to participate in that. A good example for us all.

This is our first meaningful oversight hearing with the NRC since September 2012, when the NRC had just emerged from a tumultuous period under your previous chairman. It is good that under the leadership of Chairman Macfarlane, and with the support of her four colleagues, the NRC has stabilized and seems to be functioning well. It is an important task that you have at this time of fragile support, fragile, I guess, stability in the nuclear industry. A few bad decisions could deal a body blow to that whole industry.

There are many issues to review this morning, such as post-Fukushima actions, the cumulative effect of regulations, status of Yucca Mountain licensing activities.

In 2001, nuclear energy comprised 20.6 percent of total U.S. electricity generation, and even more recently many of us here anticipated a nuclear renaissance that would allow the percentage to increase. Congress took steps, such as streamlining the NRC licensing process, to help facilitate expanded reliance on nuclear power. We thought it was the right thing to do.

Regrettably, however, by 2012, our reliance on nuclear power has declined to 19 percent. The U.S. is still producing basically the same amount of megawatt hours of nuclear power as it did in 2001,

and I am deeply concerned about a rash of shutdowns on U.S. nuclear power plants like Kewaunee Power Station, Wisconsin, Vermont Yankee, Crystal River Unit 3 in Florida, SONGS Unit 2 and 3 in California.

Last August, Duke Energy announced it would not move forward with its Levy County, Florida, nuclear power plant project, which was previously scheduled for licensing.

Last June, the Tennessee Valley Authority announced plans to scale back work at the Bellefonte Nuclear Generating Station, raising new doubts about when that important project would be completed.

Modern nuclear power plants, which Bellefonte would be, constitute long-term assets that can provide safe, affordable, reliable, and clean energy for taxpayers and ratepayers for decades to come.

In last month's edition of Nuclear News, a publication of the nuclear society, the senior editor noted that the United States is, to our dismay, now in an era in which decisions can be made to close reactors, some of which have been operating and continue to be exemplary performers, producing electricity safely and at close to peak capacity.

So what factors are at issue here? There seem to be many. Are decisions by grid operators skewed away from nuclear energy and toward other sources like wind power or due to Federal policies? The article seems to raise that question. The article also notes that nuclear operators are still counting the costs of compliance with lessons learned from Fukushima. Total costs can currently only be estimated, he says, but any extra cost to normal operation could cast doubt on any reactor's continued operation. So this is a factor.

What about the confidence issue, waste confidence issue, is that a factor? We haven't settled that sufficiently. What market forces are at work?

So there are many important questions to consider. I hope Congress will take the time, as we look to develop a coherent energy policy, to consider the role of nuclear power in our energy future. I firmly believe the U.S. should remain the world's leading nuclear producer.

Plant Vogtle. There has been some good news. Southern Company and their partners continue to make good progress with Plant Vogtle, where two new 1,100 megawatt AP1000 units, the most advanced in the world, are under construction. Vogtle Units 3 and 4 will be the first new nuclear units built in the United States in the last three decades. Operations are expected to begin in 2017 and 2018, not too far away.

Since the focus of our hearing today is post-Fukushima actions, it is important to keep in mind that these new units at Plant Vogtle will have pressurized water reactors, including Westinghouse AP1000 and a passive cooling system. The technology is designed to ensure that the kinds of failures experienced at Fukushima cannot occur here.

Thank you, Madam Chairman.

Senator BOXER. Thanks, Senator.

We have a vote at 11:15. That means most of us have to get there by 11:30. So my hope is to conclude, so I am going to be tough on the gavel.

Senator SESSIONS. I offer the remainder of my remarks for the record, please.

Senator BOXER. Absolutely, put them in.

Senator Inhofe, followed by, if there is no Democrat—oh, no, I am sorry. Right now it is Senator Sanders.

[The referenced remarks were not received at time of print.]

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

Senator SANDERS. Thank you, Madam Chair. Thank you for holding this hearing and, commissioners, thank you very much for being with us this morning.

Madam Chair, this oversight hearing is covering a wide range of very important issues, but I would like to focus on one specific issue, an issue I chatted about with with Chairperson Macfarlane not so long ago, and that is the need to provide a strong role for States, States, in the decommissioning process when a nuclear plant shuts down.

Senator Sessions bemoaned the fact that the nuclear power plant in Vermont is going to be shut down. Senator, I would suggest to you that the people of Vermont would respectfully disagree with you. Many of them have wanted to shut that plant down for a very long period of time and feel pretty good about the decision to see it cease at the end of this year.

The important point is, however, and I know our Governor and his administration have been working with Entergy, the owners of Vermont Yankee. The important issue here is the role of the State itself in terms of the decommissioning process. Right now, the rules, as I understand it, and obviously this applies not just to Vermont Yankee, but to nuclear power plants all over this country which are in the process of being shut down, what the rules do is allow the NRC to sit down with the companies and negotiate a decommissioning process. Generally speaking, the States do not have any significant role, Madam Chair, in that process. They can be observers, there can be public meetings, they can provide input, but at the end of the day the company and the NRC work out the plan.

Madam Chair, I think on the face of it that just doesn't make a whole lot of sense. The people of a given State, whether it is Vermont or your State of California, it seems to me, have a right to have a place at the table. How long is the decommissioning process going to take place? Well, in the case of Vermont Yankee, I don't think this is going to be the case, but there was at one point some suggestion, well, it may take 60 years. Sixty years. I don't think that is going to happen.

Senator BOXER. Six-zero?

Senator SANDERS. Six-zero. Sixty years. That was a suggestion. Now, frankly, I don't think that that is going to happen; I don't think that is Entergy's intention. But imagine having a hulking mass in southern Vermont deteriorating for 60 years. Nobody that I know in Vermont wants that to happen.

What about the jobs? We are concerned one of the negatives of the shutdown of the nuclear power plant is the loss of decent paying jobs in southern Vermont. Everything being equal, we would like to see those workers who are currently employed get a shot at

being part of the decommissioning process. They know the plant. I understand there is a difference in job description. Can that take place? I think it can. Should the State, maybe the union, be involved in that discussion? I think that they should.

Now, the important point here is this is not an issue that just impacts Vermont. We have a number of nuclear power plants that are being decommissioned in the foreseeable future, including in States like California, Florida, Wisconsin, New Jersey, New York, and Ohio. And this clearly is not a Democrat or Republican or Independent issue; it is not rural or urban. This is a simple issue: Do the people of those States get a seat at the table?

Right now the rules, as I understand it, really preclude States from sitting down. We can either change it through rules, and I will be asking you questions about that, or we can change it through law. But one way or another I think the States in this country should have a strong seat at the table.

So, Madam Chair, that is my area of interest in this discussion and I thank you very much for allowing us to have it.

Senator BOXER. Thank you.

After we hear from our two Senators, my intention is to give everyone 10 minutes to have their back and forth, and hopefully that will mean we don't have to come back after.

Senator Inhofe.

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

Senator INHOFE. Thank you.

It was in 2003, when I was chairman of this committee, that the Nuclear Regulatory Commission asked Congress for a bigger budget to build new buildings and add significantly to the number of people. They expected approval of four design certifications for new reactor designs and 17 construction and operating license applications, or COLAs.

Now 10 years later, that was 4 and 17, 10 years later the NRC has only approved one design and two COLAs. The NRC's workload did not increase the way that it was expected, and I have some questions about that, but the Commission still increased its staff by over 30 percent.

Now, this is very concerning to me because over the past few years the Commission has been developing sweeping new regulations that impose draconian costs on the industry without producing sufficient benefits. It is as if the NRC, with its new building and all of its new people, have been using its spare time to come up with new things the nuclear industry must do to maintain compliance with the law.

The NRC has done this most clearly in its reaction to Fukushima. While it is reasonable for us to review what went wrong there and to make sure that we are not vulnerable to the same problems, it is not reasonable for the NRC to use the disaster to justify new expensive rules that don't reduce risk. I question whether the NRC is still employing its own principles of good regulation.

Just a few months after Fukushima, the NRC near-term task force released its papers showing that there is a minimal chance

that the disaster at Fukushima would happen here. Not only are the U.S. nuclear plant designs more robust than Japan's, but our significant cultural differences, both within the plants and between the plants, and the NRC make it much less likely that we would face the same problem. It is really apples and oranges.

Despite all this, the NRC is continuing to push new regulations in response to the Fukushima disaster, presuming that planning more and more contingencies and implementing more and more redundancies the right path to take, even when cumulative costs of these actions can exceed $100 million a plant.

Everyone here wants to ensure that a disaster like the one at Fukushima does not happen in the United States and that really it comes down to keeping the reactor cool in the event of both offsite and onsite power is lost. Our plants are designed to protect against all external hazards with the occurrence rate of one in a million years. Unlike the plant in Fukushima, our onsite emergency diesel generators and fuel packs are located safely above the ground from floods, and we have external pumps ready to operate like a fire department in the event that first and second redundancies fail. The United States nuclear fleet is safe and it is well prepared to face the unforeseen events.

The NRC has also continued to press the nuclear fleet to prepare for terrorist attacks in the wake of 9/11. The NRC has required a fleet to implement new security features and many of them work quite well, but we are getting close to crossing the point where additional requirements are simply adding cost without any benefits.

When you add in the efforts of the EPA to impose more regulations on the water being used to cool reactors, claiming the new rules cost is justified because of all the fish it will keep from getting damaged, it is as if Government at the EPA and the NRC is trying to regulate the nuclear energy industry out of business, just like it has been trying to regulate fossil fuels out of business.

Today there are more than 50 rules and other regulatory actions on tap at the NRC, which is more than I can remember since serving on this committee.

I would submit the rest for the record, since I know I won't have time to do it, but I would say that this is something that we will cover in the questions that we ask. I think it is very significant that we keep in mind we need the nuclear energy, and there are some who don't want nuclear energy, and we don't want to use overregulation to accomplish the wrong goals.

Thank you, Madam Chairman.

[The prepared statement of Senator Inhofe follows:]

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

Thank you all for being here today.

It was in 2003, when I was chairman of this committee, that the Nuclear Regulatory Commission asked Congress for a bigger budget to build a new building and add significantly to its staff to support the expected approval of four design certifications for new reactor designs and 17 construction and operating license applications (COLAs). Now, 10 years later, the NRC has only approved one design certification and two COLAs. The NRC's workload did not increase the way that it was expected, but the Commission still increased its staff by almost 30 percent.

This is very concerning to me because over the past few years the Commission has been developing sweeping new regulations that impose draconian costs on the

industry without producing sufficient benefits. It is as if the NRC, with its new building and all of its new people, has been using its spare time to come up with new things the nuclear industry must do to maintain compliance with the law.

NRC has done this most clearly in its reaction to Fukushima. While it is reasonable for us to review what went wrong there and make sure we aren't vulnerable to the same problems, it is not reasonable for the NRC to use the disaster to justify new, expensive rules that do not reduce risk. I question whether the NRC is still employing its own "Principles of Good Regulations."

Just a few months after Fukushima, the NRC Near-Term Task Force released its paper showing that there is a minimal chance that the disaster in Fukushima would happen here. Not only are the U.S. nuclear plant designs more robust than Japan's, but our significant cultural differences—both within the plants and between the plants and the NRC—make it much less likely that we'll face the same problem.

Despite this, the NRC is continuing to push new regulations in response to the Fukushima disaster, presuming that planning more and more contingencies and implementing more and more redundancies is the right path to take, even when the cumulative cost of these actions can exceed $100 million per plant.

Everyone here wants to ensure that a disaster like the one in Fukushima does not happen in the United States, and that really comes down to keeping the reactor cool in the event that both offsite and onsite power is lost. Our plants are designed to protect against all external hazards with an occurrence rate of one in a million years; unlike the plant at Fukushima, our onsite emergency diesel generators and fuel packs are located safely above ground from floods, and we have external pumps ready to operate like a fire department in the event the first and second redundancies fail. The United States nuclear fleet is safe, and it is well prepared to face any unforeseen events.

The NRC has also continued to press the nuclear fleet to prepare for terrorist attacks. In the wake of 9/11, the NRC has required the fleet to implement new security features, and many of them work quite well. But we're getting close to crossing the point where additional requirements are simply adding cost without any benefits.

When you add in the efforts of the EPA to impose more regulations on the water being used to cool reactors, claiming the new rule's cost is justified because of all the fish it will keep from getting entrained and impinged, it's as if the Government—at EPA and NRC—is trying to regulate the nuclear energy industry out of business, just like it's trying to do with every other industry.

Today there are more than 50 rules and other regulatory actions on tap at the NRC, which is more than I can remember since serving on this committee—many without any clear linkages to safety enhancement. Some are relatively small, but others—like EPA's 316(b) rule or the post-Fukushima required change to the Spent Fuel pool level instruments, are outrageously expensive. And when you look at them all together—when you take the cumulative impact of all of them—even many of the small ones become unjustifiable. In the grand scheme of things, they just do not add much value to our already rock solid nuclear fleet.

For the industry that is providing 20 percent of our Nation's electricity, we need to be careful not to overreact to world events by imposing unjustifiably expensive regulations onto this industry based on the assumption that more regulations will yield more safety and security.

I thank you again for coming to testify here today. I look forward to the Q&A.

Senator BOXER. Senator, thank you.

Senator Wicker.

OPENING STATEMENT OF HON. ROGER WICKER, U.S. SENATOR FROM THE STATE OF MISSISSIPPI

Senator WICKER. Thank you, Madam Chair, for holding this hearing, and thank you to the NRC commissioners for again being here to offer their testimony.

Our hearing in November was unexpectedly cut short due to the majority's regrettable insistence on changing the longstanding rules of the Senate with a nuclear option, so I am eager to hear today from our witnesses on some of the important issues facing the nuclear industry.

The United States must truly embrace a comprehensive energy portfolio that includes all the best resources and technologies avail-

able today. We must also plan for the energy developments of tomorrow. Nuclear power is a vital component of this approach.

In Port Gibson, Mississippi, we are proud to have Grand Gulf Nuclear Station, which opened in July 1985, becoming the first and only nuclear power plant to produce electricity in Mississippi. Today, Mississippi's Grand Gulf is the largest single unit nuclear power plant in the country and the fifth largest in the world. It provides Americans with an affordable energy resource and is a key component of the State's industrial base.

For plants such as Grand Gulf to have continued viability and success, it is vital that NRC exercise its oversight responsibilities in a manner that provides certainty for the country's nuclear industry. Currently, all final licensing decisions for nuclear plants are stayed pending the new waste confidence decision. The NRC previously has provided assurances that the Commission is on schedule to complete this decision, but it recently was announced that the time line may be delayed. Perhaps we can hear about that today. I hope the Commission recognizes the importance of making this action a priority and will address this during question and answer.

In addition, I have heard from many industry stakeholders who are concerned about the cumulative impacts of existing NRC regulations, as well as further actions that may turn out to be unworkable or financially untenable.

There is no doubt that the Fukushima disaster in Japan has reemphasized NRC's principal role to ensure the safety of U.S. nuclear plants and their surrounding communities. In the wake of this tragedy, however, we must not lose sight of the fact that, absent clear priorities, regulatory actions can divert management and staff attention from the most important matter, safe and reliable operation.

It is vital that NRC balance the needs of the industry with effective regulatory measures as it continues its important work to ensure the safety and success of the U.S. nuclear industry.

So welcome to our witnesses and thank you, Madam Chair.

Senator BOXER. Senator, thank you.

So as we previously agreed, we will open it up and the chair will have 5 minutes and each commissioner 2 minutes, and then we will begin the questioning.

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

Ms. MACFARLANE. Thank you very much. Good morning, Chairman Boxer, Ranking Member Vitter, Ranking Member Sessions, and distinguished members of the committee. My colleagues and I appreciate the opportunity to appear before you today on behalf of the U.S. Nuclear Regulatory Commission.

The NRC continues to have a full plate of regulatory responsibilities, from the operation, construction, and decommissioning of reactors to nuclear materials, waste, and security. The Commission continues to function effectively and collegially. Today I would like to share some of our accomplishments and challenges.

We continue to address lessons learned from the Fukushima Daiichi accident and implement appropriate regulatory enhance-

ments. Licensees have purchased and staged backup equipment at reactor sites, installed supplemental flood barriers and pumps to mitigate extensive flooding, and are developing plans to install hardened vents and improve spent fuel pool instrumentation. Implementation of these and other activities will continue throughout this year under NRC oversight. We plan to conduct audits at every site to assess licensees' implementation efforts and follow up with detailed inspections once implementation is complete.

We are also making progress on several important rulemakings. We are carefully ensuring that this work does not distract us or the industry from day-to-day nuclear safety priorities. The highest priority safety enhancements for the operating reactor fleet will be implemented by 2016.

The NRC has held more than 150 public meetings to get input on our Fukushima work and share progress. The NRC receives regular reports on the status of the Fukushima site from the government of Japan and the Tokyo Electric Power Company as they continue their work at the damaged reactor buildings. We are also closely coordinating with other U.S. Federal and State agencies regarding information about current concentrations of radioactive contamination in the Pacific Ocean. Based on the best scientific information available, no agency in the United States or abroad has identified any evidence of concerns for U.S. food and water supply or public health.

The vast majority of operating reactors in the United States are performing well, while a few warrant enhanced oversight to ensure their safe and secure operation. Several reactors have recently shut down or announced their decision to cease operations. As they transition from operating to decommissioning, they have 2 years to develop and provide to the NRC their decommissioning plans. The NRC will adjust its oversight accordingly and ensure these plans meet our regulations, keeping the public informed all the time, of course.

The NRC has acted expeditiously to comply with the D.C. Circuit Court of Appeals decision directing us to resume review of the Yucca Mountain license application. The Commission carefully reviewed feedback from participants to the adjudicatory proceeding and budget information from the NRC staff. Last November and again last week the Commission issued orders directing the staff to complete the safety evaluation report for the application and to make the licensing support network documentation publicly available in the NRC's Adams data base, among other things. The project planning and building of the technical capability to finish the safety evaluation report is nearing completion.

The NRC also continues to make progress in its waste confidence work. The proposed rule and draft generic environmental impact statement were available for public comment from September through December of last year. We conducted 13 public meetings in 10 States to get feedback and address questions, and the agency has received more than 33,000 public comments. The Commission has recently revised its review schedule for publication of the rule and GEIS no later than October 3rd, 2014, this year. In the interim, the NRC continues to review all affected license applications, but we will not make final licensing decisions dependent upon the

waste confidence decision until the court's remand has been fully addressed.

Construction of the new units at Vogtle and V.C. Summer is well underway under rigorous NRC inspection. Construction also continues at Watts Bar Unit 2, and the staff is working toward an operating licensing decision for that plant in December of this year. We are also busy preparing for the first design certification application of a small modular reactor, which we expect to receive later this year.

The NRC has accomplished a great deal and I am confident will continue to meet the challenges ahead. Let me assure you safety and security at our operating and licensed facilities and materials remains our top priority.

Thank you for the opportunity to appear before you today. I am pleased to answer your questions.

[The prepared statement of Ms. Macfarlane follows:]

WRITTEN STATEMENT

BY ALLISON M. MACFARLANE, CHAIRMAN

UNITED STATES NUCLEAR REGULATORY COMMISSION

TO THE

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

JANUARY 30, 2014

Chairman Boxer, Ranking Member Vitter, Chairman Carper, Ranking Member Sessions, and Members of the Committee, my colleagues and I appreciate the opportunity to appear before you today on behalf of the U.S. Nuclear Regulatory Commission (NRC).

Over the last year, the NRC has continued to ensure the safety and security of the nation's civilian nuclear activities, made enhancements based on lessons learned from the Fukushima Dai-ichi accident, and met challenges in a number of other areas. In doing so, my fellow Commissioners and I continue to work collegially to carry out the NRC's mission of protecting public health and safety and the environment and promoting the common defense and security. I continue to greatly value the NRC staff's expertise and dedication to our mission.

I have had the opportunity to visit each of the NRC's four regional offices, as well as seven nuclear power plants and several other licensed facilities. These visits have reinforced my belief that the agency's high caliber and dedicated staff of experts is ably fulfilling our critical mission. The NRC's resident inspectors give me particular confidence that the agency is protecting the public's health, safety and security. In short, I believe the NRC is operating very well. We are successfully meeting the variety of challenges we face while also seeking to continuously improve in order to remain a strong and effective regulator.

Today, I'd like to highlight some of the NRC's accomplishments and challenges.

FUKUSHIMA

Nearly three years after the Fukushima accident, the NRC and the international community have a more informed understanding of the event sequence and the appropriate safety enhancements required in implementing the lessons learned. Additionally, based on lessons learned from the Three Mile Island accident, we are committed to appropriately prioritizing and integrating the Fukushima lessons learned to ensure that they do not create an adverse impact on the agency's other safety-significant work. We are taking the time necessary to conduct the detailed research, develop the comprehensive regulatory requirements, if necessary, and seek input from a broad array of constituents, to ensure that the actions we are taking are technically sound and provide the most appropriate safety enhancements.

I am pleased to report that we have done extensive inspections at each U.S. nuclear power plant and that the Commission remains confident that the fleet continues to operate safely. The additional actions we are requiring will enhance licensees' abilities to mitigate the effects of a beyond design-basis accident. The licensees have also conducted thorough "walkdown" inspections at their facilities, are in the process of re-evaluating their seismic and flooding hazards, and are making significant progress in implementing the new requirements stemming from the Fukushima lessons learned.

Recently, there has been increased focus on radioactive contamination at the Fukushima site. While the NRC has no direct role in overseeing actions at the Fukushima site, we cooperate with our federal partners and our counterpart agency in Japan, the Nuclear Regulation Authority, as well as take advantage of reports from TEPCO and other sources to remain aware of activities at the Fukushima site. We remain cognizant of this information to help identify potential lessons learned for U.S. reactors. Other U.S. federal agencies are also offering assistance to the Japanese in their efforts to address the ongoing cleanup and decommissioning of the damaged power station. The Government of Japan and TEPCO

continue to monitor the effluent releases from the site, and the NRC receives regular reports on Japan's efforts to confine the radioactive materials at the Fukushima site.

Information about the current concentrations of radioactive contamination in the Japanese countryside and in the Pacific Ocean is made available to the public by the Government of Japan and TEPCO – and NRC staff, as well as other federal and state agencies, monitor this data to inform our decision-making, and to respond to questions from the public. The concentrations of radioactive elements in the Pacific Ocean off the coast of Japan remain very low – well below the international and U.S. regulatory limits for drinking water. Although some of the contamination has made its way across the Pacific Ocean to the western coast of North America, the concentrations are even lower – hundreds or even thousands of times below the concentrations established by the U.S. and international regulatory bodies as allowable limits intended to protect public health and the environment. Based on the best scientific data available, neither the NRC, nor any of the other federal agencies, state governments in the Western U.S., nor international organizations have identified any evidence that the minute amounts of contamination from the Fukushima site that may reach the West Coast of the U.S. may pose any concerns to the U.S. food supply, water supply, or public health.

In terms of our efforts to implement high-priority, safety-significant lessons learned at operating nuclear power plants in the United States, I would like to summarize the progress the NRC and our licensees have made.

Seismic and Flooding Evaluations and Inspections

Following the accident, the NRC moved swiftly to require reactor licensees to confirm their capability to protect against seismic and flooding events within the plant's current design basis. In November 2012, the licensees submitted their final reports, which are being reviewed by the NRC staff. The NRC is also inspecting the licensees' performance. At this time, no issues identified by the licensees or the NRC raise safety concerns. A few plants reported

some discrepancies in flood protection such as: degraded flooding seals; procedure deficiencies; and temporary flood barriers that may not have performed as designed should they have been called upon to function. Examples of potential seismic issues included degraded equipment or hardware (e.g., missing bolts, corrosion), potential for spatial seismic interactions, and problems associated with housekeeping procedures. The licensees are correcting these issues in a timely manner under NRC oversight. To confirm licensees conducted the walkdowns correctly, NRC staff conducted audits this past summer at select plants and sites to gather additional information. As the next step, the NRC is completing and publicly issuing detailed safety assessments of each of the licensees' walkdown reports.

Seismic and Flooding Reevaluations

To ensure adequate protection against natural hazards, the NRC is requiring each plant to use current methodologies and updated regulatory guidance to reevaluate seismic and flooding hazards and then evaluate the plant response to those hazards. The NRC will use the results of these assessments to determine whether additional site-specific safety enhancements are necessary.

For the flooding hazard reevaluations, the NRC categorized the plants based on factors such as the complexity of the analyses required, co-location with a site considering a new reactor application and the potential for needing an integrated assessment of the re-evaluated hazard to the current design basis. Sixteen sites have already provided the results of their reevaluated flood hazard, and the others are on a staggered deadline schedule through March 2015.

Sites with reevaluated hazard results that are bounded by their current design basis do not need to take further action. Licensees whose flooding hazard reevaluation results are not bounded by their current design basis were requested to describe any interim actions, taken or planned, to address the reevaluated flooding hazard. In addition, these sites must complete an

assessment of the site's flood protection and mitigation capability within two years of submitting the hazard reevaluation results to determine whether permanent safety enhancements are necessary.

At present, the NRC is reviewing the interim actions for flooding that were proposed by individual sites and is performing on-site inspections to ensure that the interim actions are protective of public health and safety. Concurrently, the NRC is reviewing the flood hazard reevaluation results submitted by the licensees to ensure they correctly utilized current methodologies. Of the sites that submitted their hazard reevaluations on March 12, 2013, the majority have identified hazards that are greater than their current design bases and will need to take further action.

Seismic hazard assessments are on a separate schedule, and work is well underway at the plants. Licensees have begun the process of performing the analyses necessary to reassess the seismic hazards for their facilities. In establishing the methodologies for performing this reassessment, the NRC and industry concluded that ground motion models for plants in the central and eastern United States should be updated. These ground motion model updates were completed at the end of May 2013 and approved by the NRC staff in August for licensees to use in the reassessment of the seismic hazards. Licensees whose plants are located in the central and eastern United States have recently submitted to the NRC a portion of their hazard reassessments and will submit the complete reevaluations by March 2014. Licensees whose plants are located in the Western United States are scheduled to submit their hazard reevaluations by March 2015. Because the U.S. Geological Survey recently updated seismic hazards for the central and eastern United States, plants in those areas could incorporate this new data directly. The three plants in the Western United States must conduct significant additional research in order to submit their seismic hazard reassessments.

As an interim step to implement safety enhancements more quickly than originally scheduled, the NRC and industry have developed a revised approach to upgrade certain safety

systems at the facilities. Licensees will now use their updated seismic hazard assessments to identify and implement seismic upgrades to certain safety significant equipment. Previously, they were to conduct comprehensive plant risk analyses before determining what upgrades may be necessary. This change allows for certain seismic-related safety enhancements to be completed at the sites sooner than originally planned, with many plants completing safety enhancements by 2016. The NRC will still require licensees to complete the seismic probabilistic risk assessments to determine if any further safety enhancements are warranted.

Enhanced Capabilities to Mitigate Beyond-Design-Basis Accidents

To ensure that sites are better prepared to respond to beyond-design-basis accidents, the NRC has required licensees to provide additional capabilities to maintain or restore core cooling, containment, and spent fuel pool cooling for all units at a site simultaneously following an extreme natural event. This includes procurement of portable power supplies, cooling pumps, and supporting equipment to supplement the existing plant safety systems. To implement these requirements, in February 2013, the licensees submitted their integrated safety plans for NRC approval. They have begun to procure the equipment for their sites. Many of the sites with operating reactors will achieve full implementation by the end of 2015, with the remaining sites to be completed by 2016. The industry is also establishing Regional Support Centers in Memphis, Tennessee and Phoenix, Arizona with the capability to deploy equipment to any reactor site within 24 hours. These Centers will be fully operational by the end of 2014. During and after implementation, the NRC will conduct inspections to verify that nuclear power plants have put appropriate strategies in place to mitigate beyond design-basis accidents.

The NRC is conducting a rulemaking that would codify in the regulations requirements already imposed in a March 2012 Order to mitigate a prolonged station blackout condition. This rulemaking will incorporate feedback and lessons-learned from implementation of the previously

imposed Order to inform the new regulations to enhance capabilities to mitigate beyond-design-basis accidents at the sites. This rulemaking remains on schedule to be completed by 2016.

Emergency Preparedness Communication and Staffing

To ensure that nuclear power plant sites have adequate staffing and sufficient communication capacity in place to cope with prolonged accident conditions, particularly involving multiple units, the NRC requested that licensees reassess their emergency response capabilities. This includes examining staffing plans, conducting periodic training for staff on multi-unit accident scenarios, and ensuring that communication equipment can function during a prolonged loss of power at the site. Licensees are performing these activities and are required to complete them by 2016. Portions of these activities related to staffing and communications have already been completed and submitted to the NRC. The NRC staff has issued safety assessments concerning the communications portion to operating licensees. The staff will follow up with licensees to confirm that the enhancements to the sites' communication systems are completed. The NRC is conducting a rulemaking to integrate emergency operating procedures, severe accident management guidelines, and extensive damage mitigation guidelines. This rulemaking will require these safety procedures to be effectively implemented in a coordinated manner during a nuclear accident. The new requirements will better equip licensees to address accidents outside of a plant's current design basis, and promote proper training to address these scenarios. This rulemaking remains on schedule to be completed by 2016. The NRC will then ensure that the licensees take the actions specified in the final rule.

Spent Fuel Pool Instrumentation

To ensure the capability to continuously monitor spent fuel pool water levels and conditions during an extreme event, the NRC has required by Order the installation of enhanced instruments at all nuclear plants. This additional equipment expands upon the capabilities of

that which is currently installed and will indicate the full range of water level above the spent fuel assemblies. To ensure coordinated implementation of all high-priority enhancements, licensees must complete installation of this instrumentation along with the installation of the enhanced spent fuel pool cooling capabilities, with full implementation at all sites by 2016. Licensees submitted their integrated safety plans to implement this requirement in February 2013. The NRC reviewed those safety plans and issued all of its interim staff evaluations by the end of 2013. The NRC will ultimately issue final safety evaluations and inspect each site to verify that the licensees have appropriately implemented this requirement.

Reliable Hardened Vents

To protect containment integrity in the 31 boiling water reactors with Mark I and II containments, similar in design to those found at Fukushima Dai-ichi, the NRC required by Order installation of reliable hardened vents capable of relieving high pressure in the reactor containment. In response, licensees submitted their plans for implementing this requirement in February 2013. These requirements were initially on the same schedule as those I just described, with full implementation scheduled for 2016. The Commission subsequently directed the staff to expand those requirements to ensure that the vents can be operated during severe accidents. The NRC issued new requirements for operation of vents in June 2013. These include a revised schedule requiring licensees to submit implementation plans in June 2014 and have in place severe accident capable venting systems by June 2017.

The Commission also directed the NRC staff to undertake a rulemaking to consider additional requirements for these reactors to retain and filter radioactive material during an accident and enhance the capability to maintain containment integrity and cool core debris. The NRC staff is exploring the requirements associated with measures to enhance the capability to maintain containment integrity and to cool core debris during severe accidents. In keeping with

NRC rulemaking practices, there will be multiple opportunities for public participation in the process.

Spent Fuel Pool Study and Expedited Transfer Issues

Although inspections of the Fukushima Dai-ichi facility determined that spent fuel pool integrity had been maintained and the spent fuel had been adequately cooled during the accident, the event led the NRC staff to undertake efforts to confirm the safe storage of spent fuel and to determine whether the NRC should undertake a regulatory action to require expedited transfer of spent fuel to dry cask storage at U.S. nuclear power plants. In the summer of 2011, the NRC staff initiated a research project entitled, "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor." The study used the Peach Bottom plant in Pennsylvania as a "reference plant." A draft of the study was completed and the NRC solicited public comment on the report in July 2013. The final report was completed and made available to the public in October 2013. The staff also undertook a generic assessment – looking at all reactor types and various initiating events – to determine if the potential safety benefits of reducing the amount of spent fuel stored in storage pools would: (i) meet the NRC's criteria for a substantial safety improvement at existing nuclear power plants; and (ii) meet criteria for a cost-justified safety improvement for future nuclear power plants. On January 6, the Commission held a public briefing on spent fuel pool safety and consideration of expedited transfer of spent fuel to dry casks, which gave both the NRC staff and selected stakeholders the opportunity to present. The Commission is evaluating the staff's assessment and proposal, along with the information received at the briefing, and will make a decision in the near future.

National Academy of Sciences Study

As directed by Congress, the NRC issued a grant to the National Academy of Sciences (NAS) to provide an assessment of lessons learned from the Fukushima nuclear accident for improving the safety and security of nuclear plants in the United States. This assessment will address the following issues: (1) causes of the Fukushima nuclear accident; (2) re-evaluation of the conclusions from previous NAS studies; (3) lessons to improve plant safety and security systems and operations; and (4) lessons to improve plant safety and security regulations, including processes for identifying and applying design basis events for accidents and terrorist attacks to existing nuclear plants. The NRC staff is providing the assistance needed to support NAS' completion of the report.

Longer-Term Actions Associated with Fukushima Lessons Learned

The end of 2016 will mark an important milestone for the NRC to measure its progress in implementing the lessons learned from the Fukushima accident. The summary provided thus far has shown the significant progress that the agency has made or will make by this date. We have focused on the highest-priority, most safety-significant lessons learned first. The agency will meet or exceed the five-year schedule in completing the most safety-significant enhancements.

Over the coming months and years, as we gain insights from implementation of the highest priority actions, the decommissioning activities at the Fukushima Dai-ichi site, and resources become available with the critical skill sets, the schedules for the remaining lessons learned will become clearer. The NRC remains committed to implementing the appropriate Fukushima lessons learned in an effective, timely, and safety-focused manner and without adverse impact on the agency's other safety-significant work.

The NRC continues to interact with our licensees and interested members of the public as we move forward to implement these Fukushima safety enhancements. We have held more

than 150 public meetings over the last two and a half years in an effort to keep the public apprised of our activities. We remain mindful of the cumulative impacts of regulation and have established a process that attempts to manage cumulative impacts. The NRC is taking a careful and deliberate approach to this work to prevent these regulatory actions from distracting us or the industry from day-to-day nuclear safety priorities, and to avoid unintended safety or security consequences. We recall the lessons learned from previous events such as the September 11, 2001, terrorist attacks, knowing that a change in one system has the potential to adversely affect another system if not considered holistically.

OPERATING REACTOR FLEET

The day-to-day safe and secure operation of the NRC's licensed facilities, including power reactors, and the safe and secure use of radioactive materials remains our top priority. All operating reactors in the United States are performing safely. The NRC's Reactor Oversight Process measures plant performance in five categories, or "columns." Column 1 consists of those reactors that we have assessed as having the best level of safety and security performance. On average, these plants receive a baseline level of approximately 2,370 hours per site of direct inspection effort, per year, with an additional approximately 2,420 hours per site for all associated monitoring of plant status, preparatory work, and inspection documentation. Plants in Columns 2, 3, and 4 receive an increasing level of NRC oversight, characterized by significantly enhanced inspections. Plants in Column 4 receive the most NRC attention short of a mandated shutdown. Column 5 encompasses those plants that are experiencing problems of sufficient safety significance as to require a shutdown until the problems are addressed.

On September 6, 2013, the NRC issued its calendar year 2013 mid-cycle assessments for all operating power reactors in the United States. These results document the plants' performance through the first half of 2013. There are currently seventy-nine reactors in Column

1, fourteen in Column 2, seven in Column 3, and one, Browns Ferry Unit 1, in Column 4. The NRC is maintaining focus on the plants in the lower performance categories and will conduct follow-up inspections of identified issues and ensure that corrective actions are implemented.

The Fort Calhoun Nuclear Generating Station, located in Nebraska, recently restarted after having been shut down since April 2011 for a refueling outage that was extended due to record Missouri river flooding. The plant remained shut down to correct a variety of concerns with plant equipment, programs and processes. The plant remains under special inspection oversight, separate from the normal performance categories, until sustained licensee performance justifies a return to the reactor oversight process.

With respect to the renewal of licenses in the power reactor fleet, the NRC has approved renewals for 73[1] reactors, most of which have already replaced, or plan to replace, major components such as reactor pressure vessel heads and steam generators. The NRC also reviews aging management programs for each licensed facility seeking license renewal. License renewals impacted by the Commission's Waste Confidence activities will remain pending until the conclusion of those activities.

DECOMMISSIONING

Since our last full hearing before this Committee, four licensees have announced their intention to cease commercial operations and permanently shut down their reactors due to a variety of factors. Kewaunee Power Station, Crystal River Nuclear Generating Plant, Unit 3, and San Onofre Nuclear Generating Station Units 2 and 3 entered decommissioning following announcements in 2013. More recently, in late August, Entergy announced its intention to close the Vermont Yankee Nuclear Power Station by the end of 2014.

[1] One of these was for the Kewaunee Power Station, which has permanently ceased commercial operations.

Our licensees have three decommissioning options from which to choose under NRC regulations: DECON, or immediate dismantlement; SAFSTOR, or deferred dismantlement; and ENTOMB, in which radioactive contaminants are permanently encased on site. To date, licensees have selected either the DECON or SAFSTOR options. Our regulations require that decommissioning be completed within 60 years of cessation of operations. As these plants transition from operating to decommissioning status, the NRC will adjust its oversight accordingly and ensure the next steps are carried out safely, while keeping the public informed of the process. We likewise encourage our licensees to engage members of the public and state and local elected officials with an interest in their decommissioning sites. Some licensees may choose to form community advisory boards to support this work.

YUCCA MOUNTAIN[2]

The NRC has acted expeditiously to comply with the August 13, 2013, U.S. Court of Appeals for the District of Columbia Circuit decision directing the NRC to promptly continue with the legally mandated licensing process for the high-level waste repository at Yucca Mountain, Nevada. On August 30, the Commission requested that all participants in the suspended Yucca Mountain adjudication provide their views on how the NRC should continue with the licensing process. At the same time, we also directed the NRC staff to gather budget information that would provide current data on the cost of completing various aspects of the licensing process.

On November 18, 2013, the Commission issued an Order setting forth a course of action to continue the Yucca Mountain licensing process. This course of action represents the next logical steps in the licensing process; the Commission directed the NRC staff to complete work on the safety evaluation report on the Department of Energy's construction authorization application for the proposed Yucca Mountain nuclear waste repository. The Commission also requested that DOE prepare a supplemental environmental impact statement needed by the NRC staff to complete its environmental review of the application. The Commission also

[2] Commissioner George Apostolakis is not participating in these matters.

directed that the adjudication related to the Yucca Mountain license application continue to be held in abeyance. For this reason, the Commission did not direct the staff to reconstitute the Licensing Support Network (LSN) that supported the adjudicatory hearing on the application. The Commission did, however, direct the staff to load documents in the LSN document collection into the NRC's non-public ADAMS online database; that effort is currently ongoing. And on January 24, 2014, in conjunction with an Order declining to reconsider certain aspects of the November 18 decision, the Commission provided further direction on the use of newly de-obligated Nuclear Waste Fund appropriations to enable public access to the LSN document collection now being loaded into ADAMS. Further, the agency has commenced its licensing review.

The NRC will continue to keep our Congressional oversight committees fully informed of our progress in responding to the court's direction to the agency to continue its review of the Yucca Mountain application at least until existing funds appropriated for the review are expended.

WASTE CONFIDENCE

Following the U.S. Court of Appeals for the D.C. Circuit's June 2012 remand of the Waste Confidence Rule, the Commission directed the NRC staff to address the issues identified in the court's remand by September 2014. On January 23, 2014, the NRC revised its review schedule for the final versions of its Waste Confidence Generic Environmental Impact Statement (GEIS) and the final rule on the extended storage of spent nuclear fuel at the Nation's commercial nuclear power plants from September 2014, to no later than October 3, 2014. The delay reflects time lost during the government shutdown and lapse of appropriations last October. The shutdown led the agency to reschedule several public meetings and extend the public comment period on the draft versions of the GEIS and rule by nearly a month.

The proposed Waste Confidence Rule and draft Generic Environmental Impact Statement, prepared in response to Commission direction, were available for public comment from September 13 until December 20, 2013. The NRC has provided multiple opportunities for public involvement in this process. We held 13 public meetings at various locations around the country; three[3] at NRC's Rockville, Maryland, Headquarters, and one at each of the following locales: Denver, Colorado; Chelmsford, (near Boston) Massachusetts; Tarrytown (north of Manhattan), New York; Charlotte, North Carolina; Orlando, Florida; Oak Brook (near Chicago), Illinois; Carlsbad, California; San Luis Obispo, California; Perrysburg (near Toledo), Ohio; and Minnetonka (near Minneapolis), Minnesota. The three meetings based out of our Headquarters were accessible to nationwide participation. We had more than 1,400 total participants in person and by phone, and received more than 33,000 comments.[4] At this time, the staff is reviewing the public comments received, crafting responses to the comments to be included in the final Generic Environmental Impact Statement, and making appropriate changes to the Generic Environmental Impact Statement.

As the staff continues its work on Waste Confidence, the NRC continues to review all affected license applications. However, we will not issue licensing decisions dependent upon the Waste Confidence decision until the court's remand is appropriately addressed. This determination extends just to final license issuance; all licensing reviews and related proceedings continue to move forward.

NEW CONSTRUCTION

Following the issuance of the first combined licenses for new reactors at the Plant Vogtle and V.C. Summer stations approximately two years ago, safety-related construction at both

[3] Two public meetings with in-person and phone participation and one teleconference-only meeting were held at NRC Headquarters.
[4] The NRC received more than 33,000 comment submittals containing more than 850 unique submittals, yielding approximately 3,000 comments.

facilities is well underway. There were some initial delays after NRC inspectors identified code compliance issues with the design of the basemat[5] and walls, which resulted in pouring concrete for the nuclear island basemats later than originally planned. The NRC issued license amendments to address these issues, and the basemats have now been placed at all four sites. The auxiliary building walls at Summer Unit 2 and Vogtle Unit 3 are being constructed, the bottom portions of both containment vessels have been set, and the reactor vessels are on-site. In addition, significant progress has been made on major structural modules, the turbine buildings, and cooling towers at both sites. Other issues identified by NRC inspectors have been in the area of civil construction and digital instrumentation and control. Both sites experienced issues with the delivery and quality of the fabrication of plant modules, but overall, construction appears to be going smoothly. Construction issues are expected to arise at large, complex construction projects such as these, and the NRC is working productively with the licensees to ensure that appropriate processes and protocols are established and followed to allow for timely issue resolution.

I had the opportunity to visit the Plant Vogtle site in June 2013 and was impressed with the significant progress being made at the site, as well as the effective communication between the NRC and the licensee to ensure that previously-identified issues are being addressed appropriately.

The reactors under construction at the Plant Vogtle and V.C. Summer sites are the first of a new generation of reactors built under 10 CFR Part 52. These regulations allow applicants to seek a combined license covering nuclear power plant construction and operation and permit the use of a pre-approved standardized design. On one hand, the streamlined approach of issuing one license is intended to minimize potential delays in bringing new plants online, but in turn, licensees must construct the plant in accordance with the approved design referenced in

[5] The basemat is the reinforced concrete foundation for the "nuclear island," which consists of the containment building, shield building, and auxiliary building.

the license application. The lessons learned at V.C. Summer and Plant Vogtle will inform our work in new reactor licensing and construction oversight going forward. We intend to continue to work with licensees and vendors to ensure that they fully understand our expectations regarding as-built design detail and the finality of the approved design.

The NRC also continues to provide construction oversight at Watts Bar Unit 2. The NRC staff review of the Tennessee Valley Authority's (TVA's) submittals related to the Operating License Application of Watts Bar Nuclear Plant Unit 2, while mostly complete, is still in progress. The NRC staff continues to document its findings in supplements to the safety evaluation report, and construction inspection reports to ensure that TVA has met the applicable regulatory requirements. Currently, the staff is working towards an operating licensing decision in December 2014.

The NRC also anticipates the submission of the first design certification applications for small modular reactors (SMR) in 2014, for the Babcock & Wilcox mPower designs. We are appropriately staffed to conduct this SMR design certification review in a timely manner.

SECURITY

On October 11, 2013, the NRC concluded a two-week International Atomic Energy Agency International Physical Protection Advisory Service (IPPAS) mission. An international team of security experts reviewed the NRC's physical protection regulations as well as how they are implemented at the National Institute of Standards and Technology's Center for Neutron Research in Gaithersburg, Maryland. The IPPAS team concluded that "nuclear security within the U.S. civil nuclear sector is robust and sustainable and has been significantly enhanced in recent years." Last summer, the NRC revised its regulations related to the physical protection of spent fuel in transit. We have also recently issued a new regulation, 10 CFR Part 37, which provides expanded security measures for the physical protection of the most risk-significant radioactive materials. In January 2013, we began the first round of inspections of power reactor

licensees' cyber security plans and implementation. To date, we have completed 20 such inspections and are now developing cyber security requirements for fuel cycle facilities.

URANIUM RECOVERY

The NRC continues to adjust resources within our budget, and enhance our safety and environmental review programs to address potential new license requests for uranium recovery facilities. As part of our environmental review, the staff is required by federal law to consult with affected groups, such as federally-recognized Native American Tribes and members of the local community. The NRC also continues to encourage the uranium recovery industry to improve the quality of incoming license applications, which directly impacts the timelines of our licensing reviews. Finally, we are also coordinating with our federal partners, such as the Environmental Protection Agency and the Bureau of Land Management, to update regulatory standards and improve the efficiency of the environmental review processes to address this growing workload.

INTERNATIONAL

International cooperation remains a priority for the NRC. We remain engaged on a bilateral and multilateral basis with our international counterparts on safety, security, and safeguards issues. We are currently preparing for the Sixth Review Meeting of Parties to the Convention on Nuclear Safety, which will take place in March 2014. This will be the first such meeting since countries began undertaking post-Fukushima safety enhancement activities, and a valuable opportunity to collaborate with our regulatory counterparts to assess our collective progress and share insights and lessons learned.

BUDGET

The NRC faces a different future than the one we anticipated just a few years ago when significant new reactor construction was anticipated. We responded appropriately then with an

aggressive effort to build staff capability and the infrastructure to support this growth. While our focus in certain areas has shifted, our workload has not diminished – in fact, it has increased as our budget levels have largely remained stable – but we have additional considerations. Recent industry announcements have prompted us to place greater focus on decommissioning, even as we continue to provide oversight for new reactor construction and prepare for possible small modular reactor design certification. We are also continuing to address emerging work related to Yucca Mountain, Waste Confidence, and Fukushima-related lessons learned.

Another consideration is the consistent loss of senior technical experts to retirement. Workforce attrition demands that we continue a robust effort to ensure that our staff is appropriately and strategically replenished and revitalized. Finally, uncertainties in the federal fiscal environment have prompted the NRC, like other agencies, to carefully plan and consider how to effectively address emergent situations like a federal shutdown.

In short, the NRC recognizes that our agency must be flexible in order to effectively, efficiently, and quickly respond to changing circumstances in industry, budgetary, or other factors in a way that preserves our ability to uphold our critical nuclear safety and security mission.

INTERNAL COMMISSION PROCEDURES

The NRC's Internal Commission Procedures govern how business is conducted at the Commission level, including the Chairman's and Commissioners' responsibilities, Commission decision-making procedures, and how sensitive documents are transmitted to Congress. The procedures, which are available on the NRC's website, address the Commission's actions as a collegial body. I believe the Commission is functioning well in this regard.

The Commission reviews its internal procedures every two years and makes changes as appropriate. We recognize and acknowledge that the Commission's recent revision of Chapter 6 of the procedures resulted in the enactment of legislation directing the NRC to revert to the

2011 version of that chapter when responding to Congressional requests for information. We, of course, will comply with the legislation.

I would like to make it clear that the NRC remains committed to keeping Congress fully and currently informed of its activities and providing individual members with needed information.

There are important separation of powers principles and longstanding Executive Branch confidentiality interests that also govern Federal agency responses to Congressional requests for information. Our Internal Commission Procedures, including the 2011 version, are consistent with those foundational principles, and we will continue to respect those principles in responding to requests for information from Congress. These principles are particularly important in addressing requests for sensitive documents pertaining to ongoing agency adjudications or potential or ongoing investigations or enforcement actions. We recognize that this is a complex issue and welcome the opportunity for further discussions on how to best accommodate the Committee's important responsibilities.

A LOOK AHEAD

While we have accomplished a great deal, many challenges lie ahead for the NRC. In the next several months, the Commission's primary activities will include the following issues:

- Continuing work on the Yucca Mountain licensing process in an efficient and effective manner;
- Working towards completion of the agency's Waste Confidence activities;
- Further implementing safety-significant lessons learned from the Fukushima accident in accordance with established agency processes and procedures;
- Overseeing decommissioning activities at SONGS, Kewaunee and Crystal River 3;

- Continuing to conduct oversight of construction activities at the new Plant Vogtle, V.C. Summer, and Watts Bar 2 reactors;
- Reviewing the first SMR design certification application;
- Continuing implementation of radioactive source security enhancements, including ensuring that Agreement States have implemented compatible regulations and updating our own procedures and guidance documents;
- Moving forward with cyber security efforts for nuclear power plants, fuel cycle facilities, research and test reactors, and materials licensees; and
- Strengthening our close cooperation with international partners.

Chairman Boxer, Ranking Member Vitter, Chairman Carper, Ranking Member Sessions, thank you for the opportunity to appear before you today; I would be pleased to answer your questions.

The Honorable Barbara Boxer

QUESTION 1. In your April 26, 2013, letter to me about the potential for re-starting Unit 2 of the San Onofre Nuclear Generating Station, you stated that "I want to assure you that the NRC will not approve the amendment request unless it concludes there is reasonable assurance that public health and safety will not be endangered and that such approval will not be inimical to the common defense and security. As I stated in my February 8 letter, the NRC continues to use a variety of regulatory actions to ensure that the agency comprehensively addresses the issues that have arisen at SONGS. Among its actions in this regard, the agency is actively assessing Edison's response to the Confirmatory Action Letter and subsequent NRC requests for additional information. The staff is also conducting inspections and completing its technical review of operational assessments for the steam generators. Consistent with my October 1 2, 2012 letter, please be assured that the NRC will continue these independent, in-depth inspections and detailed technical reviews of the issues at SONGS, and will not permit SONGS Un its 2 or 3, respectively, to restart until the agency has concluded that that the respective unit is safe to operate and is in compliance with NRC regulations."

The Requests for Additional Information you referenced in your letter were sent to Southern California Edison on December 26, 2012, March 15, 2013, and March 18, 2013. Southern California

Edison answered questions 1-32 on March 1, 2013, and questions 33-72 on April 25, 2013.

I have reviewed a draft NRC document dated February 21, 2013 - before any of the questions the Commission sent to Southern California Edison had been responded to and a full two months before ALL the questions had been responded to- that suggests that a staff decision had already been made to allow the restart of the reactor.

The document in question is titled a "Technical Evaluation Report," a type of document that would typically be used as the technical basis in support of regulatory decisions. The document says that the NRC staff had concluded that safety issues related to re-starting the reactor at 70% power had been adequately addressed by the licensee. Specifically, it states that "The staff's review of the licensee's approach in complying with the applicable TS requirements via the licensee's performed OAs, together with compensatory and corrective actions implemented by the licensee, concluded that the TS requirements for the equipment 'OPERABILITY,' as defined above, as well as the LCO CONDITIONS and Surveillance Requirements specified above, have adequately been addressed by the licensee for its planned extended operations at 70% power."

While the document explicitly left as an open question the regulatory basis that NRC would use for the restart, listing license amendment, order or confirmatory action letter as among the options that could be utilized, it left no question as to the staff's views that the licensee had already demonstrated that the reactor could be safely restarted.

How can you reconcile the existence of this document with your April 26 assertion that the staff was making its determination on Unit 2 restart using as part of its basis the responses to NRC's requests for additional information that were submitted after this document was drafted?

ANSWER.

The draft Technical Evaluation Report input you referenced was one of several preliminary inputs requested from the technical review staff throughout the process to assess the status of their review. The draft input was focused only on whether the licensee's operational assessments were conducted consistent with the San Onofre Nuclear Generating Station (SONGS) Unit 2 and 3 technical specifications, which was one of many technical review areas that were under review and were to be documented in the technical evaluation report. All preliminary findings and conclusions documented in the draft input were based on the information received and reviewed as of that date. The report contained several open areas where additional information was needed before final conclusions could be made; but as a draft, the Technical Evaluation Report input you referenced was by definition in process of being completed and cannot therefore be considered a final agency position or final staff conclusion.

On January 17, 2013, a SONGS Oversight Panel (the Oversight Panel) was established to ensure that the agency's actions to address the root cause and corrective actions, with respect to the unexpected steam generator tube degradation at SONGS, were clearly communicated and documented, and to provide a recommendation for either approval or denial of restart. The Charter that established the Oversight Panel specified three purposes for the panel:

1. Ensure the NRC communicates a unified and consistent position in a clear and predictable manner to the licensee, public, and other stakeholders;
2. Establish a record of the major regulatory and licensee actions taken and technical issues reviewed, including adequacy of licensee corrective actions; and
3. Provide a recommendation regarding restart of SONGS Unit 2.

A stated objective of the Oversight Panel includes communicating in a public forum the status of NRC's assessment of the Southern California Edison's (Edison's) response to the Confirmatory Action Letter (CAL) and restart plan for Unit 2, and the basis for the panel's recommendation regarding restart of Unit 2.

NRC staff intended to document the input of multiple technical experts and inspectors involved in the effort in two documents: a Technical Evaluation Report and an Inspection Report. The Charter specified that the Oversight Panel would review the results of the staff's inspections and technical reviews and provide a written recommendation regarding restart of SONGS Unit 2, including the basis for the recommendation, to the NRC Region IV Regional Administrator and the Director of the Office of Nuclear Reactor Regulation.

Consistent with the Oversight Panel's Charter, and with other staff working documents provided to you in response to your prior requests, the staff approach for making a final determination regarding restart of SONGS Unit 2 involved multiple steps. These included performing

compliance inspections; performing a technical compliance review of Edison's response to the CAL and restart plan; and documenting the associated reviews as appropriate in inspection and technical evaluation reports, which were to be subjected to a thorough and rigorous technical review and concurrence process by NRC management. The NRC planned to hold a public meeting with the licensee to discuss the results of the staff's assessment of the information submitted by SCE in response to the CAL. The NRC also planned to release the reports to the public before making a final decision regarding closeout of the CAL, and subjecting the inspection and technical evaluation reports to an additional review by the SONGS Oversight Panel to develop a recommendation regarding whether SCE could restart SONGS Unit 2 under the terms of its existing licenses. Only after all these steps were satisfactorily completed, and only after carefully considering all the information submitted by the licensee in response to the CAL, the technical and regulatory conclusions of the NRC inspectors and technical reviewers, and recommendation of the SONGS Oversight Panel, would the NRC Region IV Regional Administrator and the Director of the Office of Nuclear Reactor Regulation have jointly come to a determination regarding whether SCE could restart SONGS Unit 2 under the terms of its existing license. Additional steps were also being developed to account for the different possible outcomes of the staff reviews and the final determination regarding restart.

In parallel with the inspections and technical reviews related to Edison's response to the CAL and restart plan, staff in the Office of Nuclear Reactor Regulation was independently reviewing the license amendment request submitted by Edison on April 5, 2013. The staff had not made a determination regarding whether the requested amendment should be issued, and a determination on the amendment request would have been made independent of the outcome of the staff's inspections and technical evaluations of SCE's restart plan for SONGS Unit 2.

The reviews of Edison's response to the CAL and its License Amendment Request were actively ongoing on June 7, 2013, when Edison announced its plan to permanently retire SONGS, Units 2 and 3. No decision regarding restart and the amendment had been made at that time, and NRC staff was actively pursuing additional information from Edison to complete its reviews.

In conclusion, I can assure you that the agency was taking steps to comprehensively address the issues that arose at SONGS, conducted its activities in an open and transparent manner, and was at all times focused on ensuring the public health and safety in its deliberations regarding the restart of SONGS Unit 2.

The Honorable Barbara Boxer

QUESTION 2. **Please provide me with a copy of the Differing Professional Opinion related to the Diablo Canyon power Plant (DCPP) prepared by NRC's former Senior Resident Inspector for DPCC (Dr. Michael Peck) that is currently pending before the Commission.**

ANSWER.

The Differing Professional Opinion (DPO) program supports openness and transparency within the NRC by encouraging sharing of all viewpoints so that agency decision-makers can arrive at a careful, well-informed decision. Once the process is complete, the DPO filer can request that the DPO be publicly released. Thus the program can also enhance public openness and transparency. With respect to the particular matter referenced in your question, the requested DPO is still being processed internally and therefore is considered pre-decisional and not for public release, but a copy is being provided to the Committee and has been marked "Not for Public Disclosure." If the petition is publicly released at the close of the process, we will notify you of the change in the status of the document.

The Diablo Canyon Seismic DPO is currently being evaluated by a DPO Panel. Once the DPO Panel issues a report to the appropriate Office Director, he or she will evaluate the report and issue a decision to the submitter. Should the submitter not agree with the decision, the process includes the opportunity for the submitter to appeal to the Office of the Executive Director for Operations (EDO). If the submitter elects not to appeal, the case is considered closed. If the submitter appeals, then the EDO evaluates and issues a DPO Appeal Decision. Once the case is closed, the submitter can request to have the DPO Case File made public. If the submitter would like the case to be made public, the appropriate Director's office performs a releasability

review. Once complete, the DPO Case File (with or without redactions) along with a summary of the case is posted in the Weekly Information Report (WIR) available on our public Web site. The Dr. Michael Peck Differing Professional Opinion was provided to you through a transmittal on April 25, 2014.

The Honorable Barbara Boxer

QUESTION 3. **Please provide me with a copy of all documents (including emails, white papers, meeting minutes, telephone logs, correspondence or other materials) prepared by or in the possession of NRC that are in any way related to the October 2011 license amendment request to alter the seismic licensing basis for DCPP that was submitted to the NRC by PG&E (including any documents dating from before the license amendment request was submitted that relate to the possibility that one could or would be prepared, and including any documents related to NRC's evaluation of the license amendment request before it was withdrawn by PG&E).**

ANSWER.

The documents requested in this question were provided under separate cover on April 25, 2014.

The Honorable Senator Barbara Boxer

QUESTION 4. **On June 3 and June 11, 2013, NRC's General Counsel Margaret Doane issued two memos to NRC staff with the subject line "Response to SONGS-related Requests from Senator Boxer." These memos directed NRC staff to withhold numerous categories of materials from me. For each of these categories of documents, please provide the Commission's basis for determining that these materials could be legally withheld from a Congressional Committee of Jurisdiction, including any applicable court decisions or statutory provisions that support such a determination.**

ANSWER.

The Commission recognizes its obligation to provide information to Congress to support its oversight role. We acknowledge the requirements in Section 303 of the Atomic Energy Act of 1954, as amended, that the Commission keep the Committee "fully and currently informed" and "furnish any information requested" with respect to the activities or responsibilities of the agency, which are within the jurisdiction of the Committee. We also hope to ensure that our mutual interests in effective and independent adjudicatory, investigatory, and enforcement functions are satisfied. After receiving the Committee's mid-2013 requests for documents, the NRC promptly provided a large volume of responsive documents. The two memoranda from the General Counsel that you reference provided the NRC staff with clear guidance that all documents sought by the Committee were to be provided, with the exception of certain categories the provision of which either potentially implicated Constitutional separation-of-powers principles or could create the appearance of improper interference with agency decisionmaking. The memoranda were written with the expectation that the Commission would

engage in negotiations with the Committee regarding the Commission's concerns about providing these categories of documents, but in order to have additional conversations with the Committee, the NRC necessarily needed to identify the documents that would be the focus of the discussions. It is important to note that these General Counsel memoranda did not reflect any final decision by the Commission that such documents would not be provided to the Committee.

Significantly, in the NRC's past experience, negotiations between the NRC and our oversight committees regarding requests for sensitive NRC documents have been a common and generally accepted practice, often producing accommodations that have been mutually acceptable to the NRC and its Congressional oversight committees. Indeed, subsequent to the General Counsel issuing these memoranda to NRC staff, the NRC negotiated with the Committee regarding the Committee's initial requests for information about SONGS.

The NRC understands that other Federal agencies pursue similar negotiations with Congressional requesters in comparable circumstances. In addition, as we noted in previous correspondence with the Committee, the courts have recognized that, when the interests of the Executive and Legislative Branches potentially conflict in the context of a Congressional request for information, they are encouraged to attempt to negotiate a resolution that accommodates both branches' legitimate interests. *See United States v. AT&T*, 567 F.2d 121 (D.C. Cir. 1977). In that case, the court explained this principle as follows:

> Given our perception that it was a deliberate feature of the constitutional scheme to leave the allocation of powers unclear in certain situations, the resolution of conflict between the coordinate branches in these situations must be regarded as an opportunity for a constructive modus vivendi, which positively promotes the functioning of our system. The Constitution contemplates such accommodation. Negotiation between the two branches should thus be viewed as a dynamic process affirmatively furthering the constitutional scheme.

The document categories at issue in the General Counsel's memoranda included documents from an ongoing NRC investigation, as well as pre-decisional adjudicatory and enforcement documents. Particularly given the Commission's status as an independent regulatory agency, whose role in conducting adjudications, investigations, and enforcement activities to protect the public health and safety must be free of even the potential *appearance* of external influence by Congress, industry, or other parties, provision of these documents raises serious concerns for the Commission. *See, e.g., ATX, Inc. v. U.S. Dept. of Transportation*, 41 F.3d 1522 (D.C. Cir. 1994); *SEC v. Wheeling-Pittsburgh Steel Corp.*, 482 F. Supp. 555 (W.O. Pa. 1979), *vacated and remanded on other grounds*, 648 F.2d 118 (3d Cir. 1981) (en banc); *Pillsbury Co. v. FTC,* 354 F. 2d 952 (5th Cir. 1966). Because of these concerns, we worked with the Committee to reach accommodations to provide one category of these documents. The NRC hopes to be able to engage in similar discussions with the Committee with respect to the other categories of documents sought.

Also listed in the General Counsel's memoranda were a small category of deliberative documents – those that specifically concerned the manner in which the agency would respond to the Committee. This category of materials was included in the list of items to be preserved for further discussion because, in the Commission's view, the provision of these documents could raise significant separation-of-powers concerns. Specifically, we have concerns that providing such documents could affect the independence and effectiveness of the agency's response to congressional inquiries and, in so doing, prevent the agency from raising concerns about the potential appearance of improper influence in agency decisionmaking. As the cases referenced above indicate, the Commission has a responsibility to ensure that its investigatory, enforcement, and adjudicatory functions are carried out without even the appearance of impropriety, and its ability to carry out this responsibility can be compromised if, during the

formulation of a response to a Congressional inquiry, concerns about the preservation of independent agency decisionmaking are not freely aired.

The overarching separation-of-powers concerns implicated by Congressional requests for documents that reveal agency deliberations about responses to Congress are specifically addressed in the Department of Justice's January 21, 2014, Motion for Summary Judgment in the lawsuit against Attorney General Eric Holder that was filed in the U.S. District Court for the District of Columbia by the Committee on Oversight and Government Reform of the House of Representatives (Case No. 1:12-cv-1332 (ABJ)). In our view, these concerns underscore the appropriateness of an accommodation process that considers interests of both Congress and the relevant Federal agency and, as discussed above, we are committed to engaging in a dialogue with the Committee in which we can communicate our concerns.

The Honorable Barbara Boxer

QUESTION 5. **High burn-up fuel is nuclear fuel that allows more of the uranium in a fuel assembly to be converted into energy and typically means any fuel that is rated above 45 gigawatt-days per metric ton of uranium (GWD/MTU). For each operating reactor as well as for any reactor that has permanently shut down in the past 3 years, please provide me with the following information:**

a. The number of spent fuel assemblies the spent fuel pool at the reactor was originally licensed to hold.

b. The number of spent fuel assemblies the spent fuel pool at the reactor is currently licensed to hold.

ANSWER:

Plant	Original	Current	Notes
Arkansas Nuclear 1	968	968	
Arkansas Nuclear 2	988	988	
Beaver Valley 1	273	1627	
Beaver Valley 2	1088	1690	
Braidwood 1 & 2	1050	2984	Common pool
Browns Ferry 1	1080	3471	
Browns Ferry 2	1080	3471	
Browns Ferry 3	1080	3471	
Brunswick 1	720	1963	720 BWR original;160 PWR and 1803 BWR current
Brunswick 2	720	1983	720 BWR original; 144 PWR and 1839 BWR current
Byron 1 & 2	1050	2984	Common pool
Callaway	1344	2363	
Calvert Cliffs 1 & 2	1760	1830	
Catawba 1	1418	1421	
Catawba 2	1418	1421	
Clinton	2522	3796	Additional 363 in fuel cask storage

Columbia	2658	2658	
Comanche Peak 1 & 2	1166	3373	Total for both pools. Both units can discharge to both pools
Cooper	2336	2651	
Crystal River 3	240	1474	
DC Cook 1 & 2	500	3613	Common pool
Davis-Besse	260	1624	
Diablo Canyon 1	270	1324	
Diablo Canyon 2	270	1317	
Dresden 2	1160	3537	
Dresden 3	1160	3537	
Duane Arnold	2050	3152	
Farley 1 & 2	675	1407	Common pool
Fermi 2	2305	4608	
Fitzpatrick	760	3239	
Ft Calhoun	178	1083	
Ginna	595	1016	
Grand Gulf	1280	4348	
Harris	1832 PWR plus either 2352 BWR or 5808 BWR or any combination such that the number of PWR7x7+BWR11x11 racks equals 48 racks	Total=8032 Assemblies: PWR=3404, BWR=4628	
Hatch 1	840	3349	
Hatch 2	1120	2933	
Hope Creek	1108	4006	
Indian Pt 2	257	1374	
Indian Pt 3	257	1345	
Kewaunee	168	1205	
LaSalle 1	1070	3986	
LaSalle 2	1070	4078	
Limerick 1	2040	4117	
Limerick 2	2040	4117	
McGuire 1	500	1463	
McGuire 2	500	1463	
Millstone 2	301	1346	
Millstone 3	756	1860	
Monticello	740	2301	
Nine Mile Pt 1	1140	4086	
Nine Mile Pt 2	4049	4049	
North Anna 1 & 2	416	1737	Common pool
Oconee 1 & 2	336	1312	Common pool
Oconee 3	216	825	
Oyster Creek	840	3035	
Palisades	892	892	

Palo Verde 1	1329	1329	
Palo Verde 2	1329	1329	
Palo Verde 3	1329	1329	
Peach Bottom 2	1110	3819	
Peach Bottom 3	1110	3819	
Perry	380	4020	
Pilgrim	900	3859	
Point Beach 1 & 2	351	1502	Common pool
Prairie Island 1 & 2	1582	1582	Common pool
Quad Cities 1	1140	3657	
Quad Cities 2	1140	3897	
River Bend	3172	3104	Capacity lost due to heat load restrictions of the cooling system
Robinson 2	240	544	
Salem 1	1170	1632	
Salem 2	1170	1632	
Seabrook	1236	1236	
Sequoyah 1 & 2	180	2091	Common pool
SONGS 2	800	1542	
SONGS 3	800	1542	
South Texas Project 1	196	1969	
South Texas Project 2	196	1969	
St Lucie 1	310	1706	
St Lucie 2	675	1491	
Summer 1	682	1712	
Surry 1 & 2	464	1044	Common pool
Susquehanna 1	2840	2840	
Susquehanna 2	2840	2840	
Three Mile Island 1	430	1990	
Turkey Pt 3	217	1535	
Turkey Pt 4	217	1535	
Vermont Yankee	600	3353	
Vogtle 1	936	1476	
Vogtle 2	936	2098	
Waterford 3	1088	2398	
Watts Bar 1	1386	1386	
Wolf Creek	1344	2363	

The Honorable Barbara Boxer

c. The number of spent fuel assemblies currently stored in the spent fuel pool at the reactor.

ANSWER.

The NRC does not maintain records on the number, burnup levels, or U-235 enrichment of spent fuel assemblies currently stored in spent fuel pools, whether the pools are located at operating reactor sites or at sites where reactors have been permanently shut down. The NRC establishes technical specifications that limit the number of fuel assemblies in a reactor spent fuel pool. These bounding numbers must not be exceeded by each license and the licensee is obligated to maintain inventory records of spent fuel in the spent fuel pools. The licensee's compliance with the limits – and the accuracy of their inventory -- are subject to NRC inspection. Therefore, there is not a safety reason for the NRC to track the real-time inventory at each plant. However, the NRC does require all 10 CFR part 50 reactor licensees – including those that have permanently shut down their reactors – to closely track any special nuclear material held at their sites. The pertinent material control and accounting (MC&A) provisions in 10 CFR Part 74 are discussed below.

The NRC's "Material status reports" requirements are applicable to reactor licensees, requiring the submittal of annual reports to a national database (the Nuclear Materials Management and Safeguards System (NMMSS) as discussed further below) on all special nuclear material held on-site in quantities of one gram or more. These requirements broadly include any "contained uranium-235, uranium-233, or plutonium" that the licensee has "received, produced, possessed, transferred, consumed, disposed, or lost," and reactor licensees must submit their annual

reports "within 60 calendar days of the beginning of the physical inventory" of the special nuclear material.

The NMMSS is a national database maintained by the Department of Energy (DOE), and is the method used by the United States to meet our international reporting obligations to the International Atomic Energy Agency (IAEA). As indicated above, the NMMSS also supports the NRC domestically in its review of licensee MC&A programs. In this regard, the NMMSS data provides the NRC with a projection of quantities of reportable special nuclear material amounts located, shipped, or received at a particular licensee site. It does not, however, track the burnup or enrichments of individual fuel assemblies.

NRC regulations require each reactor licensee to keep records showing the "receipt, inventory (including location and unique identity), acquisition, transfer, and disposal" of all special nuclear material in its possession. These records include the location and number of all fuel assemblies in the core, pool, or in dry cask storage. Reactor licensees are required to maintain these records and retain them for as long as the licensee holds the special nuclear material, including 3 years following transfer or disposal of the special nuclear material.

For licensees authorized to hold more than 350 grams of special nuclear material (i.e., "contained uranium-235, uranium-233, or plutonium"), NRC regulations state that a physical inventory of such material must be conducted once every 12 months. While the results of these inventories "need not be reported" to the NRC, the licensee must "retain the records associated with each physical inventory" until its NRC license is terminated. The inventory results (total number of fuel assemblies in the core, spent fuel pool, or in dry casks) is converted to the total quantity of special nuclear material in grams, and this data is reported to the NMMSS once a year as required by 10 CFR 74.13.

Additionally, each operating reactor and reactor permanently shut down undergoes periodic NRC inspection. The inspection verifies that the licensee is conducting an annual inventory of all spent fuel assemblies, recording transfers of assemblies, and submitting required reports to the NMMSS. NRC inspectors periodically review the annual inventory results, and verify by sampling, the correct location of spent fuel assemblies within the spent fuel pool. NRC inspectors also verify transfers between the reactor core and the spent fuel pool and confirm that all reports to NMMSS have been made.

NRC inspectors confirm that licensees are retaining proper records, which include transfer forms, file cards or computer records for each fuel assembly, physical inventory records, core maps, and spent fuel pool maps. Spent fuel pool maps show the location of all assemblies in the spent fuel pool, and also show the location of special nuclear material items (if there are any) other than assemblies. Required records include documentation of spent fuel assembly reconstitution operations, if any have occurred. Licensees also document the removal of individual rods and rod pieces from an assembly and the location to which they were moved.

d. The number of high burn up spent fuel assemblies (and the GWD/MTU and U-235 enrichment of each assembly) currently stored in the spent fuel pool at the reactor.

ANSWER.

See the response to Question 5.c. above. The NRC does not maintain records on the burnup levels of U-235 enrichment of each spent fuel assembly currently stored in spent fuel pools. Furthermore, NRC inspectors verify that (1) the location of fuel assemblies (including new fuel) is tracked, from core offload through core reload; (2) fuel assembles were loaded in the reactor

core locations specified by the design; and (3) discharged fuel assemblies are placed in allowable locations in the spent fuel pool.

e. The number of high burn up spent fuel assemblies (and the GWD/MTU and U-235 enrichment of each assembly) currently stored in dry cask storage at the reactor.

ANSWER.

See the response to Question 5.c. above. The NRC does not maintain records on the burnup levels or U-235 enrichment of each spent fuel assembly currently stored in spent fuel pools. Further, the spent fuel burn-up records are typically inspected by the NRC, as part of the transfer process from wet to dry storage. NRC inspectors verify, by direct observations or review of selected records, that licensees have (a) identified each fuel assembly placed in the ISFSI, (b) recorded the parameters and characteristics of each fuel assembly, and (c) maintained records of each fuel assembly as a controlled document.

The Honorable Barbara Boxer

QUESTION 6. **How long does high burnup spent fuel need to stay in a spent fuel pool before it can be loaded into a dry cask, and are there additional safety or other measures that are required to be utilized when doing so (and please describe if so)? If the timeframe varies with GWD/MTU of the fuel, the number of other assemblies intended to be placed into the dry cask or the type of dry storage system, please explain the relationship between these factors and such timeframe.**

ANSWER.

All fuel, including high burnup fuel, is safely stored in spent fuel pools for at least one year. As fuel assemblies age in the spent fuel pool they produce less heat. Dry storage cask contents are typically limited to fuel that has been cooled at least five years. One limiting factor for whether or not a fuel assembly can be stored in a dry cask is maximum allowable decay heat for each fuel assembly in the cask, which is determined as a function of fuel assembly initial enrichment, burnup, and cooling time. Each dry storage cask also has a total maximum allowable decay heat limit, which is the sum of the decay heat from its individual fuel assemblies. The applicant, the dry cask storage vendor, provides NRC with parameters for the fuel to be stored, including specific decay heat limits in the technical specifications. NRC reviews the application and verifies that those limits are adequate to ensure the safety of the dry cask storage system. In general, to be eligible for dry cask storage, fuel with a higher burnup can be cooled longer to reach the same level of decay heat or the hotter fuel can be stored with cooler fuel to limit the total level of decay heat in the storage cask. Dry storage cask designs approved by the NRC include decay heat loading patterns, to allow a small number of higher

decay heat fuel assemblies to be stored, provided that the remaining fuel assemblies are of lower decay heat.

The NRC performs a series of inspections at the site before and during loading of spent fuel to ensure that the correct fuel is loaded into the appropriate storage systems. If fuel burnup levels are higher than the certificate of compliance allows, that fuel cannot be loaded into dry storage casks. In those cases, the fuel would remain in pool storage until a dry storage system allowing higher burnup becomes available. Cask designers are continually doing research and development and submitting design changes, including allowing higher burn-ups, for NRC review.

The Honorable Tom Carper

QUESTION 1. **Last October marked the one year anniversary of hurricane Sandy. The storm impacted 24 states. The Northeast- where many of our nuclear plants exist today- felt the brunt of its impact. I know our nuclear plants fared pretty well during Sandy, but we expect to see more and more of these storms in the future. With that in mind, what were our lessons learned from Sandy-what could we have been done better, not just at our nuclear power plants, but within the federal, state and local governments? And what is the NRC doing to ensure our nuclear plants and communities are better prepared for such storms?**

ANSWER.

NRC agrees that hurricane Sandy had only a minimal safety impact upon NRC licensed facilities. On October 29, 2012, one licensee, already shut down at the time, declared both a Notice of Unusual Event (NOUE) and an Alert due to high water levels. NRC responded to this event, monitored the other facilities in the storm's path, and subsequently prepared an After Action Report (attached) to capture strengths and weaknesses of our response efforts.

One notable resulting action with respect to operating reactors was to improve our interface with the Federal Emergency Management Agency in support of their preliminary capabilities assessments, or PCAs. These PCAs are conducted after events that have the potential to negatively impact the abilities of offsite response organizations to execute their response plans for a plant. In addition, NRC is aware of, and NRC staff were interviewed for, the broader Federal effort to capture response/recovery lessons learned in an After Action Report. With respect to the NRC's activities, roles, and responsibilities, there were no substantive concerns

identified to the broader Federal effort. It is also worth noting that many reactor licensees, particularly those located on the Atlantic and Gulf coasts, routinely cope successfully with weather events as severe as Hurricane Sandy. Additionally, as a result of the events in Fukushima, Japan, the NRC is taking near-term actions that will bolster reactor licensees' abilities to withstand many different types of severe conditions.

The Honorable Tom Carper

QUESTION 2. **Last December, the Partnership for Public Service issued the ranking of federal agencies in employee job satisfaction. The NRC tied for 4th out of 23 agencies in the medium size category. Although the NRC is still ranked among the top agencies in the federal government, it nevertheless continues NRC's annual downward trend beginning from a few years ago when it was ranked number 1. I realize that this downward trend in job satisfaction is government-wide and not limited to the NRC but I am interested to learn about what are you doing as a Commission to reverse this trend at the NRC and work to get back to the number 1 ranking?**

ANSWER.

The NRC is actively engaged in activities that are intended to create an environment in which employees are empowered to raise concerns, feel respected, and that their contributions are valued. As an organization that values continuous improvement, we continue to work proactively to cultivate that environment and provide the resources necessary to achieve that goal.

We continue to implement agency-wide actions linked to survey results focusing on recognizing and respecting human differences, the environment for raising concerns, performance management, and employee development. In addition, individual offices and regions have prepared action plans specific to their individual survey results. Further, the NRC has launched an initiative titled "Behavior Matters" to express NRC's values by identifying aligned behaviors and reinforcing those behaviors in all interactions.

We believe these actions and our commitment to continuous improvement will help ensure that NRC remains among the best places to work in the Federal government.

The Honorable Kirsten Gillibrand

QUESTION 1. **I wanted to talk about the duration of license renewals. As the process works currently, the NRC has granted plants extensions for up to 20 years without requiring substantial modifications to the plants. Given what we learned about managing risk and safety since the Fukushima disaster occurred more than two years ago, it is fair to assume that the relicensing process should reflect this new information.**

a) When was the last time you reexamined and/or overhauled the evaluation criteria for relicensing?

ANSWER.

The NRC continuously considers whether its regulations and guidance documents need to be revised to reflect the latest technical information. The NRC's requirements for relicensing nuclear power plants are maintained in, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants" (10 CFR Part 54) and "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions" (10 CFR Part 51). 10 CFR Part 54 was most recently amended in 1995 to clarify the focus of relicensing on managing the adverse effects of aging. 10 CFR Part 51 was most recently amended in 2013 to incorporate the revised "Generic Environmental Impact Statement for License Renewal of Nuclear Plants." Additionally, the NRC developed staff guidance for the review of license renewal applications in the "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants" (NUREG-1800), Revision 2 (December 2010); the "Generic Aging Lessons Learned (GALL) Report," (NUREG-1801), Revision 2, (December, 2010); and the Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan for Operating License Renewal (NUREG-1555, Supplement 1," which was last revised in October

1999. Since these revisions, interim staff guidance has been implemented to support the GALL Report due to NRC staff's continuous assessment of current guidance based on newly identified information related to aging management.

In addition, in preparation for the industry's submittal of an application for subsequent license renewal (anticipated in 2018), the NRC staff is also reexamining the regulatory and technical framework for license renewal beyond 60 years. As part of this assessment, our staff has made recommendations for changes to the regulatory framework in the document, SECY-14-0016, "Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal," which is currently with the Commission for review.

b) How did the lessons from Fukushima disaster change your relicensing criteria? Did the NRC consider requiring further measures for plants to operate for a longer period, and/or shorter license duration?

ANSWER.

Because the lessons learned from the Fukushima accident are largely unrelated to aging management, they apply to all plants and are being addressed by the NRC for all operating reactors, regardless of their license renewal status. The NRC's existing regulatory process (which includes a robust oversight process and the means to ensure that plants' licensing bases are maintained through rulemaking and licensing) is effective in maintaining safe operation at all operating plants. Our efforts to implement the lessons learned from Fukushima-Daiichi are encompassed in that regulatory process (e.g., the Japan Lessons Learned Project Directorate was specifically staffed to address those issues). As part of its existing regulatory process, the NRC also has the authority to take regulatory actions, including terminating a license earlier

than its expiration date, if appropriate. Any requirements or licensing basis changes resulting from the lessons learned from Fukushima-Daiichi will be incorporated at all plants via the ongoing regulatory process that would apply to all plants, including those that have already had their licenses renewed or those seeking license renewal in the future. As such, the NRC license renewal review process continues to ensure managing of those issues uniquely relevant to the period of extended operation (i.e., age-related degradation management for systems, structures, and components that are important to safety, or whose failure could impact safety equipment).

c) Considering the Indian Point relicensing process has been ongoing for more than six years, how did you update the procedure and use of "Timely Renewal" during the ongoing relicensing process?

ANSWER.

There are two primary documents providing procedural guidance for timely renewal: 1) Inspection Procedure 71013 (IP 71013), "Site Inspection for Plants with Timely Renewal Application," and 2) Inspection Manual Chapter 2516 (IMC 2516), "Policy and Guidance for the License Renewal Inspection Program." IMC 2516 was recently issued in August 2013, and included updated guidance on timely renewal applications and inspections the NRC will perform in advance of an applicant for license renewal entering the period of extended operation. The timely renewal inspection follows the procedure outlined in IP 71013, which was issued in September 2013, to provide a process for the inspection of license renewal programs for applicants with timely renewal applications. IMC 2516, in conjunction with IP 71013, ensures license renewal inspections are performed at plants with timely renewal applications prior to entering timely renewal. These inspections assess the applicant's readiness to operate beyond

the expiration date of the original operating license through the timely verification that the applicant has made sufficient progress in implementing its aging management programs, time-limited aging analyses, commitments, and proposed license conditions. With respect to Indian Point, Unit 2, prior to entering timely renewal, Entergy submitted a letter to the NRC on August 28, 2013, confirming that all license renewal commitments required to be implemented prior to entering the period of extended operation were completed. The NRC subsequently performed an inspection to verify that Entergy had implemented its aging management programs and completed the associated inspection and testing activities.

The Honorable Kirsten Gillibrand

QUESTION 2. **One area where I've heard from experts is the need to reassess the criteria that are used to grant exemptions and licenses for plants, especially as new technology is developed, better methods become available, and the nature of communities change.**

a. What measures are in place to ensure that the exemption process reflects modern best practices?

b. Don't you agree that we should be reassessing past exemptions given the changed circumstances we have come to recognize in recent years?

ANSWER.

Both the criteria for licenses and the various NRC exemption rules focus on maintaining the health and safety of the public and the environment.

a) The criteria and guidance used when considering whether the NRC may grant an exemption and when conducting the technical evaluation of an exemption does not prohibit the NRC from considering modern best practices proposed in an application for an exemption. The process also allows the consideration of the risk impact of a proposed exemption. As such, the exemption process allows for the consideration of improvements and advancements in technology and methods.

b) The NRC already reassesses past exemptions using its established process for reevaluating all prior regulatory decisions, including exemptions, consistent with the requirements within Section 50.109 of Title 10 of the *Code of Federal Regulations,* "Backfitting."

The Honorable Kirsten Gillibrand

QUESTION 3. **I'm concerned by what has seemed at times like a modest pace for the implementation of the recommendations of the task force set up to address the issues raised by the Fukushima accident. In particular, the development of regional response centers capable of delivering supplemental emergency equipment to any of our Nation's nuclear energy facilities within 24 hours of the loss of electrical power and/or cooling water supply would seem to be a high priority. The NRC has said itself that it expects the final rule on this issue to be issued by June of 2014. We are already a year removed from Superstorm Sandy, which raised concerns about the operation of Indian Point and the effectiveness of an evacuation plans, but thankfully didn't result in the need to implement these plans.**

a. Why has the implementation of this critical safety improvement taken so long?

b. How will implementation of these centers be incorporated into the emergency response plan of current licensees?

c. How are you working with other Federal Agencies, and state and local agencies, to expedite these issues?

ANSWER.

a) The NRC issued an order to all power reactor licensees on March 12, 2012, that requires a three-phase approach for mitigating beyond-design-basis external events. The initial phase (Phase 1) requires the use of installed equipment and resources to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities. The transition phase (Phase 2)

requires the provision of sufficient, portable, onsite equipment and consumables (such as generator fuel) to maintain or restore these functions until they can be accomplished with resources brought from off site. The final phase (Phase 3) requires licensees to obtain sufficient offsite resources to sustain those functions indefinitely. The order specified compliance dates for each power reactor based on their refueling schedules, and the first compliance dates will be reached in Fall 2014. The industry developed two Regional Response Centers (RRCs), which will supply equipment needed for Phase 3. The RRCs will be operational to support those reactors by Fall 2014. The NRC initially specified these dates in recognition of the fact that modifications would need to be made to the nuclear plants in order to provide the connections for temporary electrical hookups and temporary pump hookups. So this safety improvement is on schedule, in accordance with the NRC order issued in 2012.

b) The licensees are revising their emergency operating procedures and adding additional procedures known as FLEX Support Guidelines (FSGs). These guidelines are written instructions that require plant operators to request assistance from the RRCs when the operators identify that the event is beyond their design basis and requires additional equipment. The industry contractor coordinating the RRCs is known as the Strategic Alliance for FLEX Emergency Response (SAFER). SAFER will maintain an office with a 24/7 contact number, and will activate the SAFER Control Center and the RRCs when contacted by a nuclear power plant licensee. SAFER will also be responsible for ensuring the availability of equipment at the RRCs, with the ability to deliver the equipment to a nuclear plant within 24 hours of the request for equipment.

c) The NRC maintains an Operations Center that is continuously staffed. When a licensee declares an emergency, they report it to the State, affected Counties, and the NRC Operations Center. Depending on the severity of the event, the State and Counties activate their

Operations Centers, and NRC response groups are activated at the NRC Operations Center and the NRC Regional Office. Additionally, other Federal Agencies may activate their Operations Centers in accordance with the National Response Framework and National Incident Management System. While the entire NRC Incident Response program will be focused on protecting public health and safety during an event, several specific functions within the Headquarters Operations Center will work closely with other Federal Agencies and States to ensure safe passage for the trucks and planes carrying equipment to the affected nuclear plant. These functions will be carried out by the Executive Team, Federal Coordination Team, Liaison Team (for State interactions), and the Reactor Safety Team. Significant coordination would also occur at the State and local level through the NRC's regional response structure and its associated Base Team and Site Team. The licensees that need delivery by plane due to their distance from the RRCs are establishing arrangements with local airports to accept these deliveries.

The Honorable Kirsten Gillibrand

QUESTION 4. **Turning to the October 2013 GAO report, in addition to the apparent inconsistencies in NRC oversight efforts related to the non-escalated or "very low risk significance" findings, the GAO also identified challenges NRC inspectors face in accessing information on past oversight activities and responses. Specifically, inspectors couldn't gain access to basic information logged by their predecessors. Obstacles to this type of information limit the ability of inspectors to identify patterns of low level findings like the 380 over 12 years at Indian Point.**

a. Why hasn't the NRC taken steps to address this important oversight issue?

ANSWER.

The NRC agrees that information systems used to track and record findings could be improved for inspection staff, and that regional inconsistencies exist in the number of very low safety significant findings identified. The NRC was aware of these issues prior to the conduct of the GAO audit and is presently addressing these important issues. The NRC is also currently developing a replacement Reactor Program Systems (RPS) application and is performing a comprehensive study to determine the causes of the regional differences in the number of very low safety significant findings.

b. Why is it that the GAO found these inconsistencies – why hasn't the NRC found similar problems with its inspection process?

ANSWER.

As mentioned above, the NRC was aware of the issues identified by the GAO prior to conduct of the audit but is not aware of any similar problems that are not currently being addressed.

c. What specific steps has the NRC taken to address both the information access problem, as well as the inconsistency in tracking non-escalated findings?

ANSWER.

The NRC is currently developing a replacement RPS application to address the problems discussed above. Enhancements will allow for improved search, data retrieval, analysis, and trending by inspection staff.

The Honorable David Vitter

QUESTION 1. **What implications the revised hazard estimates may have for plant safety?**

ANSWER.

The process to reevaluate the earthquake effects, or hazards, using current information is expected to make operating reactors safer.

In response to the accident at the Fukushima Dai-ichi nuclear power plant caused by the March 11, 2011, Tohoku earthquake and subsequent tsunami, the Commission established a Near-Term Task Force (NTTF) to conduct a systematic review of NRC processes and regulations and to determine if the agency should make additional improvements to its regulatory system. The NTTF developed a set of recommendations intended to clarify and strengthen the regulatory framework. In response to recommendations of the NTTF the NRC requested that its licensees complete a seismic hazard re-evaluation using the latest methods and models. This interim evaluation either describes how the plant's existing capacities can withstand the higher hazard, or the plant's interim actions to enhance its ability to cope with the higher hazard. The NRC will review the interim evaluations to ensure those plants can continue to operate safely while they conduct more comprehensive seismic reviews. Plants with a higher re-evaluated hazard will also complete an "expedited approach" to further reinforce key safe shutdown systems, if necessary, during the following two years. Plants with a higher hazard will also conduct more in-depth seismic risk evaluations of their response to design basis, and beyond design basis ground motions. NRC will use these in-depth analyses to determine if additional regulatory actions or plant modifications are necessary.

The Honorable David Vitter

QUESTION 2. What is the greatest seismic hazard expected to be generated by a fault near Diablo Canyon?

ANSWER.

There are a number of faults that are considered to be active near the Diablo Canyon Power Plant (DCPP), including the Shoreline and Hosgri faults. Based on Section 6.2 of the Research Information Letter 12-01, "Confirmatory Analysis of Seismic Hazard at the Diablo Canyon Power Plant (DCPP) from the Shoreline Fault Zone," PG&E, the plant owner, concluded in its 2011 Shoreline Fault Report that the Hosgri fault is the main contributor to the total seismic hazard at Diablo Canyon. Two factors contribute to this conclusion. First, the Hosgri fault is deemed capable of producing earthquakes up to M7.5, larger than the maximum magnitude of other faults in the vicinity of the DCPP. Second, and more importantly, the Hosgri fault has a slip rate that is up to an order of magnitude greater than other faults near the DCPP, so its activity rate or recurrence rate of large earthquakes is higher than any of the other faults in the vicinity of the DCPP. The NRC's independent assessment determined that the ground motions predicted for the Shoreline fault are at or below the levels for which the plant has previously been evaluated (including the Hosgri earthquake ground motions). As such, the NRC's October 12, 2012, letter concluded that the existing design basis for the plant is sufficient to withstand ground motions from the Shoreline fault.

Currently, PG&E is in the process of updating seismic hazards at the site in accordance with the March 12, 2012, request for information using the Senior Seismic Hazard Analysis Committee (SSHAC) process. The SSHAC process is used to develop a probabilistic seismic hazard assessment (PSHA) that incorporates multiple earthquake scenarios, including the frequency of

occurrence of those scenarios, and includes a quantitative assessment of the uncertainty into a single analysis. The goal of the PSHA is to capture the center, body, and range of the seismic hazard values as accurately as possible from all possible earthquake scenarios including the uncertainties associated with the PSHA inputs. Active fault sources that are considered more likely to generate large magnitude earthquakes will dominate in a PSHA.

The Honorable David Vitter

QUESTION 3. **Is the plant designed to withstand the greatest expected seismic hazard?**

ANSWER.

Yes, the reactor pressure boundary components, and all safety-related equipment needed to shut the plant down safely and maintain a safe shutdown condition, must be able to withstand the Double Design Earthquake/Safe Shutdown Earthquake (DDE/SSE). Diablo Canyon demonstrated, through a combination of calculations and tests, its ability to withstand such an earthquake. Because the American Society of Mechanical Engineers (ASME), Section III requirements for design and pressure boundary components and supports were not mandated by 10 CFR 50.55a until the mid-1980s, the acceptance criteria for DCPP rely on combination of the ASME Code and the American National Standards Institute (ANSI) Code for piping, applicable at the time of initial licensing, that provide an equivalent level of safety assurance as is required by 10 CFR 50.55a.

In addition, during the licensing of Diablo Canyon, PG&E demonstrated that all structures, systems, and components that are required to remain functional following a Double Design Earthquake/Safe Shutdown Earthquake (DDE/SSE) would also remain functional during a postulated Hosgri earthquake. Following extensive plant upgrading, most components met the same standard based on Hosgri Evaluation (HE) as it had under the SSE. In a limited number of cases, the NRC approved alternative Code criteria; thus these components still meet the applicable Code. The limited cases were individually approved and specifically documented in the NRC's safety evaluation report. The NRC's approach and conclusions were also reviewed independently by the Advisory Committee on Reactor Safeguards (ACRS) and the Atomic Safety and Licensing Board (ASLB). The ACRS reviewed the NRC staff criteria utilized in the

seismic re-evaluation of DCPP for the postulated Hosgri earthquake and concluded that "...the staff's approach leads to an acceptable level of safety for DCPP." The ASLB held hearings on the DCPP seismic issues, and in a partial decision issued September 27, 1979, the ASLB concluded "...the Diablo Canyon plant will be able to withstand any earthquake that can reasonably be expected to occur on the Hosgri fault".

The March 12, 2012, request for information includes a process for evaluating seismic hazards using present-day information. The staff considers the seismic hazard reevaluations being performed in accordance with this process to be distinct from the current design or licensing basis of operating plants. At Diablo Canyon, the licensee will review the new ground motion response spectrum (GMRS) information developed in accordance with this process against the DDE, and if the new GMRS exceeds the DDE, PG&E is expected to submit an interim evaluation or interim actions taken or planned to address the reevaluated hazard. The results will be analyzed to determine if plant structures, systems, and/or components need to be updated against the new hazard.

The Honorable David Vitter

QUESTION 4. **Is Diablo Canyon in compliance with NRC safety and operability requirements when it comes to seismic hazards?**

ANSWER.

Yes, Diablo Canyon is in compliance with NRC safety and operability requirements related to seismic hazards. Licensees are required to demonstrate through modeling, testing, and evaluation that specific structures, systems, and components are seismically qualified up to the Double Design Earthquake/Safe Shutdown Earthquake (DDE/SSE). As discussed in the answer to Question 3, this same rigor was also required for Diablo Canyon up to the Hosgri Earthquake (HE) (0.75g) design basis for the same equipment. The March 12, 2012, request for information provides a process for further evaluating seismic hazards at the site. The staff expects the licensees to follow this process and additional guidance (e.g., February 20, 2014, supplemental information regarding seismic hazards reevaluations) to determine what additional actions, if any, are necessary regarding operability and ensuring safe operation of the plant based on the information developed during the seismic hazards reevaluation.

The Honorable David Vitter

QUESTION 5. **Would the NRC allow a nuclear power plant with a one in six chance of experiencing an earthquake event for which it is not designed to withstand operate?**

ANSWER.

All U.S. nuclear power plants are built to withstand external hazards, including earthquakes, flooding, and tsunamis, as appropriate. Even those plants that are located in areas with low and moderate seismic activity are designed for safety in the event of such a natural disaster. Each plant is designed to a ground-shaking level that is appropriate for its location, given the possible earthquake sources that may affect the site and its tectonic environment. Ground shaking is a function of both the magnitude of the earthquake and the distance from the fault to the specific site, as well as other factors such as local bedrock or soil conditions. The seismic responses of the structures, systems, and components associated with these facilities are site specific. Some plants are analyzed for certain identified faults and tectonic capabilities in the area while others are analyzed for seismic zones, depending on the local geologic environment.

Recent analyses of the severe impact of seismic ground motion hazard for nuclear power plants in the central and eastern U.S. resulted in very low frequencies of occurrence (below 1 in 10,000 per year) as referenced in Information Notice 2010-018, "Generic Issue 199, 'Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants," dated September 2, 2010. These very low values demonstrate the robustness of nuclear power plants in the central and eastern U.S. with respect to their seismic designs. Generic Issue 199 has been subsumed into the process where licensees are reevaluating the seismic hazard in accordance with the NRC's March 12, 2012, request for information letter.

Regarding West Coast plants (i.e., Diablo Canyon, Columbia, and Palo Verde), the seismic hazards for these plants are also being updated in accordance with the March 12, 2012, request for information. When these plants were licensed the likelihood of exceeding the safe shutdown earthquake was not part of the seismic design process.

As stated above, licensees are in the process of reassessing their seismic hazards in accordance with the March 12, 2012, request for information. The NRC is active in this process and will take appropriate actions in order to ensure safe operation of all operating nuclear power plants.

The Honorable David Vitter

QUESTION 6. **The USC Report alleges that Diablo Canyon has received lax oversight regarding seismic safety requirements compared to other facilities. Are there any requirements for seismic safety of Diablo Canyon that are not in place at other facilities?**

ANSWER.

Yes, there are requirements for seismic safety for Diablo Canyon that are not in place at other facilities. However, as noted below and further elaborated in the Answer to Question 10, Diablo Canyon has the highest level of seismic protection of any plant in the country with three design spectra they must meet per Pacific Gas & Electric's license requirements (compared with two spectra for other plants). Additionally, to ensure public health and safety, Diablo Canyon has an automatic seismic reactor trip set point of 0.35g. If the ground acceleration at the Diablo Canyon from any earthquake exceeds this 0.35g set point, both reactors will automatically shut down to maintain plant safety and the health and safety of the public. It is the only operating plant in the country with an automatic seismic reactor trip.

The Honorable David Vitter

QUESTION 7. **What is the greatest seismic hazard expected to be generated by a fault near Diablo Canyon?**

ANSWER.

Discussed in the answer to Question 2.

The Honorable David Vitter

QUESTION 8. **Is the plant designed to withstand the greatest expected seismic hazard?**

ANSWER.

Discussed in the answer to Question 3.

The Honorable David Vitter

QUESTION 9. **When new information is discovered as part of Diablo Canyon's Long Term Seismic Program, such as the discovery of the Shoreline Fault in 2008, how is that information analyzed?**

ANSWER.

Prior to the March 12, 2012, request for information, the new information from the Long Term Seismic Program (LTSP) was evaluated using a deterministic approach. The best example of new information being evaluated was the discovery of the Shoreline Fault. As discussed below, the staff performed both preliminary and a more detailed evaluation of the Shoreline Fault.

In a letter dated October 20, 2011, PG&E proposed a licensing action to clearly define an evaluation process for newly identified seismic information and incorporate ongoing commitments associated with the LTSP. Due to the issuance of the March 12, 2012, request for information and the October 12, 2012, NRC letter, which provides a process for evaluating newly identified seismic information, PG&E determined it no longer had a need for the licensing action outlined in the October 20, 2011, letter and requested withdrawal of the licensing action. In an October 30, 2012, NRC letter, the NRC acknowledged the withdrawal of the licensing action.

Shortly after PG&E notified the NRC of the potential for a new fault (later referred to as the Shoreline Fault), PG&E provided the NRC with sets of initial scientific data and information related to the hypothesized fault. Based on this initial information, the NRC staff immediately performed a preliminary review of possible implications of the Shoreline fault to the DCPP to determine if an immediate safety concern existed. The NRC continued to review new data and

information on the Shoreline fault resulting from a collaborative effort between the U.S. Geological Survey and PG&E.

The NRC's October 12, 2012, letter to PG&E provided, in part, a summary of the results of NRC's independent assessment (which included independent external experts) of the licensee's January 7, 2011, Shoreline Fault analysis report. The licensee's report provided NRC with new geological, geophysical, and seismological data on the Shoreline fault, obtained using up-to-date methods and technologies. The NRC's independent assessment determined that the ground motions predicted for the Shoreline fault are at or below the levels for which the plant has previously been evaluated. As such, the NRC's October 12, 2012, letter concluded that the existing design basis for the plant is sufficient to withstand ground motions from the Shoreline fault.

The Honorable David Vitter

QUESTION 10. **Were there any advancements in the state of seismic design and knowledge between when acceptance criteria for Diablo Canyon's Design Earthquake and Double Design Earthquake was established and when the Hosgri and Long Term Seismic Plan acceptance criteria was established and approved by the NRC and Atomic Safety Licensing Board?**

ANSWER.

Yes. Diablo Canyon's original seismic evaluations were accepted prior to issuing the Unit 1 construction permit on April 23, 1968. The seismic evaluations were called the Design Earthquake (DE), which is an operating basis earthquake (OBE) equivalent for Diablo Canyon Power Plant (DCPP), and the Double Design Earthquake (DDE), which is a safe shutdown earthquake (SSE)-equivalent for DCPP. These seismic evaluations were performed under, and met the NRC's requirements at that time. The DE/OBE specified 0.2g as the largest earthquake that is expected to occur during the lifetime of the plant (a 0.2g earthquake was estimated to occur only once in more than 200 years). The DDE/SSE is simply double the ground motion of the largest expected earthquake (DE/OBE), and is not tied to any expected earthquake (0.4g earthquake is expected to occur once in more than 400 years). The higher ground acceleration represented by the DDE is used to add safety margin to evaluate and ensure that the safety-related structures needed to safely shut the plant down and maintain it safely will survive.

In 1973, Pacific Gas & Electric became aware of the Hosgri fault, which was discovered offshore during oil exploration. This fault was previously unknown, and no significant earthquake had previously been attributed to an offshore fault in that area. Because of the new discovery, the NRC delayed approval of the operating licenses until November 2, 1984 (Unit 1).

The NRC required PG&E to perform a seismic re-evaluation to include the possible effects of the Hosgri fault using the latest NRC requirement. At that time, the state-of-the-art in seismic evaluation had significantly improved, so the NRC had upgraded its seismic requirements. The NRC obtained assistance in evaluating the fault from U.S. Geological Survey (USGS) and other consultants.

When the Hosgri Evaluation (HE) was completed, the NRC accepted that this fault could possibly produce 0.75g peak ground acceleration at Diablo Canyon, but such an extreme event was expected to occur once every 2,000 – 25,000 years. This potential high-consequence event was too infrequent to be considered to meet the intent of the SSE, so the NRC declared that the original seismic evaluations (the DE and DDE) remained valid. Nonetheless, the NRC required PG&E to make substantial plant modifications to be able to withstand 0.75g peak ground acceleration. The NRC added these site-specific requirements on top of the existing requirements.

Therefore, DCPP has the following licensing aspects, with unique requirements in addition to the OBE and SSE:

(a) The plant meets NRC's standard seismic requirements through the DE/OBE (0.2g) and DDE/SSE (0.4g).

(b) In addition, the plant was also required and designed to withstand 0.75g. Since the plant was actually designed (i.e., final design, not original) and built to withstand a Hosgri-generated earthquake, this set of requirements represents the actual level of functional seismic safety.

(c) PG&E used two different NRC-approved seismic methodologies that are part of the design and licensing bases for the plant, one for the DE and DDE, the other for the HE.

(d) The two units were required to have instrumentation installed to cause an automatic reactor trip if onsite seismic sensors register 0.4g.

(e) A license condition was added to require a confirmatory seismic study over the first 10 years of operation using the latest methods to verify that the Hosgri Evaluation remained accurate. PG&E completed this one-time action, but has maintained a continuous seismic assessment program, working with USGS and state agencies to maintain state-of-the-art knowledge and further study the region around the plant.

(f) PG&E was required to develop a probabilistic seismic risk assessment.

As a result of the above, Diablo Canyon has the highest level of seismic protection of any plant in the country, and PG&E has developed the highest seismic knowledge base regarding its site as compared to other nuclear utilities in the U.S.

The Honorable David Vitter

QUESTION 11. **What does the NRC consider to be the equivalent of the safe shutdown earthquake of Diablo Canyon?**

ANSWER.

For the Diablo Canyon Power Plant (DCPP), the Double Design Earthquake (DDE) is equivalent to the Safe Shutdown Earthquake (SSE). During initial licensing of the Diablo Canyon site, two design basis earthquakes (ground motions) were established. The operating basis earthquake (OBE) represents the ground motion reasonably expected during the lifetime of the plant. At DCPP, this is called the Design Earthquake (DE), and is 0.2g. The safe shutdown earthquake is defined as having twice the acceleration of the operating basis earthquake to ensure safety margin. At DCPP, this is called the Double Design Earthquake, and is 0.4g. Pacific Gas and Electric (PG&E, the licensee) was required to show that all equipment necessary for continued operation without undue risk to the health and safety of the public would withstand the OBE/DE (i.e., remain functional), and that all safety-related equipment needed to safely shut the plant down and maintain a safe shutdown condition would withstand the SSE/DDE.

The Honorable David Vitter

QUESTION 12. **Is there a gap between seismic protection levels at Diablo Canyon Power Plant and the seismic threat level faced at Diablo Canyon Power Plant?**

ANSWER.

No. The staff is continuing to assess new seismic information at all operating nuclear power plants using the process outlined in the March 12, 2012, request for information. If the newly reevaluated hazards are higher than those originally estimated for the plant, the information will be analyzed to determine if plant structures, systems, and/or components need to be updated against the new hazard. (See the answer to Question 10.)

The Honorable David Vitter

QUESTION 13. **Is the NRC still on schedule to finalize its waste confidence rulemaking by the 3rd quarter of next year?**

ANSWER.

On January 23, 2014, the NRC revised its review schedule for the final versions of its Waste Confidence Generic Environmental Impact Statement (GEIS) and the final rule on the extended storage of spent nuclear fuel at the Nation's commercial nuclear power plants from September 2014, to no later than October 3, 2014. The delay reflects time lost during the government shutdown and lapse of appropriations last October. The shutdown caused the agency to reschedule several public meetings and, consequently, extend the public comment period on the draft versions of the GEIS and rule by nearly a month.

The Honorable David Vitter

QUESTION 14. **Is the NRC issuing rules before guidance is ready?**

ANSWER.

No. The Commission directed the staff in October, 2011 to follow the rulemaking process enhancements that address the Cumulative Effects of Regulation (CER) as outlined in the NRC staff's policy paper (SECY-11-0032, "Consideration of the Cumulative Effects of Regulation in the Rulemaking Process"). The NRC recognizes that CER is an organizational effectiveness challenge that results from a licensee or impacted entity implementing a number of complex regulatory positions, programs, or requirements within a limited implementation period and with available resources. In the NRC's efforts to address CER, NRC has enhanced the rulemaking process. One of these enhancements requires the NRC to publish draft guidance at the same time as a proposed rule, and final guidance with the final rule. Meeting the goal of publishing the guidance concurrent with the rule ensures that everyone impacted by the rule has an understanding of what it will take to implement the rule's requirements. The NRC is adhering to the CER process enhancements for all of its ongoing rulemaking activities, including those stemming from the Fukushima lessons learned.

The Honorable David Vitter

QUESTION 15. **Are there specific instances were licensees have begun work to meet a new rule or regulation only to have the NRC subsequently issue a modified regulation—resulting in re-work, added expense, delay?**

ANSWER.

The NRC has not yet issued any rules pertaining to implementing lessons-learned from Fukushima. The potential rules are in the development phase and are expected to codify the requirements that were imposed by orders issued in March 2012 as well as address other recommendations not directly related to the ongoing implementation of the orders. One of the three orders issued in March 2012, the Hardened Vents Order (applicable to boiling water reactors with Mark I and Mark II containments), was superseded by an order issued in June 2013, approximately 15 months later, which required the containment vent systems to be capable of operating under severe accident conditions. This new order included the requirements of the first order and added requirements to address venting operations under the harsh conditions that might exist after significant fuel damage has occurred. The Commission specifically decided to supersede the original order when it did to minimize any needed re-work or added expense that might occur if additional requirements were imposed after plant changes were made to satisfy the original March 2012 order. Licensees had undertaken some planning to identify needed plant and procedure modifications for complying with the original order. In addition, extra time was provided for compliance with the new order to support the development of guidance documents and identify and plan for plant changes needed to address containment venting during severe accident conditions.

The Honorable David Vitter

QUESTION 16. **Is the hardened vents rule an example—how much time passes from the first hardened vents order until the revised order was issued?**

ANSWER.

As stated above in the answer to Question #15, the Hardened Vents Order (applicable to boiling water reactors with Mark I and Mark II containments), was superseded by an order issued in June 2013, approximately 15 months later, which required the containment vent systems to be capable of operating under severe accident conditions.

The Honorable David Vitter

QUESTION 17. **Are these reworks and delays being taken into account when licensees are given deadlines by which to implement or comply with new rules?**

ANSWER.

Yes. The NRC strives to develop reasonable schedules for implementation whenever a requirement, such as an order, needs to be modified. The NRC considers both the safety-significance and the practical impact of the rule on the licensees, to the extent that it is known, when determining what is reasonable. For example, in June 2013, the NRC revised requirements imposed in March 2012 on containment venting systems for boiling water reactors with Mark I and Mark II containments to ensure they would remain functional during severe accident conditions. Recognizing that some of the revised requirements were not addressed in the original order and the related implementation plans being developed by licensees, the NRC developed a phased approach to minimize delays in making safety improvements while providing additional time for licensees to evaluate and design systems to address the revised requirements.

The Honorable David Vitter

QUESTION 18. **Has the Commission evaluated work done to-date (or ordered) post Fukushima to make the US nuclear fleet even safer?**

ANSWER.

The Commission receives continuous updates on the work being done by the NRC staff and by the power reactor licensees as they assess the lessons learned from the Fukushima accident and implement changes at nuclear power plants. As just one example, the staff submits a status update every 6 months on the status of various Fukushima-related activities, including implementing all of the lessons-learned. In addition, the Commission receives additional briefings and papers on particular topics and recommendations. In response to these papers, the Commission votes and directs the NRC staff through a Staff Requirements Memorandum. For example, the Commission is currently voting on two papers pertaining to expedited transfer of spent nuclear fuel from spent fuel storage pools to dry cask storage and possible changes to the broader regulatory framework for addressing beyond design basis events.

The Honorable David Vitter

QUESTION 19. **Has the NRC taken into account the added safety margins gained from the implementation of the FLEX program, from spent fuel pool monitoring, and from the seismic & flooding walkdowns being conducted and taken this safety improvement into account as it considers additional regulations?**

ANSWER.

The NRC is developing proposed regulations that will make the requirements of the orders (now being implemented) generically applicable to current and future licensees. The equipment included in the industry FLEX program may be used to demonstrate compliance with these ongoing rulemakings. Should the NRC decide to evaluate the need for further potential requirements in addition to the current order requirements now being converted into regulations, the NRC would need to justify any new requirements under its backfit and Part 52 finality regulations, and perform a regulatory analysis addressing the benefits and costs of the proposed additional requirements compared to a regulatory baseline that assumes all existing NRC requirements have been fully implemented.

The recently completed seismic and flooding walkdowns were conducted to confirm that licensees are in compliance with their current licensing basis requirements. Because licensees are expected to fully comply with all existing requirements, these walkdowns are confirmatory and should not be characterized as safety improvements, or additional safety requirements.

The NRC is closely following the implementation of the FLEX program and spent fuel pool monitoring instrumentation to identify any lessons learned that could inform rulemaking activities. For example, in its direction to the staff on evaluating possible regulatory

requirements for engineered filters and filtration strategies for boiling water reactor containments, the Commission specified that the technical bases should assume the installation of severe accident capable hardened venting systems as required by the Order issued in June 2013.

The Honorable David Vitter

QUESTION 20. **Are new regulations based on the current status of the industry and not the status of the industry on March 2011 when Fukushima occurred?**

ANSWER.

Yes, implementation of new regulations would assume that post-Fukushima orders will be followed on schedule. The need for each new regulation issued by the NRC is assessed against the current status of the industry at the time the requirement is issued. When the NRC publishes a proposed rule for public comment, it also solicits comment on a regulatory analysis addressing the benefits and costs of the new requirement compared to a baseline reflecting the existing regulatory requirements. When the NRC staff submits a final rule to the Commission for approval, it provides the Commission with an updated regulatory analysis that addresses the benefits and costs of the draft final requirement compared to an updated baseline reflecting any changes that may have been made to the regulatory requirements since the issuance of the proposed rule.

The NRC rulemaking process is designed and intended to be a disciplined, deliberative, and transparent process that maximizes opportunities for public stakeholder input. Rulemakings are usually conducted by internal working groups of NRC staff members of various disciplines from across the agency to ensure that the rule being developed represents the current state of knowledge. Even before formal public comments are solicited on a proposed rule, the NRC often holds public meetings at the technical basis development stage to receive input on the benefits, costs, and anticipated regulatory burden associated with each potential new requirement. The NRC issues Advance Notices of Proposed Rulemaking to advise the public of possible NRC rulemakings and to receive written input on issues relevant to the possible

rulemakings. Additional public meetings are often held during the public comment period to ensure that commenters fully understand each proposed rule and are able to provide fully-informed comments. Once public comments are received and evaluated, more public meetings may be held to explain NRC's assessment of public comments and to discuss implementation schedules for the final rule. After the staff submits a draft final rule to the Commission, a public Commission meeting may be held at which key stakeholders are often invited to provide their views directly to the Commission. These public outreach efforts help ensure that before voting on the final rule, the Commission has available the stakeholders views – which frequently provide additional information on the current state of knowledge on the subject of the rulemaking-- on new requirements.

The Honorable David Vitter

QUESTION 21. **Will this impact approach to Tier 2 & 3 recommendations?**

ANSWER.

The Tier 2 and Tier 3 recommendations made by the Near Term Task Force will be informed by the current status of the industry as the industry progresses through the lessons learned from the Fukushima Daiichi nuclear power plant accident. As discussed in SECY-11-0137, "Prioritization of Recommended Actions to be taken in Response to Fukushima Lessons Learned," dated October 3, 2011, Tier 2 and Tier 3 recommendations were specifically described as follows:

Tier 2. The second tier consists of those NTTF recommendations that could not be initiated in the near term due to factors that include the need for further technical assessment and alignment, dependence on Tier 1 issues, or availability of critical skill sets. These actions do not require long term study and can be initiated when sufficient technical information and resources are available.

Tier 3. The third tier consists of those NTTF recommendations that require further staff study to support a regulatory action, have an associated shorter term action that needs to be completed to inform the longer term action, are dependent on the availability of critical skill sets, or are dependent on the resolution of NTTF Recommendation 1. The staff has focused its initial efforts on developing the schedules, milestones, and resources associated with Tier 1 and Tier 2 activities. Once the staff has completed its evaluation of the resource impacts of the Tier 1 and Tier 2 recommendations, it will be able to address the Tier 3 recommendations.

As indicated, the staff has been, currently is, and will continue to be cognizant of the insights gained from continued progress on the Tier 1 recommendations. This information will impact the approach to the aforementioned Tier 2 and Tier 3 recommendations.

The Honorable David Vitter

QUESTION 22. **What percentage of original concerns identified by the Near-Term Task Force Recommendations has this work done or ordered to-date addressed? (note, not number of recommendations but overall concerns.)**

ANSWER.

We are making significant progress on implementing the recommendations and thereby addressing the concerns behind each recommendation. We have assessed and prioritized all of the recommendations, and we have a method for addressing each of them. Some of the lower priority items are dependent on the completion of the higher priority items. The extent of the work completed varies, but all the work is being done consistent with our established prioritization and goals. We are working hard on these recommendations and are approaching them in the most diligent and efficient manner possible.

The Honorable David Vitter

QUESTION 23. **Are all of the recommendations still warranted? Are you doing or planning a "check and adjust" evaluation?**

ANSWER.

The insights provided by the recommendations in the Near Term Task Force report continue to warrant consideration due to their importance in enhancing safety at United States nuclear power plants. However, the NRC notes that some of the recommendations have been combined with others where the staff has determined that it is more efficient to address similar recommendations together. Additionally, with respect to the "check and adjust" evaluation, the NRC notes that the lower tiered recommendations are informed by Tier 1 recommendations and may or may not be implemented in the future based on the insights the staff gains from the work performed to address Tier 1 recommendations. The NRC is committed to evaluating each of the recommendations thoroughly in accordance with our established regulatory processes, which include stakeholder engagement, before imposing any new or revised regulatory requirements.

The Honorable David Vitter

QUESTION 24. **At some point, work could be being done for the sake of doing work and not for the sake of improving nuclear and public safety -- are we at that point?**

ANSWER.

The NRC is evaluating and implementing the lessons learned from the Fukushima-Daiichi nuclear power plant accident in accordance with our established regulatory processes. These regulatory processes ensure that before the NRC proposes new or revised regulatory requirements, we establish sound technical and safety bases and openly discuss these with stakeholders such as the nuclear industry. This open and transparent process ensures the NRC considers all feedback prior to determining whether new safety and security requirements are imposed.

The Honorable David Vitter

QUESTION 25. **Is the NRC moving too fast just for the sake of moving to meet a deadline?**

ANSWER.

The Near-Term task Force recommendations are being implemented because the Commission believes they will positively impact safety at commercial power reactors. The schedule set forth by the Commission for the implementation of the recommendations made by the Fukushima Near-Term Task Force is aggressive but accounts for the prioritization of the NTTF recommendations (i.e., implementation of those recommendations with the most added safety benefits), and the feasibility of the implementation both by the industry and by the NRC staff. As such, the NRC is focused on implementing the safety-significant "Tier 1" NTTF recommendations in the most efficient and effective manner possible to ensure that the safety benefits are realized as soon as reasonably practicable. While the NRC strives to adhere to established schedules, it remains sensitive to changes that can impact the overall schedule for implementing the lessons learned from the Fukushima Dai-ichi nuclear power plant accident, as is evidenced by informed adjustments already made.

The Honorable David Vitter

QUESTION 26. **On the 5-year, 2016, deadline for meeting Tier 1 regulations, plants that had a Spring 2013 refueling outage are going to be significantly challenged to meet the arbitrary 5 year deadline, especially as guidance is still being developed in cases. Has any consideration been given to the challenge these plants face?**

ANSWER.

Both the Orders and the 10 CFR 50.54(f) letters sent to licensees in March 2012 included a provision for licensees to request an extension to the established schedules. The NRC will consider schedule relaxations by licensees in accordance with these provisions on a case-by-case basis. The schedule for completion of the Hardened Vents Order extends beyond 2016 due to the original order being superseded by another order in June 2013.

The Honorable David Vitter

QUESTION 27. **At the 12/12/13 House hearing it was evident that the Commission had not deliberated on a supplemental request for FY 14 for Yucca Mountain Activities. It this correct?**

ANSWER.

Yes. No such deliberations had occurred at that point.

The Honorable David Vitter

QUESTION 28. **If so, have you since begun discussions either between yourselves informally or among yourselves formally on a supplemental request for FY 14 and, if not, when have you scheduled a formal discussion on a supplemental request for FY' 14?**

ANSWER.

Yes. My Commissioner colleagues and I have engaged in informal discussions on this subject during routine periodic meetings.

The Honorable David Vitter

QUESTION 29. **Did the Court's decision arrive at the Commission in time for the Commission to factor restart of the Yucca licensing case into your FY'15 submission to OMB?**

ANSWER.

No.

The Honorable David Vitter

QUESTION 30. **If not, have you begun deliberations on a supplemental request for FY'15?**

ANSWER.

The Commission has not discussed this matter in terms of supplemental funding. However, the Commission did consider this matter during our appeal of the OMB FY 2015 Budget Passback.

The Honorable David Vitter

QUESTION 31. **If not, have you scheduled such deliberations?**

ANSWER.

No such deliberations are scheduled at this time.

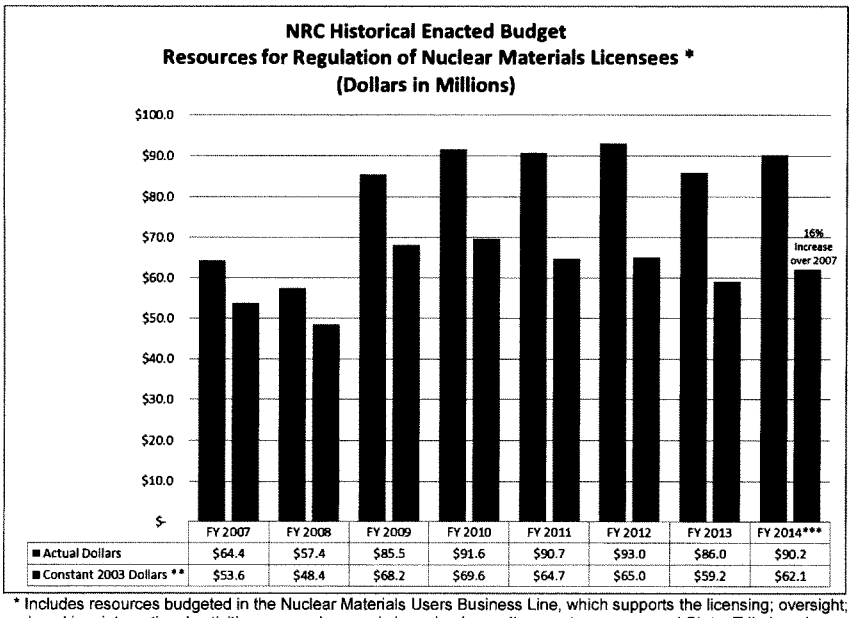
The Honorable David Vitter

QUESTION 32. The Chairman displayed a chart of NRC resources in "constant dollars" since 2007 noting that the Yucca Mountain and post-Fukushima requirements were included in those resources. How much has NRC resource expenditures declined in actual and constant dollars in regulating materials licensees?

ANSWER:

NRC resources for the regulation of materials licensees are budgeted and expended in the Nuclear Materials Users Business Line. These resources support the licensing; oversight; rulemaking; international activities; research; generic homeland security; event response; and State, Tribal, and Federal Program activities associated with the safe and secure possession, processing, handling, and use of nuclear materials for the many and diverse uses of these materials.

In fiscal year (FY) 2007, the NRC's Enacted budget for Nuclear Materials Users was $64.4 million in actual dollars. As demonstrated in the attached chart, in FY 2014, the Enacted budget was $90.2 million in actual dollars, a 40 percent increase over FY 2007. When converted to the constant 2003 dollars shown in the chart displayed by Chairman Macfarlane, the FY 2007 Enacted budget for Nuclear Materials Users was $53.6 million. In FY 2014, the Enacted budget was $62.1 million in constant 2003 dollars, a 16 percent increase over FY 2007.



	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014***
Actual Dollars	$64.4	$57.4	$85.5	$91.6	$90.7	$93.0	$86.0	$90.2
Constant 2003 Dollars **	$53.6	$48.4	$68.2	$69.6	$64.7	$65.0	$59.2	$62.1

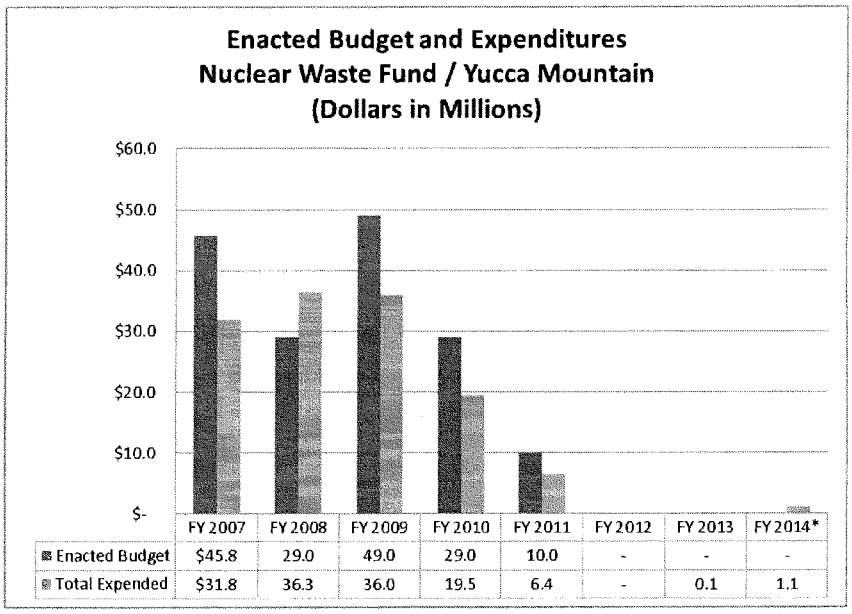
* Includes resources budgeted in the Nuclear Materials Users Business Line, which supports the licensing; oversight; rulemaking; international activities; research; generic homeland security; event response; and State, Tribal, and Federal Program activities associated with the safe and secure possession, processing, handling, and use of nuclear materials for the many and diverse uses of these materials.
** Amounts adjusted for inflation with FY 2003 as baseline (Producer Price Index-All Commodities published 6-3-13).
*** Constant dollars calculated using the 2013 inflation factor in the Producer Price Index-All Commodities published 6-3-13.

The Honorable David Vitter

QUESTION 33. Please provide the NRC resources and workload expenditures for Yucca Mountain for each year since 2007.

ANSWER:

In fiscal year (FY) 2007, the NRC's Enacted budget for Yucca Mountain was $45.8 million. FY 2007 expenditures were $31.8 million. In FY 2011, the last fiscal year in which NRC budgeted Nuclear Waste Fund resources, the Enacted budget was $10.0 million and expenditures were $6.4 million. There were no expenditures in FY2012. Expenditures in FY 2013 were $0.1 million. FY 2014 expenditures totaled $1.1 million through February 28, 2014.



	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014*
Enacted Budget	$45.8	29.0	49.0	29.0	10.0	-	-	-
Total Expended	$31.8	36.3	36.0	19.5	6.4	-	0.1	1.1

* FY 2008 includes expenditures against $27.0M in funding from prior years in addition to the $29.0M from the Enacted budget.
** FY 2014 expenditures through February 28, 2014.

The Honorable David Vitter

QUESTION 34. **What institutional controls are now in your procedures to prevent the type of untoward delay that characterized the Commission's and its former Chairman's failure to issue a vote on the DOE's proposed and now rejected withdrawal of its Yucca license application?**

ANSWER.

The Commission's current Internal Commission Procedures (ICPs) provide a comprehensive, clear process to guide Commission action on adjudicatory matters. The ICPs set forth a reasonable process for extensions and consideration of differing views in arriving at a final position on an adjudicatory matter, and reasonable general deadlines. In particular, the ICPs provide that Commissioners' votes on voting papers—including adjudicatory papers—are normally requested within 10 business days. The ICPs further provide that approval of extensions of time to vote on an adjudicatory paper must be given by a Commission majority. Once voting is complete, the NRC adjudicatory staff will promptly submit the draft final adjudicatory decision to the Commission to establish a majority position on the decision. Commissioners at that time have the opportunity to make changes to the decision and/or to incorporate additional views. As soon as a majority position on the decision has been established, an affirmation session is scheduled to obtain the formal vote of the Commission. These provisions are adequate to ensure that timely action is taken on adjudicatory decisions. The majority of the Commission can take action to expedite issuance of adjudicatory orders.

The Commission continues to work collegially, taking into account all Commission priorities to ensure the timely issuance of reasoned, thoughtful decisions based on informed adjudicatory records, consistent with the Commission's stated goal of achieving prompt resolution of adjudicatory matters.

The Honorable David Vitter

QUESTION 35. **In the Office of Nuclear Reactor Regulation, how many staffers in the divisions of Safety Systems, Engineering, Operating Reactor Licensing, Risk Assessment, and Inspection and Regional Support were permitted to perform their duties during the recent furlough period?**

ANSWER.

Federal agencies were directed to conduct an orderly partial shutdown beginning October 1, 2013, and the NRC exhausted available funds and entered a shutdown status on October 9, 2013. Across those divisions that you list, a total of eight staff performed excepted duties that can, by law, continue during a lapse in appropriations during the government shutdown.

The Honorable David Vitter

QUESTION 36. **With respect to the criteria used to determine whether an emergency licensing action should be processed, did the NRC exclude as a basis, power generation to support the grid without additional information detailing "how the failure to support the grid would pose a specified and likely threat to human life and health"?**

ANSWER.

For purposes of compliance with the Anti-Deficiency Act (ADA), generally only those emergency excepted function activities that protect the public from imminent danger may be conducted by the NRC staff during a government shutdown due to a lapse of appropriations. A bare assertion by an NRC licensee of the public need for power, by itself, without additional information is unlikely to support engaging the NRC staff excepted function activities under the ADA. However, excepted functions may arise under specific facts and circumstances related to grid reliability or stability that are separate from a generic assertion of a public need for power. A licensee may present specific information regarding reactor safety requirements associated with offsite power that affects grid stability, and in turn, may result in imminent risks to public health and safety. The NRC would carefully consider any such information that is provided by the licensee. It should also be noted that Grid allocation and stability concerns and oversight fall under State, Regional or other Federal agency authority and not that of the NRC. Therefore, the licensee's assertions of grid stability would require consultation and confirmation with those governmental entities, and each instance of the NRC staff performing emergency excepted activities because of grid stability concerns would need to be evaluated based on the specific facts and circumstances presented by the licensee.

The Honorable David Vitter

QUESTION 37. **Is it your opinion that disruptions to the grid, whether initiated by severe storm or otherwise, have significant and potentially dangerous impacts well beyond affecting electricity to the residences and commercial locations?**

ANSWER.

The long-term availability of alternating current (AC) electrical power is necessary for the safe resumption of operation and accident recovery of commercial nuclear power plants (NPPs). Offsite power sources normally supply this essential power from the electrical grid, to which the NPP is connected. Offsite power is the preferred power source for safe shutdown of NPPs. However, in case of loss of offsite power sources, NRC requires that all NPPs are able to withstand a station blackout (SBO) period and recover from the loss of AC offsite power sources. An SBO is a complete loss of AC electric power to the plant for a specified duration. Licensees must demonstrate that systems have sufficient capacity and capability to ensure core cooling and containment integrity and are maintained for the duration of the specified coping time. NRC licensees have, over the years in response to several severe storms or geological events (e.g., Tropical Storm Sandy, the Great Eastern Earthquake, Hurricane Katrina, Hurricane Andrew), demonstrated that they are capable of safe maintenance of their reactors and stored radiological materials in enduring extended SBO periods or disruptions to the grid.

Therefore, grid instability or a loss of offsite power and its subsequent restoration are important. For example, in response to the August 14, 2003, event when the largest power outage in U.S. history occurred in the northeastern United States and parts of Canada, the U.S. nuclear industry developed protocols between the NPPs and the transmission system operator (TSO), independent system operator or reliability coordinator/authority. The use of NPP/TSO protocols

and analysis tools by TSOs assist NPPs in monitoring grid conditions for consideration in maintenance risk assessments and any impending challenges to the offsite power systems. However, in the event a plant loses offsite power, highly reliable onsite electrical power is provided as a backup. All U.S. plants, except Oconee Nuclear Station, have diesel generators and battery backup systems. Oconee has a hydroelectric power facility and battery backup systems for emergency backup power.

The Honorable David Vitter

QUESTION 38. **The NRC recovers virtually all of its overhead costs through annual license fees collected pursuant to 10 CFR Part 171. During a federal government shutdown, those fees continue to be collected, although no generic services are provided. Further, NRC work on licensee's applications for specific licensing actions, including emergency and exigent license amendments or notices of enforcement discretion to avoid unnecessary plant shutdowns or to support plant startup from an outage, are covered by specific fees imposed under 10 CFR part 170.**

Would you be willing to engage Congress and the Administration to seek administrative or legislative relief that would allow fee-based activity to continue during a shutdown?

ANSWER.

Yes, the Commission would be willing to engage with Congress and the Administration to consider this matter.

The Honorable David Vitter

QUESTION 39. **Does the NRC have a mechanism to force a detailed cross jurisdictional review of the aggregate impact of new regulatory initiatives, so that impact of actions of all divisions and branches are considered?**

ANSWER.

When the NRC promulgates a new regulatory requirement, it seeks concurrence from all cognizant organizations within the NRC to ensure the requirement is well informed by a broad perspective across all program offices. Additionally, the agency recently adopted specific cumulative effects of regulation (CER) process enhancements to the rulemaking process and is currently applying those enhancements to the process used to send to licensees generic letter requests for information. One of these enhancements is that the NRC will include a specific request for comment on CER issues in any *Federal Register* notice that announces a proposed rule or a draft generic letter. This request poses questions to the public on whether there are any ongoing (or soon-to-be-implemented) activities that will impact the implementation of the proposed rule or the issuance of the final generic letter. Through this direct engagement process, the public, including nuclear power industry stakeholders, is responsible for providing the NRC with detailed information regarding the aggregate impact on their resources of the NRC's planned regulatory actions. In addition, before the NRC issues a final rule, the staff will conduct a public meeting during the final rule development stage to discuss implementation of the final rule. At this meeting, the public has another opportunity to raise concerns regarding scheduling, resources, and other constraints related to the implementation of the final requirements.

The Honorable David Vitter

QUESTION 40. **A 43% increase in staffing since 2000 (2800 then, 4000 employees today); regulatory costs increased over 54% for our plants, increased budget authority since 2000 – with sequester impacting all government agencies, in time of belt-tightening and even plant closures, is this level of staffing still appropriate?**

ANSWER.

The agency formulates its staffing levels based on planned workload and priorities, therefore staffing levels are appropriate at the time the agency budget is formulated for that fiscal year. However, workload at the NRC continues to shift and change. While the number of operating plants has decreased, NRC staffing has shifted internally to better align with changing priorities. For example, the FY 2015 budget supports implementing Fukushima lessons learned; increasing cyber security licensing activities; increasing work related to Generic Issue-191; reviewing new applications for medical isotope production facilities; completing decommissioning activities at Kewaunee, Crystal River 3, and San Onofre Units 1 and 2; reviewing a new uranium enrichment facility license application; reviewing a possible amendment to expand operations for International Isotopes; and progressing with revisions to the Fuel Cycle Oversight program as well as continuing support for new reactor licensing and construction inspection workload and the associated infrastructure.

To keep pace, we are taking a fresh and realistic look at each of our business and corporate support lines. Based on where we believe we will be in five years we will continue to adjust, refine, and redirect our activities and strategies as appropriate. We are assembling a "best estimate scenario" of our future in 2019 that, among other things, includes a thorough

understanding of where we will be in the new large light water reactor application and review process, a realistic view of which advanced reactors will have applications under review or be in construction, a best estimate of the size of the operating fleet, and a vision for our other key program areas. This estimate also includes an assessment of our various corporate support functions and costs that have already been aligned to programmatic priorities through the streamlining and centralizing of resources. We will be using this information to develop and execute the strategies necessary to remain on mission, while continuing to monitor the internal and external environments, and also working to enhance our agility and organization capacity. We are being proactive about our future, addressing challenges as they arise, and maintaining a focus on the mission.

The Honorable David Vitter

QUESTION 41. **In April 2013, NEI, on behalf of the industry, submitted recommendations on 24 ongoing regulatory actions to improve regulatory efficiency and predictability. Why has the NRC failed to respond to these recommendations?**

ANSWER.

The NRC reviewed NEI's April 2013 letter recommending implementation changes to 24 ongoing regulatory actions (e.g., to defer, accelerate, or eliminate), and acknowledged it during a May 2013 public meeting. Subsequently, on October 1, 2013, NEI submitted a draft process for prioritizing regulatory actions on a plant-specific level. The NRC is currently reviewing this draft process, which may represent a disciplined, plant-specific approach to identify implementation changes analogous to those generic actions identified in NEI's April 2013 letter. The NRC recently observed generic tabletop exercises of the draft process and is now observing plant-specific tabletop exercises at several facilities. In light of the ongoing NRC activities related to NEI's October, 2013, letter, we won't be specifically responding to the April letter, but will continue our focus on the October letter's process.

The Honorable David Vitter

QUESTION 42. **What is the NRC's timetable for responding to these recommendations?**

ANSWER.

Please see the response to Question 41, above.

The Honorable David Vitter

QUESTION 43. **What is the NRC's position on the industry's proposal related to prioritizing new regulatory requirements?**

ANSWER.

The NRC staff is responding to the Commission's Staff Requirements Memorandum (SRM) proposing an initiative to improve nuclear safety and regulatory efficiency. The SRM directed NRC staff to develop a notation vote paper that provides approaches for allowing licensees to propose to the NRC a prioritization of the implementation of regulatory actions as an integrated set and in a way that reflects their risk significance on a plant-specific basis. The NEI submitted a draft prioritization process on October 1, 2013. The agency then held a public meeting on the draft process in November 2013 and observed generic tabletop exercises of the process in December 2013. In addition, NRC staff observed plant-specific tabletop exercises of the process in February–March 2014. Pending successful completion of the plant-specific tabletop exercises, our staff will observe pilot exercises. All of the exercises (generic tabletops, plant-specific tabletops, and pilot exercises) will inform one of several options that NRC staff will present to the Commission in a Commission vote paper (as directed by the SRM). The staff established a timeline for this activity that allows it to thoroughly explore each option, including the legal mechanism for implementing schedule changes, backstops, scope, etc., prior to making recommendations to the Commission. Our staff is also engaging the public in each step of the process to ensure transparency, and our staff believes that an appropriate prioritization process, if implemented, could enhance safety by allowing licensees to focus on items of the greatest safety significance first. NRC staff therefore believes that the established timeline for evaluating the various options is appropriate.

The Honorable David Vitter

QUESTION 44. **Why is it taking so long for the NRC to engage on this initiative?**

ANSWER.

Please see the response to Question 43.

The Honorable David Vitter

QUESTION 45. **Has the NRC considered expanding the Cumulative Impacts Initiative to include rolling back existing regulatory requirements that are burdensome on licensees but provide little or no safety benefit? If not, why not?**

ANSWER.

No. Although the safety significance of specific NRC regulations may vary from plant to plant due to plant-specific design and siting differences, the NRC believes that its existing regulatory processes carefully evaluate each regulation to ensure that any increase in regulatory burden is appropriately justified by an increase in safety. The NRC does have a strong interest in ensuring that the Cumulative Effects of Regulation (CER) are well understood and has put in place process enhancements, and is considering further enhancements to ensure regulations are promulgated in a way that ensures licensees remain focused on those items most important to safety and security.

In July 2011, President Obama issued Executive Order 13579, which recommended that independent agencies "periodically review existing 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." In response to the Executive Order, the NRC published its final plan for retrospective analysis of existing rules on February 24, 2014 (79 FR 9981). The final plan describes the processes and activities that the NRC uses to determine whether any of its regulations should be modified, streamlined, expanded, or repealed. It concludes how these processes and activities, when considered in aggregate, meet the intent of Executive Order 13579. These NRC processes and activities include:

(1) efforts to incorporate risk assessments into regulatory decision-making;

(2) use of performance-based regulation;

(3) multiple previous and ongoing rulemaking process improvement efforts and initiatives to reduce unnecessary regulatory burden, including the staff's current initiative to address the cumulative effects of regulation;

(4) existing methodology for prioritizing its rulemaking activities;

(5) multiple opportunities for public input and significant outreach efforts to enhance public participation in the regulatory process; and

(6) coordination and communication activities with other Federal agencies, tribes, and States.

The Honorable David Vitter

QUESTION 46. **Has the Commission taken action to ensure that any intimidating behavior on the part of a Commission Chair or Commissioner is a violation of Commission internal safety and personnel policies?**

ANSWER.

My fellow Commissioners and I would not tolerate the use of intimidation by any of us against one another, members of the NRC staff, or others. It is long established NRC practice and policy that intimidating behavior is a form of misconduct and not tolerated at the NRC. Further, it is inconsistent with the NRC values, which promote cooperation and respect in the workplace. The Inspector General also has the authority to investigate employee misconduct. Therefore, we have not revised any internal safety or personnel policies to address this particular issue. We are confident that, should concerns ever arise that the Chairman or a Commissioner were engaging in inappropriate conduct of any kind, the Commission would take appropriate steps to address those concerns.

The Honorable David Vitter

QUESTION 47. **Does the Commission, when it exercises its emergency response plan, have an Executive team that is supported by Congressional Affairs and Public Affairs personnel?**

ANSWER.

Yes, staff from both the NRC Office of Congressional Affairs and the Office of Public Affairs serve on the NRC incident response organization, led by the Executive Team, when the Headquarters Operations Center is activated. These staff and other trained responders have key roles in communicating information on the event to the public and the Congress. If only a Regional Office Incident Response Center is activated (the typical case for less severe events), the regional Public Affairs staff and headquarters Office of Congressional Affairs support the communications of the event.

The Honorable David Vitter

QUESTION 48. **Are these personnel, as part of their training, tasked to notify specific Congressional Committee staff and the public whenever the agency enters a necessary period of exercising emergency authority?**

ANSWER.

The Commission's procedures require that no later than one day after the Chairman begins exercising emergency authority, he/she shall provide notice to the Committees on Appropriations of the House of Representatives and the Senate, the Committee on Energy and Commerce of the House of Representatives, and the Committee on Environment and Public Works of the Senate. This notice must include an explanation of the circumstances warranting the exercise of the Chairman's emergency authority. After this initial notice, the procedures require the Chairman to provide weekly reports to the aforementioned Congressional Committees and notify them within one day of relinquishing emergency authority. Personnel in the Offices of Congressional Affairs and Public Affairs are knowledgeable about these requirements and are expected to fulfill them should emergency circumstances warrant them doing so.

Notwithstanding the Internal Commission Procedures, it has been the practice of Office Congressional Affairs personnel to notify NRC oversight committees whenever the NRC operations center is activated, regardless of whether the Chairman exercises emergency authority. If the NRC operations center is activated in response to an event at a specific facility, it is also the practice of Office of Congressional Affairs personnel to notify the Congressional delegation(s) for the areas surrounding the facility.

It has been the practice of the Office of Public Affairs to notify the public/media when the NRC headquarters operations center is activated or when a regional office or agency headquarters has entered monitoring mode for an event at the alert or higher level, regardless of whether the Chairman exercises emergency authority. In addition, it has been the practice to regularly update the public/media on the response activities of the NRC.

The Honorable David Vitter

QUESTION 49. If not, why not?

ANSWER.

Please see response to Question 48, above.

The Honorable David Vitter

QUESTION 50. **In its exercises, is the Chairman (or Acting Chairman), present as part of the Executive Team for the duration of the emergency?**

ANSWER.

The Chairman, or an official whom he or she delegates, leads the NRC emergency response organization during event response. Typically, the Chairman performs this leadership function by serving as the Executive Team Director in the Operations Center; however, NRC's approach recognizes the Chairman may be called away (press conferences, White House meetings, etc.) or that long-duration response activities may preclude continuous presence.

The Honorable David Vitter

QUESTION 51: **If the Chairman departs the emergency operations center, who interacts as the Executive exercising the emergency authority?**

ANSWER.

The physical location of the Chairman during an incident response does not alter her authority as Chairman and Head of Agency; she may direct the incident response from any location. When away from the Headquarters Operations Center, the Chairman may, at her discretion, delegate her Executive Team Director duties (including her emergency powers per the Reorganization Plan No. 1 of 1980). Responsibilities are traditionally delegated to another Commissioner, a senior member of the Executive Team (Executive Director for Operations/Deputy Executive Director for Operations), or to the pertinent Regional Administrator, depending upon the level of the response. The Executive Team can, in most cases, remain in contact with the Chairman if she is not in the Operations Center, and would continue to engage her as circumstances surrounding the event response warrant.

The Honorable David Vitter

QUESTION 52. **During the hearing you stated that the internal Commission procedures are "quite adequate." If that is the case, please identify specifically how the procedures will institutionally prevent the abuses identified by the IG during the tenure of your predecessor.**

ANSWER.

In 2011, the Commission completed a substantial revision of the Commission Internal Procedures. I was not yet a member of the Commission at the time, but I understand that a number of the revisions were crafted to address conflicts that had arisen prior to my arrival. During my tenure as Chairman, I have found that the Commission functions well under the procedures as modified in 2011.

The Honorable David Vitter

QUESTION 53. **I'm not at all sure that this Commission understands its role in creating a stultifying atmosphere for the use of nuclear power in this country. While the industry continues to strive to understand how all the rulemakings that are currently underway and coming onto your drawing boards in the near and intermediate future can all be of equal priority in nature and deliver significant safety benefits in effect, you as a group continue to find ways to characterize your best efforts to ameliorate the problem as to better define potential requirements and to develop better cost-estimates of their implementation. The net effect is that you do not accept any responsibility for the impacts of creating requirements of dissimilar safety impact and ascribing the same priority to them. This is not an acceptable practice. Can you simply acknowledge that you do have responsibility to review your new and prospective requirements to weed out and cease working on those that have little safety impact?**

ANSWER.

The NRC utilizes a "Common Prioritization of Rulemaking" (CPR) process for developing rulemaking budget estimates and determining the relative priorities of rulemaking projects during budget formulation. As part of this process, the NRC re-evaluates the priorities of existing and ongoing rulemaking activities on an annual basis. Rulemakings are ranked commensurate with the NRC's mission, as described by the safety and security goals in the NRC's Strategic Plan. Specifically, rulemaking priorities are determined by: (1) how much a rule contributes to the NRC's safety and security goals; (2) whether a rulemaking supports the

organizational excellence objectives outlined in the Strategic Plan (e.g., efficiency and effectiveness); (3) whether the rulemaking is being directed by a governmental organization such as NRC, Congress (e.g., the Energy Policy Act of 2005), or other governmental bodies; and (4) whether a rulemaking is of particular interest to members of the public, non-governmental organizations, the nuclear industry, vendors, and suppliers. Safety and security are weighted more heavily than the other factors in the priority ranking scheme to ensure that those rules with the greatest impact on safety and security are given appropriate priority.

Although the safety significance of specific regulations may vary from plant to plant due to plant-specific design and siting differences, the existing regulatory processes carefully evaluate each regulation to ensure that any increase in regulatory burden is appropriately justified by an increase in safety. As previously discussed, the NRC does have a strong interest in ensuring that the Cumulative Effects of Regulation (CER) are well understood. The NRC has put in place various enhancements to the CER process and is considering further enhancements to ensure regulations are promulgated in a way that ensures licensees remain focused on those items most important to safety and security. The NRC is also working to improve the accuracy of its cost estimating process by conducting case studies of past cost-benefit analyses to identify lessons learned that could be used in the future to improve the NRC's process.

Also, in July 2011, Executive Order 13579 recommended that independent agencies "periodically review existing 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." In response to the Executive Order, the NRC published its final plan for retrospective analysis of existing rules on February 24, 2014 (79 FR 9981). The final plan describes the processes and activities that the NRC uses to determine whether any of its regulations should be modified, streamlined,

expanded, or repealed. It concludes how these processes and activities, when considered in aggregate, meet the intent of Executive Order 13579. These NRC processes and activities include:

(1) efforts to incorporate risk assessments into regulatory decisionmaking;

(2) use of performance-based regulation;

(3) multiple previous and ongoing rulemaking process improvement efforts and initiatives to reduce unnecessary regulatory burden, including the staff's current initiative to address the cumulative effects of regulation;

(4) existing methodology for prioritizing its rulemaking activities;

(5) multiple opportunities for public input and significant outreach efforts to enhance public participation in the regulatory process; and

(6) coordination and communication activities with other Federal agencies, tribes, and states.

The Honorable David Vitter

QUESTION 54. Where should a Commissioner or Commissioner(s) take performance concerns on the part of a colleague, a Chairman, or the IG when direct talks have failed to resolve the situation?

ANSWER.

Every effort should be made to resolve such situations through direct talks, and I am confident that working together as a collegial body, this Commission can resolve any issues with which we are confronted. Under the Energy Reorganization Act of 1974, the President may remove a Commissioner for "inefficiency, neglect of duty, or malfeasance in office."

As for performance concerns on the part of the IG, those can be referred to the Council of the Inspectors General on Integrity and Efficiency for review and possible investigation of allegations of wrongdoing. The President may remove an Inspector General for any reason, but must convey the reason(s) for removal in writing to Congress.

The Honorable David Vitter

QUESTION 55. **As noted earlier, NRC staffing levels are at historical highs, but there is much less new nuclear power plant construction than anticipated. Five units have shut down or announced they will do so.**

How does NRC plan to reduce and/or redeploy resources to provide efficient regulation of nuclear power plants while avoiding undue cost burdens on licensees?

ANSWER.

The New Reactors budget was reduced, both in staff (full-time equivalents, or FTE) and contract support dollars, to reflect fact of life 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. The New Reactor resources to support licensing and oversight in FY 2012 was 591 FTE and $55 million. This was reduced in the FY 2013 estimate to 555 FTE and $28 million, which reflects the impact of the sequester reduction. The FY 2014 President's Budget is 548 FTE and $46 million.

Of the 18 applications for combined licenses received, only two applications have been withdrawn. The reviews of five applications were suspended at the request of the applicants who have decided for business reasons to defer completion of these reviews. The staff continues to review eight applications for new combined licenses, as well as numerous applications for amendments to the Vogtle and Summer combined licenses to incorporate design changes which are needed to support construction of these four units. The staff is also in the final stages of completing the design certification for the ESBWR design, is continuing to

review the EPR and US APWR designs, and is preparing to receive a revised application for the APR1400 design at the end of 2014. To complete this work, most staff assigned to work on new reactors remains assigned to new reactor safety and environmental reviews. In addition, some contract work was diverted to in-house staff. 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. Staff were also reassigned to support the Fukushima task force recommendations and the waste confidence directorate.

For the four operating reactors that have been shut down and transitioning to decommissioning, the budget has been reduced to reflect the reduction in resident inspectors and inspection resources. These reductions have been partially offset by the need to support the Watts Bar Unit 2 licensing, the beginning of the transition of the new reactors at Vogtle and Summer from construction to operations, and the Fukushima task force recommendations and mitigating strategies.

The Honorable David Vitter

QUESTION 56. **Does the NRC have a multi-year staffing plan?**

ANSWER:

The agency formulates its staffing levels, full-time equivalents (FTE's) based on planned workload and priorities covering a two-year period (i.e. fiscal years 2014 and 2015), which is aligned with the agency budget formulation process.

Agency senior management meets regularly to discuss changing mission priorities and to strategically focus on fine-tuning available skill sets to meet future mission needs. This information is used to make critical workforce planning decisions and in developing office-specific short- and long-term staffing projections to identify critical skill gaps that could jeopardize the agency's ability to carry out its mission. These projections give each office and the agency as a whole a firm idea of its longer-term staffing needs so that managers are able to plan for shifting resources internally to address workload imbalances or address critical skill gaps through the use of our human capital hiring, retention, knowledge management, and development programs.

Additionally, in execution year, most offices within the NRC develop office-level staffing plans that provide more specific and targeted information, but these plans are not consolidated into an agency level staffing plan.

The Honorable David Vitter

QUESTION 57. **Please provide it to the committee, along with pertinent assumptions about workload.**

ANSWER:

Enclosed is the NRC two-year full-time equivalents (FTE) plan by business and product line for Fiscal Years 2014 and 2015. Pertinent planning assumptions by business line for FY 2015 include:

Business Line: Operating Reactors

- Workload:
  - Continuing licensing activities for 100 power reactors and completing 900 licensing actions (100 of which are Fukushima-related, six power uprates and approximately 15 ongoing reviews of compliance with National Fire Protection Association 805 for the approximately 25 reactors that will be transitioning to a risk-informed, performance-based set of requirements).
  - Continuing Fukushima lessons-learned activities, including seismic and flooding reevaluations, staff closeout reviews and inspections of mitigating strategies, enhanced spent fuel pool instrumentation orders, and completing safety evaluations for the licensee's Phase 1 integrated plans related to the severe accident capable hardened vents order, monitoring licensee implementation, and emergency preparedness activities.
  - Continuing reviews for 11 license renewal applications (19 units at 12 sites) for operating reactors.

- Continuing oversight of plants through the NRC's Reactor Oversight Process to verify that the 100 currently licensed operating nuclear power reactors continue to operate safely and securely.
- Reviewing 18 high-priority rulemakings and three medium-priority rulemaking activities directed by the Commission, including policy development activities related to the NRC regulatory framework after the Fukushima event.
- Conducting research based on lessons-learned from the Fukushima accident, fire safety, digital and electrical systems, materials degradation, reactor safety code development and analysis, radiation protection, probabilistic risk assessment, and evaluation of hazards from natural events.
- Ensuring that the NRC is ready to respond around the clock and able to collect and disseminate event response information consistent with the NRC's responsibilities under the National Response Framework.

- Significant changes from FY 2014 to FY 2015:
  - Increasing licensing activities related to cybersecurity;
  - Fukushima Tier I and II activities, specifically increasing for reviews related to mitigating strategies;
  - Increasing for work related to Generic Issue-191;
  - Reviewing new applications for medical isotope production facilities; and
  - Completing operating reactor decommissioning activities at Kewaunee, Crystal River Unit 3, and San Onofre Units 1 and 2.

Business Line: New Reactors

- Workload:

- Reviewing the nine combined license (COL) applications that remain active (two applicants were issued licenses, six applicants requested that their reviews be suspended, and one application was withdrawn).
- Continuing review of four design certifications (DC) (Babcock & Wilcox mPower, U.S. EPR, U.S. Advanced Pressurized Water Reactor (APWR)), and Korea Hydro and Nuclear Power (KHNP) KHNP/APR-1400 (review will begin in the fourth quarter FY15)).
- Continuing review of one DC renewal (Advanced Boiling Water Reactor), continuing pre-application activities for two projected DC applicants (Westinghouse and Holtec).
- Initiating the review of one new DC (NuScale).
- Supporting construction inspection activities of the reactors under construction (Vogtle Units 3 and 4, Summer Units 2 and 3, and Watts Bar Unit 2).
- Performing 30 vendor inspections to ensure integrity of the supply chain, which would be consistent with the expected increase in the number of suppliers and sites under active construction.

- Significant changes from FY 2014 to FY 2015:
  - Reviewing additional Small Modular Reactor and combined license applications;
  - Decreasing construction inspection activities associated with the oversight development program maintenance; and
  - Increasing the oversight of the startup of Watts Bar Unit 2.

Business Line: Fuel Facilities

- Workload:
  - Licensing conversion/deconversion, enrichment, fuel fabrication and greater than critical mass facilities, including new facilities at MOX.

- Supporting regulatory activities related to agency follow-up of the Fukushima event, including actions from the Fukushima Near-Term Task Force and inspections for fuel cycle facilities conducted under Temporary Instruction 2600/015, "Evaluation of Licensee Strategies for the Prevention and/or Mitigation of Emergencies at Fuel Facilities."
- Coordinating inspection procedures, event coordination, and the inspections for verification of the MOX principal systems, structures, and components.
- Rulemaking in security-related areas, including enhanced security at fuel cycle facilities (CAT I and III), material categorization, the 10 CFR Part 26 Fitness-for-Duty Program, and fingerprinting for safeguards information access.
- Facilitating application of the International Atomic Energy Agency safeguards to fuel cycle facilities, international coordination, and assistance on next generation safeguards designs.

- Significant changes from FY 2014 to FY 2015:
  - Reviewing a new uranium enrichment plant license application from GE-Hitachi for the Paducah Laser Enrichment Facility;
  - Increasing to review a possible amendment to expand operations at International Isotopes; and
  - Progressing with revisions to the Fuel Cycle Oversight Program.

Business Lines: Nuclear Materials Users

- Workload:
  - Completing approximately 2,000 materials licensing reviews (new applications, amendments, renewals, and terminations).

- Completing approximately 900 routine health and safety inspections as well as reciprocity and reactive inspections, and a registration and follow-up inspection program for certain general licensees.
- Conducting four materials waste safety rulemakings, as well as continuing as an interactive liaison with industry and professional societies to develop new codes and consensus standards and to review petitions for rulemaking submitted to the agency.
- Reviewing import/export authorizations of nuclear components and radiological materials and Executive Branch Subsequent Arrangements and Proposed 810 Licenses.
- Controlling and tracking imports and exports of sources, and bilateral and multilateral activities initiated for the exchange of technical information for the safe handling, storage, transport, and disposal of nuclear waste.
- Operating the Integrated Source Management Portfolio track sources and enhancing security of radioactive materials.
- Supporting the National Materials Program, including 10 to 12 Integrated Materials Performance Evaluation Program reviews for Agreement State and NRC programs to ensure that they are adequate to protect public health and safety and compatible with NRC programs.
- Coordinating and funding state participation in NRC training courses (including Agreement State training and travel) and responding to state technical assistance requests.
- Interacting with the Conference of Radiation Control Program Directors, Inc., and the Organization of Agreement States, Inc., and developing and maintaining policies and procedures for the Agreement State program.

- There are no significant changes from FY 2014 to FY 2015.

Business Line: Spent Fuel Storage and Transportation

- Workload:
  - Reviewing approximately 65 radioactive material transportation package design applications and approximately 22 spent nuclear fuel (SNF) storage applications to ensure the safe and secure storage of SNF.
  - Supporting the Renewal of the Prairie Island independent spent fuel storage installation (ISFSI) license.
  - Completing 16 safety inspections of storage and transportation cask vendors, fabricators, and designers and of ISFSI pad construction, dry-run operations, initial loading operations, and routine operations.
  - Evaluating regulatory framework and possible future rulemaking to support and respond to changes in the national high-level waste and spent nuclear fuel management program.

- Significant changes from FY 2014 to FY 2015:
  - Completing the near-term Waste Confidence Rule in FY 2014.
  - Increasing to evaluate potential revisions of regulatory framework for extended dry spent fuel storage and subsequent transportation to support potential updates to the regulatory framework (guidance) and possible future rulemaking.
  - Increasing to analyze data collection and modeling for future alternate strategies for disposal of spent fuel and high-level waste.
  - Decreasing as a result of transitioning the Storage and Transportation Information Management System from development to operations and maintenance.

Business Line: Decommissioning and Low-Level Waste

- Workload:
  - Licensing reviews for decommissioning 14 power and early demonstration reactors, seven research and test reactors, 23 complex materials facilities, and 38 uranium recovery facilities.
  - Licensing for up to 40 military and civilian sites with naturally occurring and accelerator-produced radioactive materials sites and depleted uranium contamination.
  - Reviewing eight to ten environmental and safety licensing applications (hearings included) for uranium recovery facilities, as well as licensing activities associated with seven operating uranium recovery facilities.
  - Overseeing decommissioning and uranium recovery operations, low-level waste program activities and waste-incidental-to reprocessing activities at two U.S. Department of Energy sites.
  - Providing research related assistance on complex licensing cases, such as application of codes for decommissioning reviews and site reviews employing bioremediation as the remediation process chosen for site cleanup at shallow sites with uranium contamination and uranium in situ recovery facilities.

- There are no significant changes from FY 2014 to FY 2015.

Enclosure: FY 14-15 Staffing Plan

FY 14-15 Staffing Plan

FULL-TIME EQUIVALENTS[1]			
Business Line	Product Line	FY 2014 FTE	FY 2015 FTE
		3,751.9	3,818.8
BL-11 Operating Reactors	PL-1 Event Response	64.8	64.8
BL-11 Operating Reactors	PL-2 Generic HLS (PL)	25.4	20.8
BL-11 Operating Reactors	PL-3 International Activities	18.9	18.8
BL-11 Operating Reactors	PL-4 Licensing	880.83	876.1
BL-11 Operating Reactors	PL-5 Oversight	874.4	849.1
BL-11 Operating Reactors	PL-6 Research	216.1	216
BL-11 Operating Reactors	PL-7 Rulemaking (PL)	60.2	66.7
BL-17 New Reactors	PL-3 International Activities	9.3	10.5
BL-17 New Reactors	PL-4 Licensing	491.2	602.7
BL-17 New Reactors	PL-5 Oversight	215	185.2
BL-17 New Reactors	PL-6 Research	34	32.7
BL-17 New Reactors	PL-7 Rulemaking (PL)	18.4	15.1
BL-38 Fuel Facilities	PL-1 Event Response	4.6	4.3
BL-38 Fuel Facilities	PL-2 Generic HLS (PL)	6.8	6.5
BL-38 Fuel Facilities	PL-3 International Activities	15	13.2
BL-38 Fuel Facilities	PL-4 Licensing	46.7	82
BL-38 Fuel Facilities	PL-5 Oversight	125.2	110
BL-38 Fuel Facilities	PL-6 Research	0.9	0.9
BL-38 Fuel Facilities	PL-7 Rulemaking (PL)	10.1	21
BL-33 Spent Fuel Storage and Transportation	PL-2 Generic HLS (PL)	2.5	0.5
BL-33 Spent Fuel Storage and Transportation	PL-3 International Activities	5.5	4
BL-33 Spent Fuel Storage and Transportation	PL-4 Licensing	78.9	75.2
BL-33 Spent Fuel Storage and Transportation	PL-5 Oversight	24.8	24.4
BL-33 Spent Fuel Storage and Transportation	PL-6 Research	15.4	17.7
BL-33 Spent Fuel Storage and Transportation	PL-7 Rulemaking (PL)	39	41.2
BL-34 Nuclear Materials Users	PL-1 Event Response	6.4	6.4
BL-34 Nuclear Materials Users	PL-2 Generic HLS (PL)	13.6	6.5
BL-34 Nuclear Materials Users	PL-3 International Activities	17.1	17.1
BL-34 Nuclear Materials Users	PL-4 Licensing	107.8	107.6
BL-34 Nuclear Materials Users	PL-5 Oversight	108.8	107
BL-34 Nuclear Materials Users	PL-6 Research	4.7	3.2
BL-34 Nuclear Materials Users	PL-7 Rulemaking (PL)	18.6	18
BL-34 Nuclear Materials Users	PL-8 State, Tribal and Federal Pgms	47.8	49.4
BL-35 Decommissioning and LLW	PL-3 International Activities	6.4	6.2
BL-35 Decommissioning and LLW	PL-4 Licensing	93	91
BL-35 Decommissioning and LLW	PL-5 Oversight	33.2	36.2
BL-35 Decommissioning and LLW	PL-6 Research	3.1	3.1
BL-35 Decommissioning and LLW	PL-7 Rulemaking (PL)	7.5	7.7

The Honorable David Vitter

QUESTION 58. **Please compare anticipated future staffing levels to those of the early 2000s, before NRC significantly expanded the number of employees.**

ANSWER:

Provided below is a chart, by business line, comparing the number of NRC full-time equivalents enacted for FY 2000 and FY 2014, along with the number requested for FY 2015.

FULL-TIME EQUIVALENTS[1]			
Business Line	**FY 2000 Enacted**	**FY 2014 Enacted**	**FY 2015 Request**
Operating Reactors	1,888.2	2,140.6	2,112.3
New Reactors	0.0	767.9	846.2
Fuel Facilities	141.3	209.3	237.9
Spent Fuel Storage and Transportation	93.7	166.1	163.0
Nuclear Materials Users	385.6	324.8	315.2
Decommissioning and Low-Level Waste	175.6	143.2	144.2
High-Level Waste	72.6	0.0	0.0
Total	**2,757.0**	**3,752.0**	**3,818.8**

[1]Numbers may not add due to rounding.

The Honorable David Vitter

QUESTION 59. **NRC staff recently completed study on pools versus dry cask storage, what were the results of that study?**

ANSWER.

The process for storing irradiated nuclear fuel, in both spent fuel pools (SFPs) and dry casks is well-established and provides adequate protection of public health and safety. The referenced NRC study, titled "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor" is commonly referred to as the Spent Fuel Pool Study. This study focused on characterizing the offsite impacts from a postulated SFP accident at a reference site. The Spent Fuel Pool Study did not explicitly consider dry cask storage.

After issuing the Spent Fuel Pool Study in October 2013, the NRC staff issued a related generic analysis (COMSECY-13-0030). This generic analysis focused on whether further consideration should be given to the issue of having reactor licensees reduce the amount of spent fuel stored in their SFPs by requiring the expedited transfer of some of this spent fuel into dry storage casks. In this analysis, the NRC staff considered the history of NRC oversight of spent fuel storage, SFP operating experience (domestic and international), and past studies of SFP safety, as well as the October 2013 Spent Fuel Pool Study. The NRC staff concluded that the expedited transfer of spent fuel to dry cask storage would provide only a minor or limited safety benefit (i.e., less than safety goal screening criteria utilizing the Commission's safety goal policy statement), and that its expected implementation costs would not be justified. The staff recommended to the Commission that additional studies and further analyses of the expedited transfer issue not be pursued. The Commission is now considering the staff's recommendations.

The Honorable David Vitter

QUESTION 60. **Did that study find that current methods for managing used fuel protect public health and safety?**

ANSWER.

As previously stated, the NRC staff's view is that the present manner in which spent fuel is stored, both in SFPs and in dry casks, provides adequate protection of public health and safety. The staff's Spent Fuel Pool Study, and the generic analysis in the staff's paper, supports this view. The Commission is now considering the staff's recommendations.

The Honorable David Vitter

QUESTION 61. **What is the NRC's priority for addressing submittals and license amendment requests for plants in decommissioning?**

ANSWER.

The staff has developed a prioritization methodology that applies to all licensee requests for licensing actions, including requests for plants in decommissioning. The methodology considers many factors when establishing the priority of a licensing request, including whether the requested action affects reactor safety; impacts safe plant restart or continued operation; or is the result of Commission, Congressional, or Executive direction. Within this methodology, decommissioning licensing actions, including amendments and exemptions, are considered "routine licensing activities," and are thus given the same treatment as licensing actions requested by non-decommissioning reactors, under the factors described above.

On June 13, 2013, the NRC staff issued a letter to all operating reactor licensees discussing the impact on regulatory and licensing reviews as a result of the earthquake and tsunami at the Fukushima Dai-ichi nuclear power plant. The staff explained that it would continue to assess and redefine priorities while ensuring that the process does not displace ongoing work that has greater safety benefit, work that is necessary for continued safe operation, or other existing high-priority work.

The NRC allows for discretion in the application of the prioritization methodology based on case-specific circumstances. For example, management can assign resources where the availability of certain skill sets factors into the decision of when to perform a review.

The Honorable David Vitter

QUESTION 62. **NRC delays in review decommissioning plants' submittals result in unnecessary depletion of the decommissioning trust funds and potentially unnecessary cost increases to electric customers in regulated markets and a lack of necessary funds in unregulated markets. Decommissioning plants are limited in their ability to make changes to plant configurations in a safe and timely manner and expeditiously reduce staff and costs until the NRC approves license amendment requests and other submittals.**

How do you respond to the concerns that NRC delays in reviewing decommissioning plants' submittals result in unnecessarily high decommissioning costs?

ANSWER.

The staff developed a prioritization methodology that applies to all licensee requests for licensing actions. The methodology considers many factors when establishing the priority of a licensing request, including whether the requested action affects reactor safety; impacts safe plant restart or continued operation; or is the result of Commission, Congressional, or Executive direction. Within this methodology, decommissioning licensing actions, including amendments and exemptions, are considered "routine licensing activities," and are thus given the same treatment as licensing actions requested by other non-decommissioning reactors, and under the factors described above. The NRC staff evaluates the licensee's submittals using the prioritization methodology discussed above and is applying the appropriate resources to the review of decommissioning licensing actions. While licensees may request expedited review of

certain licensing actions that it believes would reduce the cost of decommissioning, the NRC staff must weigh the impact of this request against other licensing actions it has under review, and distribute its resources appropriately.

When looking at the impact of perceived delays in reviewing licensee submittals against the cost of decommissioning, the NRC staff weighs its mission to protect public health and safety, promote the common defense and security, and protect the environment, against increased operating costs associated with processing licensing actions. The NRC has specific regulations in place to provide reasonable assurance that funds will be available for the decommissioning process (see 10 CFR 50.75, "Reporting and Recordkeeping for Decommissioning Planning"). These funds are specifically designated for radiological decontamination of the facility. Funding for areas where the licensee requires NRC action to reduce cost, the most significant of which are in the areas of emergency preparedness and security, are not related to radiological decontamination. Funding for these activities would come from sources other than the decommissioning trust fund.

The Honorable David Vitter

QUESTION 63. **Why have the NRC rule implementation cost estimates been so wrong, with actual costs ranging from three to more than 10 times the NRC estimates?**

ANSWER.

The NRC acknowledges that in some cases there have been large differences between the NRC's estimated costs of rule implementation and actual industry implementation costs. The main reason for such differences is that the NRC does not have access to detailed or aggregate cost information for most of our regulated entities. If regulated entities provide detailed cost information for an NRC regulatory proposal during the proposed rule public comment period, then the NRC could refine its initial cost estimates to account for the detailed cost information. However, the NRC's experience to date is that our external stakeholders rarely provide cost information of sufficient specificity to support refinement of the NRC's cost estimates.

NRC's external stakeholders have indicated that they are unable to provide reasonable comments on NRC's implementation costs estimates during the proposed rule stage because those costs depend upon implementation guidance, which is not available at the time the NRC requests public comment on a proposed regulatory action.

To improve the NRC's cost estimating processes, the agency is now conducting case studies of past cost-benefit analyses to identify lessons learned that could be used to improve the accuracy of future cost-benefit analyses. The results of the case studies to date show that there are often significant divergences between the costs estimated before the regulation is issued compared to the actual costs incurred by regulated entities after the final rule is

published. Typically, these divergences result from different assumptions made by the NRC and the regulated entities regarding the changes from the status quo needed to comply with the new requirement. Other contributors to differences in estimated versus actual costs include differing assumptions on how a licensee will achieve compliance, different timing of compliance, variability among plant sites, and lack of industry cost data. Furthermore, the NRC has been advised that the regulated entities consider some types of cost data to be proprietary information, which they wish to withhold from public disclosure.

The NRC is taking several actions to improve the accuracy of future cost estimates. First, the NRC now publishes draft implementation guidance concurrent with the publication of proposed rules and final implementation guidance concurrent with final rules. Developing implementation guidance concurrent with each rule will help ensure that the NRC and industry have a common understanding of the effort required for a licensee to comply with the new requirement, and should also aid with developing cost estimates based on the expected method the licensee will use to achieve compliance with the proposed regulatory action. Second, the NRC is continuing its case studies of past NRC cost-benefit analyses to identify additional lessons learned. The staff is working with nuclear power industry stakeholders to explore possible ways in which these stakeholders can provide the NRC with more detailed information on implementation costs (e.g., cost averages, ranges, etc.) without disclosing proprietary information. The NRC's cost-benefit improvement activities are described in "Plan for Updating the U.S. Nuclear Regulatory Commission's Cost-Benefit Guidance" (SECY-14-0002).

The Honorable David Vitter

QUESTION 64. **What training and oversight do NRC staff receive pertaining to the performance of regulatory analyses (cost-benefit analyses)?**

ANSWER.

The NRC imposes experience, skill, and education requirements on staff performing regulatory analyses consistent with the GAO series GG-0110 cost analyst/economist position descriptions. The NRC cost analysts are knowledgeable and experienced in topics relevant to cost-benefit analyses involving the nuclear power cycle and the direct and indirect economic impacts upon those segments of society affected by nuclear reactor technology, nuclear facility design, reactor systems, and engineering safety features. They are trained in economics and cost-benefit methodology and can apply this knowledge and techniques to a wide array of cost or benefit estimates including cost of delay, production cost differentials, financial costs, operation and maintenance costs, capital costs, radiological exposure cost, and socioeconomic and environmental impacts. All NRC cost analysts have (1) knowledge of nuclear reactor concepts, component designs, and fundamental operating characteristics of nuclear reactors; (2) basic knowledge of, or experience in reactor operations; and (3) basic knowledge of, or experience in, analysis of reactor safety systems.

NRC cost analysts have education that is comparable to undergraduate level training (i.e., Bachelor's Degree in Business Administration, Economics, Accounting, or Finance), plus experience in applying this knowledge to the public health and safety, environmental, and antitrust impacts of nuclear power plants and other nuclear facilities and licenses. Some NRC cost analysts also maintain certifications as Contract Officer Representatives, registered

Professional Engineers, and/or maintain active member status in professional societies (e.g., Society for Benefit-Cost Analysts).

Draft NRC cost-benefit analyses receive independent reviews before they are finalized by the staff or presented to the Commission for approval, by (1) other knowledgeable NRC cost analysts, (2) NRC technical staff who identified the safety issues that the rule is addressing, and (3) NRC project management staff who are responsible for coordinating implementation of the rule. Following these reviews, the draft cost-benefit analyses are reviewed by several NRC managers who are responsible for the technical, policy, and legal staff involved with the effort. Furthermore, draft versions of NRC regulatory analyses for rulemakings are released for public comment at the proposed rule stage. All comments received are addressed as part of the final rulemaking package.

The Honorable David Vitter

QUESTION 65. **What corrective actions have the NRC taken in response to these flawed regulatory analyses?**

ANSWER.

See discussion in response to Question 63.

The Honorable David Vitter

QUESTION 66. **Certainly you all subscribe to the principle, "Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition." And certainly you all agree that NRC actions must, "lend stability to the nuclear operational and planning processes."**

Do you agree?

ANSWER.

Yes, the NRC agrees that established regulations should be perceived to be reliable and not *unjustifiably* in a state of transition (emphasis added). The NRC also agrees that NRC actions must lend stability to the nuclear operational and planning processes. However, when events or circumstances reveal a potential lack of adequate protection of public health and safety, the NRC must take appropriate and *justified* regulatory action with full consideration of all relevant factors. These factors include the magnitude of the potential threat to public health and safety, societal costs and benefits, and regulatory stability and predictability for both public and nuclear industry stakeholders. Such actions, to the extent possible, will be designed to minimize adverse impacts on licensee operational and planning processes.

The Honorable David Vitter

QUESTION 67. **These are directly from your own Principles of Good Regulation, and if you disagree you either are disavowing these and/or should be telling us about a major activity to overhaul them and why.**

Please see the response to Question 66, above.

The Honorable David Vitter

QUESTION 68. **Does the Commission still hold that the risks associated with nuclear plants are sharply reduced when they have permanently shut-down?**

ANSWER.

While we believe that U.S. plants are safe and manage risks effectively during their operating lives, it is accurate that the overall risks associated with nuclear plants are reduced when they permanently shut down. During the first year after a nuclear power plant is permanently shut down, the licensee prepares the plant for safe decommissioning. The actions taken by the licensee include the modification of systems, shipment of radioactive waste, emptying of tanks, draining of systems, and electrical isolation of components. All nuclear fuel is removed from the reactor vessel and placed in the spent fuel pool. Therefore, for a permanently shut down nuclear power plant, the decay heat and radioactivity of the spent fuel significantly decreases during the first year. Also, the potential for a release of water containing radioactivity is significantly reduced and the potential for a reactor accident with large consequences is eliminated, thereby reducing the overall risk in comparison to an operating reactor.

In addition, consistent with agency procedures, the NRC typically maintains a resident inspector onsite during part of the first year after permanent shutdown. The resident inspector oversees the plant transition from operation to permanent shutdown, in order to verify that the licensee complies with its license, technical specifications, and procedures. As during plant operations, the resident inspection staff is supplemented with special inspection expertise as needed, which includes security, emergency response, health physics, environmental monitoring, and engineering. NRC inspections continue throughout decommissioning until the licensee

demonstrates that the site meets the license termination requirements. The level of decommissioning inspections will be commensurate with the licensee's planned decommissioning activities.

The Honorable David Vitter

QUESTION 69. **Have the permanently shut-down plants that have undergone decommissioning done so to the Commission's satisfaction?**

ANSWER.

Yes, all 11 NRC licensed nuclear power plants fully decommissioned to date have met the NRC's unrestricted release requirements for site release. Each has terminated its NRC operating reactor license and been able to release its reactor plant footprint for unrestricted use. Several of these sites retain their spent nuclear fuel in dry cask storage, and the storage facility remains under NRC licensing and oversight. The 11 plants that have completed decommissioning used the reactor decommissioning strategy of DECON (prompt or active dismantlement) or SAFSTOR (delayed dismantlement) followed by DECON.

Each of these nuclear power plants was decommissioned satisfactorily in accordance with the NRC's regulations. Experience gained from these decommissioning projects has been well documented by both the NRC and the nuclear industry. Lessons learned from past nuclear power reactor decommissioning projects have been captured in industry reports and in NRC guidance and regulations.

The Honorable David Vitter

QUESTION 70. **What policy change did the Commission debate in open forum that allowed the staff to consider changes to the process, like devoting NRC resources to establishing a Citizens Advisory Board, last week at a public meeting in California?**

ANSWER.

No policy changes have been made concerning a proposed request to make establishing a Citizens Advisory Boards (CABs) an NRC requirement. On September 26, 2013, the NRC held a public meeting to discuss the reactor decommissioning process near the San Onofre Nuclear Generating Station in Carlsbad, California. At the meeting, the NRC received a question from the Coalition to Decommission San Onofre (Coalition) regarding NRC willingness to recognize the Coalition and grant them official status to participate in the inspection process. A second question was raised to see if the public would have the opportunity as part of the decommissioning process to review and comment on significant decommissioning plans, including planned expenditures from the decommissioning fund. After due consideration, the NRC determined that the public participation sought in these requests would go beyond what is provided for in current NRC regulations and policy.

For the NRC to recognize the Coalition and grant them official status would be a policy change that would likely require the use of NRC resources, and depending on the specific roles involved in conferring official status, may require statutory amendments. However, as discussed in a follow up letter to the Coalition, dated November 25, 2013, the NRC does not officially recognize or endorse any special interest group, public or private organizations, coalitions, or individuals.

The NRC was created by the Congress to be an independent regulator charged with ensuring public health and safety and protecting the environment. As an independent regulator, the NRC ensures that all members of the public are given a fair and equal opportunity to comment on a licensee's Post-Shutdown Decommissioning Activities Report (PSDAR), decommissioning strategies, and License Termination Plan.

The NRC recognizes the need and desire for community involvement in the decommissioning of a nuclear power plant. Since decommissioning is a complex project, the NRC believes that the licensee should engage the local community about its decommissioning plans. For many years the NRC has recommended that licensees involved in decommissioning activities form a community committee to obtain local citizen views on the decommissioning process and spent fuel storage issues. It has been the NRC's experience that those licensees who actively engage the community are likely to make more informed decisions and achieve an outcome that is more likely to be mutually satisfactory to the licensee and the community.

As discussed at the September public meeting held in Carlsbad, NRC regulations offer the public opportunities to review and provide comments on licensee documents during the decommissioning process. Under these regulations, the NRC is required to publish a notice of the receipt of the licensee's PSDAR, make the PSDAR available for public comment, schedule a meeting in the vicinity of the location of the licensed facility to discuss the PSDAR within 60 days of receipt, and publish a notice of the meeting in the *Federal Register* and another forum readily accessible to individuals in the vicinity of the site. Another opportunity for public involvement is when the licensee's License Termination Plan is submitted for NRC approval.

The Honorable David Vitter

QUESTION 71. **What safety risk issues drive such a change?**

ANSWER.

At this time there are no plans for a policy change that would devote NRC resources to establishing Citizen Advisory Boards or Panels (CABs/CAPs). However, public involvement in the NRC's activities is a cornerstone of strong, fair regulation of the nuclear industry. Because the NRC recognizes the public's interest in the proper regulation of nuclear activities, the NRC provides opportunities for citizens to make their opinions known. The NRC seeks to elicit public involvement early in the regulatory process so that safety concerns that may affect a community can be resolved in a timely and practical manner. This process is considered vital to assuring the public that the NRC is making sound, balanced decisions about nuclear safety and security, as well as protection of the environment. Consistent with this policy, the NRC holds public meetings with interested stakeholders, such as non-governmental organizations and local and State government officials. This approach facilitates participation by a greater variety of stakeholders and allows members of the public to provide alternative and differing viewpoints and comments to the NRC.

In our role as an independent regulator, the NRC frequently attends CAB/CAP meetings to address concerns from the CAB/CAP members. The NRC has strongly encouraged licensees to form CABs/CAPs for their decommissioning efforts in order to enhance communications with the local communities and stakeholders.

The Honorable David Vitter

QUESTION 72. **Is the staff and the Commission promoting stability by introducing new concepts on the fly?**

ANSWER.

The concept of a Citizen Advisory Board or Panel (CAB/CAP) is not new nor is there an NRC requirement to establish one. Establishing such boards or panels has been recognized as a good practice by the nuclear power industry and is encouraged by the NRC. Experience gained from decommissioning projects has been well documented by both the nuclear industry and the NRC. In 2005, the Electric Power Research Institute (EPRI) published "Maine Yankee Decommissioning – Experience Report – Detailed Experience 1997 – 2004". In this lessons learned report, the industry recognized that engaging the local community and officially forming a CAB/CAP is a good practice. Specifically, the EPRI report states that "the Maine Yankee Community Advisory Panel (CAP) was established in 1997 to enhance opportunities for public involvement in the decommissioning process of Maine Yankee. The CAP represents the local community. By thoroughly reviewing the decommissioning process, the CAP was in a position to advise Maine Yankee on key issues of concern to the local community." Since the decommissioning of Maine Yankee, licensees have employed a CAB or CAP at many other sites, including Connecticut Yankee, Big Rock Point, and Millstone.

The Honorable David Vitter

QUESTION 73. **When did the Commission and staff consider and take public views on the concept of a "de Facto" license amendment?**

ANSWER.

The concept of a "'de facto' license amendment" arises from Federal court and Commission case law (rather than any specific Commission guidance or regulation), and is rooted in the question whether a challenged NRC authorization constitutes a license amendment, and therefore necessitates an associated hearing opportunity within the meaning of Section 189a of the Atomic Energy Act. Whether a particular agency action constitutes a "'de facto' license amendment" is a highly fact-specific question that arises in litigation; as such, the NRC has not sought public comments on the concept. The seminal Commission case on the topic is *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant), CLI-96-13, 44 NRC 315 (1996).

The Honorable David Vitter

QUESTION 74. **Where in the Commission's guidance is the term, "de Facto license amendment," located?**

ANSWER.

Please see the response to Question 73, above.

The Honorable David Vitter

QUESTION 75. **What imminent and urgent safety issue was present in this case that you to intervene with an Order?**

ANSWER.

None. The referenced decision, in this case involving the San Onofre Nuclear Generating Station, was issued in response to a petition to intervene and request for hearing, as well as a request for stay, filed by a third party, Friends of the Earth. In its Order, the Commission: (1) referred an asserted regulatory violation to the Executive Director for Operations for appropriate action; (2) referred a portion of the petition to the Atomic Safety and Licensing Board Panel (Panel) for consideration whether the Confirmatory Action Letter issued by the agency to the licensee "constitutes a *de facto* license amendment that would be subject to a hearing opportunity under [Atomic Energy Act] Section 189a, and, if so . . . whether the petition meets the standing and contention admissibility requirements of 10 C.F.R. § 2.309"; and (3) denied the petitioner's discretionary hearing and stay requests. This Order constituted a routine exercise of Commission adjudicatory decision-making. In particular, referral of the "adjudicatory" portion of the hearing petition to the Panel was consistent with past adjudications of this type. Licensing boards historically have resolved disputes about whether a Staff action constitutes a "de facto" license amendment within the meaning of Section 189a. These cases involve questions of fact, which are generally decided by the boards. *See, e.g., Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-89-28, 30 NRC 271, 275-78 (1989), *aff'd*, ALAB-940, 32 NRC 225 (1990).

The Honorable David Vitter

QUESTION 76. **When did the Commission meet, and develop internal guidance with public comment on when it would intervene in any future Confirmatory Action Letter?**

ANSWER.

The Commission has not met on this topic, nor has it developed guidance with respect to this issue. As discussed with respect to Questions 73 and 74, the question whether an NRC action (such as issuance of a Confirmatory Action letter) constitutes a "de facto" amendment to a license is decided on a case-by-case basis when it arises in the context of an adjudicatory challenge. Thus, the Commission exercised its routine adjudicatory duties when it addressed the Confirmatory Action Letter. There was no separate determination to intervene in the Confirmatory Action Letter.

The Honorable David Vitter

QUESTION 77. **Do you recognize at all the Commission's stated purposes of this CAL process were rendered meaningless in this case by the order you issued?**

ANSWER.

The vitality of the CAL was not affected by the Commission's November 2012 order. The NRC staff issued the CAL on March 27, 2012 to confirm the actions that the licensee, Southern California Edison Company, committed to take prior to returning SONGS Units 2 and 3 to power operation. On June 7, 2013, Edison informed the staff of its determination not to seek restart of Units 2 and 3. Following that notification, and after the licensee further notified the Staff that it had permanently defueled both units, thesStaff closed the CAL in August 2013. Until its closure, the CAL remained in effect, irrespective of—and independent of—the ongoing adjudication. In view of Edison's decision to shutter the plant, no party pursued appeals in the adjudication; instead, the NRC staff sought vacatur of the Licensing Board's decision in the case, LBP-13-7. Consistent with prior practice, the Commission subsequently vacated this Board decision without giving any opinion on its validity.

The Honorable David Vitter

QUESTION 78. **Do you recognize that by choosing to insert itself into this process, the Commission negated the regulatory stability of the CAL process by taking an "ad hoc" action in this case?**

ANSWER.

In its decision of May 13, 2013, the Licensing Board in the SONGS matter concluded that, in this instance, the "CAL process" constituted a "de facto" license amendment proceeding that is subject to a hearing opportunity. On the day appeals of LBP-13-7 were due to be filed with the Commission, the licensee informed the NRC staff of its determination to retire SONGS Units 2 and 3. The NRC staff thereafter sought to vacate the Board's decision in view of the licensee's decision to permanently retire the units. The issues decided by the Board in this case were mooted by the shutdown decision, leaving no live controversy between the litigants. Although an unreviewed licensing board decision has no precedential effect, the Commission vacated the Board decision in a December 2013 decision, which has the effect of rendering the decision legally void. By vacating the Board decision, the Commission removed the potential instability that might have been caused by an unreviewed Board decision.

The Honorable David Vitter

QUESTION 79. **What does a Notice of Nonconformance against a vendor mean, and what was the NRC's finding in this case?**

ANSWER.

The NRC Enforcement Policy (revised July 9, 2013) supports the NRC's mission to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment. Adequate protection is presumptively assured by compliance with NRC requirements. Compliance with NRC requirements, including regulations, technical specifications, license conditions, and Orders, provides reasonable assurance to the NRC and the public that safety and security are being maintained. The application of the Policy ensures that associated enforcement actions properly reflect the safety or security significance of such violations.

The Enforcement Policy applies to all NRC licensees and applicants, to various categories of non-licensees, and to individual employees of licensed and non-licensed entities involved in NRC-regulated activities. These include, but are not limited to, the vendors supplying safety-related components to NRC licensees.

Within the NRC Enforcement Policy, the Notice of Nonconformance is defined as follows:

> Notice of Nonconformance (NON) is a written notice describing the failure of a licensee's contractor to meet commitments that have not been made legally binding requirements by the NRC (e.g., a commitment made in a procurement contract with a licensee or applicant as required by 10 CFR Part 50, Appendix B). (If the contractor deliberately fails to meet the terms of a procurement contract, the NRC may issue a violation under

the Deliberate Misconduct Rule in 10 CFR 50.5.) NONs request that non-licensees provide written explanations or statements describing corrective steps (taken or planned), the results achieved, the dates when corrective actions will be completed, and measures taken to preclude recurrence.

A nonconformance was issued in the September 20, 2013, inspection report of Mitsubishi Heavy Industries, Ltd (MHI). Based on the results of a NRC inspection of MHI conducted at the Mitsubishi Nuclear Energy Systems offices in Arlington, Virginia, from August 5 through August 9, 2013, the NRC determined that certain activities were not conducted in accordance with NRC requirements in Appendix B to Title 10 of the Code of Federal Regulations (10 CFR) Part 50 that were contractually imposed upon MHI by its customers.

Criterion III of Appendix B to 10 CFR Part 50 states, in part, that, "measures shall be established to assure that applicable regulatory requirements and the design basis...are correctly translated into specifications, drawings, procedures, and instructions." It also states, in part, that, "measures shall be established for the identification and control of design interfaces and for coordination among participating design organizations. These measures shall include the establishment of procedures among participating design organizations for the review, approval, release, distribution, and revision of documents involving design interfaces."

Contrary to the Appendix B criteria described above, during the design of replacement steam generators for Southern California Edison from approximately 2004 to 2008, MHI did not establish measures for control of design interfaces between the MHI Steam Generator Design Section and the MHI Takasago Research and Development Center related to the thermal

hydraulic and vibration analyses used for aspects of the San Onofre Nuclear Generating Station, Unit 2 and Unit 3 replacement steam generator design. Specifically, the output of the FIT-III thermal-hydraulic code and input to the flow induced vibration analysis software (FIVATS) vibration code were not verified to be in accordance with MHI design requirements. MHI failed to convert the wide gap flow velocity output results from the FIT-III analysis to narrow gap flow velocities needed as input for the FIVATS vibration analysis code. The details are described in the NRC inspection report of MHI.

The Honorable David Vitter

QUESTION 80. **Was un-redacted information provided to the NRC from MHI, the problem vendor, important to your investigation that found that MHI's computer modeling was faulty?**

ANSWER.

As part of the NRC inspection of Mitsubishi Heavy Industries, Ltd (MHI) conducted at the Mitsubishi Nuclear Energy Systems offices in Arlington, Virginia from August 5 through August 9, 2013, the information important to the inspection and related processes was made available to the inspection team. The MHI documentation provided for NRC review was not redacted. MHI also made available key employees from Japan to answer questions posed from the NRC staff. The inspection team was able to discuss certain activities related to the MHI root cause analysis and corrective actions to have reasonable assurance that those quality assurance activities were conducted in accordance with NRC requirements contractually imposed upon MHI by its customers.

The Honorable David Vitter

QUESTION 81. **Has the NRC conducted an inventory of the work MHI has performed within the US fleet?**

ANSWER.

The NRC reviewed MHI activities related to projects and equipment supplied to U.S. Nuclear Power Plants. MHI components supplied to US plants included the following:

Plant	Equipment	Delivery
Surry - 1	Reactor vessel head (RVH)	2003
North Anna	Control rod drive mechanism (CRDM)	2004
Kewaunee	RVH, CRDM	2004
Point Beach - 1	RVH, CRDM	2005
Point Beach - 2	RVH, CRDM	2005
Farley - 1	RVH, CRDM	2004
Farley - 2	RVH, CRDM	2005
Millstone - 2	RVH	2005
Fort Calhoun	Replacement steam generator (RSG)	2006
Fort Calhoun	RVH	2006
Fort Calhoun	Replacement pressurizer (RPZ)	2006
HB Robinson - 2	RVH, CRDM	2005

Plant	Equipment	Delivery
Prairie Island - 1	RVH, CRDM	2006
Prairie Island - 2	RVH, CRDM	2005
South Texas - 1	RVH, CRDM	2009
South Texas - 2	RVH, CRDM	2010
San Onofre - 2	RSG, RVH	2008
San Onofre - 3	RSG, RVH	2010
Potential new plant construction: Comanche Peak - 3, 4	United States Advanced Pressurized-Water Reactor (US-APWR)	MHI Design Control Document Original Submittal: 12/31/2007

As noted in response to Question 80, the NRC vendor inspection of Mitsubishi Heavy Industries, Ltd (MHI) (in August 2013) determined that sufficient corrective action was taken by MHI to preclude the design interface control issues from being introduced into future U.S. design and fabrication activities. The final vendor inspection report contained one notice of nonconformance related to inadequate design interface control between different design sections within the MHI organization.

The Honorable David Vitter

QUESTION 82. **Has the NRC reviewed MHI's role in other projects, whether it is steam generator components or another role they may have played at other plants? If not, when will you be conducting that review?**

ANSWER.

In accordance with the requirements for the reporting of defects mandated by 10 CFR Part 21, MHI issued a Part 21 report dated October 5, 2012, indicating that Fort Calhoun Nuclear Generating Station was the only other US licensee that had similar replacement steam generators (RSGs) that could be susceptible to tube wear. In this report, MHI concluded that due to a higher natural frequency, Fort Calhoun is not affected by wear in steam generator tubes. The Fort Calhoun RSGs have operated for more than three fuel cycles with no evidence of U-bend tube degradation. Other steam generators designed by MHI (operating internationally) are of a different design and have a variety of tube sizes, tube pitches, and operating conditions. These steam generators have experienced power operation without significant tube wear.

The Honorable David Vitter

QUESTION 83. **Has the NRC issued any alerts to other plants regarding MHI's problematic computer modeling?**

ANSWER.

The NRC provides specific reporting requirements to any licensee, applicant, contractor, or subcontractor that relate to a licensee's or applicant's activities through 10 CFR 21 "Reporting of Defects and Noncompliance," 10 CFR 50.72 "Immediate notification requirements for operating nuclear power reactors" and 10 CFR 50.73 "Licensee event report system." Additionally, NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," contains guidelines that the NRC staff considers acceptable for use in meeting the requirements of 10 CFR 50.72 and 50.73. The associated reports are issued via the NRC website which provides a platform for maximum communication of events, reports associated with Power Reactor status, Event Notifications, Part 21 reports, Preliminary Notification Reports and Licensee Event Reports.

The regulations under 10 CFR Part 21, "Reporting of Defects and Noncompliance," in part, implement Section 206 of the Energy Reorganization Act and specify the conditions under which information must be submitted when a licensed facility, activity, or basic component fails to comply with the Atomic Energy Act of 1954, as amended, or NRC regulations. Specifically, Part 21 provides (a) that the facility, activity or basic component supplied to such facility or activity fails to comply with the Atomic Energy Act of 1954, as amended, or any applicable rule, regulation, order, or license of the Commission relating to substantial safety hazards, or (b) that the facility, activity, or basic component supplied to such facility or activity contains defects, which could create a substantial safety hazard, to immediately notify the Commission of such

failure to comply or such defect, unless he has actual knowledge that the Commission has been adequately informed of such defect or failure to comply.

Part 21 reports associated with Mitsubishi Nuclear Energy System specific to Steam Generator Tubes at San Onofre Nuclear Generating Station were reported as follows:

Log No	Notifier	Description	Report Date	Event No./ Accession No.
2012-18-03	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Wear Adjacent to Retainer Bars (San Onofre 3)	10/05/2012	ML12283A243
2012-18-02	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Wear Adjacent to Retainer Bars (San Onofre 3)	09/07/2012	ML12255A054
2012-18-01	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Wear Adjacent to Retainer Bars (San Onofre 3)	06/04/2012	ML12157A311
2012-18-00	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Leak During First Cycle After Steam Generator Replacement (San Onofre 3)	04/19/2012	ML121210672

Each of these reports was posted on the NRC website. In addition to these reporting requirements, the NRC also performs reactive inspections to follow up on significant industry events. Management Directive 8.3, "NRC Incident Investigation Program," discusses the process for performing reactive inspections. The NRC takes into account both deterministic and quantitative (risk) criteria when deciding whether to perform a reactive inspection, and what level of inspection is warranted by an event. In the case of San Onofre, the NRC sent an Augmented Inspection Team to the site to follow-up on the steam generator issue. The team report from July 18, 2012 makes several references to the steam generator modeling process used at San Onofre. The report is publicly available.

The Honorable David Vitter

QUESTION 84. **Does the NRC routinely disseminate information on problem vendors like MHI to the nuclear industry?**

ANSWER.

The NRC publishes vendor inspection reports on the public NRC website and provides more than 30 vendor inspection reports per year. Additionally, in order to disseminate information on vendor performance, the NRC issues generic communications (e.g., Information Notices) or makes direct contact with licensees when warranted.

In general, vendor inspection reports communicate and evaluate aspects of the vendor's regulatory compliance with the provisions of Title 10 of the Code of Federal Regulations (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." These issues are documented in findings written in vendor inspection reports available on the NRC public website.

The Honorable David Vitter

QUESTION 85. **In this or any other case where there is problem vendor like MHI, what is the NRC's responsibility in protecting other licensees and the customers they serve?**

ANSWER.

The NRC is statutorily mandated under Section 103 of the Atomic Energy Act of 1954, as amended, to issue licenses only to persons "who are equipped to observe and who agree to observe such safety standards to protect health and to minimize danger to life or property as the Commission may, by rule, establish; and who agree to make available to the Commission such technical information and data concerning activities under such licenses as the Commission may determine necessary to promote the common defense and security and to protect the health and safety of the public." Additionally, Section 206 of the Energy Reorganization Act of 1974 includes requirements for reporting of defects. This section requires those owning, operating, or supplying the components of any facility licensed under the Atomic Energy Act to notify the NRC if they obtain information that any facility or component does not comply with the Atomic Energy Act or the NRC's regulations relating to a substantial safety hazard or if a component or has a defect that could create a substantial safety hazard. As noted in the previous answer, the NRC has numerous methods it uses to disseminate this information to licensees.

When warranted, the NRC communicates information to a wide stakeholder base through a combination of generic communications (see table below), regulatory requirements, licensing,

safety oversight including inspection, assessment of performance and enforcement, operational experience evaluation, and regulatory support activities.

Generic Communication	Description
Bulletins	(1) Request licensee actions and/or information to address significant issues regarding matters of safety, security, safeguards, or environmental significance that have great urgency, and (2) require a written response.
Generic Letters	(1) Request licensee actions and/or information to address issues regarding emergent or routine matters of safety, security, safeguards, or environmental significance, and (2) require a written response.
Information Notices	Communicate operating or analytical experience to the nuclear industry. Information notices may also communicate the results of recently completed research. The industry is expected to review the information for applicability and consider appropriate actions to avoid similar problems.

Regulatory Issue Summaries	(1) Communicate and clarify NRC technical or policy positions on regulatory matters that have not been communicated to or are not broadly understood by the nuclear industry, (2) inform the nuclear industry of opportunities for regulatory relief, (3) communicate previous NRC endorsement of industry guidance on technical or regulatory matters, (4) provide guidance to applicants and licensees on the scope and detail of information that should be provided in licensing applications to facilitate NRC review, and (5) request the voluntary participation of the nuclear industry in NRC-sponsored pilot programs or the voluntary submittal of information which will assist the NRC in the performance of its functions.

The Honorable Jeff Sessions

QUESTION 1. **Status of nuclear power:**

a. Please describe the factors that, in your view, may be contributing to a decline in nuclear power as a share of overall U.S. electricity generation.

b. Please describe the factors that, in your view, may have contributed to the shutdown of nuclear units announced since 2012.

ANSWER.

a) The NRC is a safety regulator, and, as such, does not analyze the factors that may be contributing to a decline in nuclear power as a share of overall U.S electricity generation. The NRC's mission is to ensure the safety of nuclear power plants, independent of the share of electricity generation that nuclear power contributes. Through interactions with other agencies and the industry, however, the NRC is aware of several factors that may be affecting the share of nuclear power generated in the U.S., including the price of other forms of energy, decreased demands, regional differences in the economics of power generation, and the costs associated with building a new nuclear power plant.

b) The reasons for shutdowns since 2012 that have been provided by NRC licensees in official notifications of cessation of operation have included the cost of repairs, the economics of power generation in the region of one plant, and uncertainty of the future of one plant, based on regulatory hurdles and political opposition.

The Honorable Jeff Sessions

QUESTION 2. **There are concerns about the potential for erosion of the Commission's longstanding regulations and policies pertaining to the Backfit Rule.**

a. Please describe your understanding of the Backfit Rule.

ANSWER.

The NRC's Backfit Rule (10 CFR 50.109) for nuclear power plants ensures that the NRC goes through a structured process whenever it seeks to impose new or changed requirements on nuclear power plant licensees. In general, if the NRC seeks to impose a new or changed requirement (the backfit) on the design, construction, organization or procedures governing the operation of a nuclear power plant, then the NRC must show the backfit constitutes a substantial increase in public health and safety or common defense and security, and that the substantial increase is justified by the cost of the backfit. There are three exceptions to this general requirement: (i) the backfit is needed to comply with an NRC requirement in effect at the time of the NRC's licensing approval of the facility, (ii) the backfit is needed to ensure adequate protection to public health and safety; and (iii) the backfit is needed to re-define the level of protection that is considered to be adequate. The NRC backfit analyses, which include cost-benefit analyses, are consistent with OMB guidance and in accordance with Executive Order 13563, "Improving Regulation and Regulatory Reviews," which states that to the extent permitted by law, each agency shall "propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs."

NRC regulations analogous to the Backfit Rule apply to new nuclear power plants such as the *Vogtle* and *Summer* reactors in Georgia and South Carolina, and new power plant designs

approved in design certification rules. The NRC refers to these backfit-like regulations as the "issue finality provisions" of 10 CFR Part 52.

b. Under what circumstances, if any, has the NRC 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?

c. Would you agree that allowing a qualitative analysis to override a quantitative analysis, which found that a proposed rule's costs outweighed its benefits, would undermine the regulatory reliability provided by the Backfit Rule?

ANSWER.

The Commission has long held the position that qualitative factors may be considered in backfit analyses. This is consistent with the NRC's current guidance on cost-benefit and regulatory analysis regarding consideration of both quantitative and qualitative costs and benefits. The NRC's position on consideration of quantitative and qualitative costs and benefits is consistent with the Federal government's guidance on cost-benefit analyses, including previous executive orders and Office of Management and Budget (OMB) guidance. Thus, an NRC determination that the addition of qualitative benefits to quantitative benefits tips the overall cost-benefit analysis in favor of adoption of a final rule that is not justified on the basis of quantitative benefits alone, does not undermine the regulatory stability and predictability policies underlying the Backfit Rule.

The monetary costs of implementing regulations that necessitate facility changes at nuclear power plants are easier to quantify than are the benefits of the regulation. Cost estimating is a

well-understood activity and is one of the first steps taken when undertaking any planned facility change. Benefits, however, are usually quantified in terms of averted dose to the public because the required facility changes reduce the likelihood of a future accident. But there are many other types of potential benefits from safety regulations at nuclear power plants that are not easily quantified. Examples of such potential benefits in backfit analyses are:

- improvements to NRC's regulatory efficiency
- improvements to knowledge resulting from reduction of technical uncertainty on a matter of public health and safety or common defense and security
- increased public confidence in the safety of nuclear power

The NRC has compiled the attached list (Table 1) of power reactor regulatory actions (rulemakings, regulatory guides, generic letters, etc.) taken in the last 16 years in which the consideration of qualitative factors as benefits justified a decision that may not have been cost-justified by quantifiable factors alone. Note that of the 15 examples listed -- eight were not backfits (as defined by the Backfit rule). Of the seven examples that were backfits, five cases required the performance of a formal backfit analysis while the remaining two examples did not require a formal backfit analysis because they were actions taken to ensure adequate protection of the public health and safety.

d. Chairman Macfarlane, in your April 16, 2013 letter on this topic, you stated that "[the Commission] has followed its processes for ensuring that a sufficient basis exists for imposing regulatory requirements." Please explain the "processes" that led the NRC Staff to override the quantitative analysis with qualitative factors relative to filtered vents, and the basis for your affirmative vote on the staff's recommendation.

ANSWER.

Since 1993, the NRC staff has performed backfit analyses in accordance with Commission direction that qualitative factors may be considered in determining whether there is a "substantial increase in safety." The directive states:

> A majority of the Commission (with the Chairman and Commissioners Rogers, Remick, and de Planque agreeing) continues to believe that these words embody a sound approach to the "substantial increase" criterion and that this approach is flexible enough to allow for qualitative arguments that a given proposed rule would substantially increase safety. The approach is also flexible enough to allow for arguments that consistency with national and international standards, or the incorporation of widespread industry practices, contributes either directly or indirectly to a substantial increase in safety. Such arguments concerning consistency with other standards, or incorporation of industry practices, would have to rest on the particulars of a given proposed rule. The Commission also believes that this approach to "substantial increase" is consistent with the agency's policy of encouraging voluntary industry initiatives.

This Commission guidance has been reflected in the current NRC guidelines on cost-benefit analyses, which permit the use of qualitative factors for estimation of both costs and benefits.

The evaluation of regulatory requirements related to venting the containments of boiling water reactors (BWRs) with Mark I and Mark II containment designs was performed in accordance with the above Commission guidance. The NRC first issued an order in March 2012, requiring licensees with BWR Mark I and Mark II containments to upgrade existing systems or install new

venting systems to help prevent core damage and prevent containment failures from overpressure conditions. When issuing the order, the Commission determined that this requirement was needed to provide reasonable assurance of adequate protection of public health and safety, and therefore the requirement was imposed without a backfit analysis or consideration of costs. The Commission then directed the NRC staff to address questions regarding further possible enhancements to venting capabilities, including the potential installation of engineered filters similar to those installed or being installed at nuclear reactors in most other countries. In "Consideration of Additional Requirements for Containment Venting Systems for Boiling Water Reactors with Mark I and Mark II Containments" (SECY-12-0157, November 26, 2012), the NRC staff identified various options and recommendations and included a cost/benefit assessment of the options, using both quantitative and qualitative factors. The NRC staff clearly identified the results of the quantitative analysis and acknowledged that their recommendation to the Commission was primarily supported by the qualitative factors. The Commission's deliberations regarding the merits of the various options considered the qualitative factors identified in the paper as well as the results of the quantitative assessment.

The nature of qualitative arguments is that they involve a degree of subjective judgment, which in turn brings in the experience and perspective of the individual decision makers. In this case, each individual Commissioner considered the information and recommendations provided by the NRC staff and cast their vote on the appropriate short term actions related to containment vents as well as what additional studies should be pursued. While I felt the qualitative factors, together with the quantitative analysis, provided a compelling technical case for immediate action and voted to require the installation of engineered filters, I understand the ultimate decision by the Commission to require that the venting systems be at least able to remain functional during more severe reactor accidents and to direct the NRC staff to assess for a

larger suite of filtering strategies for BWR Mark I and Mark II containments using the NRC's rulemaking process.

e. Is it correct that, for a "sufficient basis" for imposing regulatory requirements to exist, the requirements must be necessary for adequate protection of public health and safety <u>or</u> must be justified by a cost-benefit analysis as required by the Backfit Rule?

<u>ANSWER.</u>

Yes, requirements constituting backfits on currently-licensed nuclear power plants may be imposed if the NRC finds that the requirements are either needed for adequate protection of public health and safety or common defense and security, or represent a cost-justified substantial increase in public health and safety or common defense and security.

However, the NRC also has the authority to impose backfits on currently-licensed nuclear power plants on other grounds. For example, the Backfit Rule permits backfits to be imposed if they are intended to bring a plant into compliance with NRC requirements in effect at the time of the NRC approval of the matter being addressed by the backfit (usually at initial issuance of the operating license, or at renewal of the operating license).

The NRC also notes that, for regulatory requirements that are "forward fit" on future plants, the "cost-justified substantial increase" standard of the Backfit Rule does not apply. For forward fits, the NRC need only find that the new regulatory requirements are cost-beneficial as determined in the regulatory analysis.

TABLE 1 – LIST OF POWER REACTOR REGULATORY ACTIONS WHERE QUALITATIVE FACTORS JUSTIFIED A DECISION THAT MAY NOT HAVE BEEN QUANTITATIVELY COST-JUSTIFIED

Rule	Federal Register Citation	Backfit Determination	Quantitative Justification[1,2,3] (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Requirements for Maintenance of Inspections, Tests, Analyses, and Acceptance Criteria *(10 CFR 52.99)*	77 FR 51880 (August 28, 2012)	Not a Backfit	($2.16) to ($1.98)	Regulatory efficiency; improvements in knowledge; general public	77 FR at 51890-91 *(summarizing regulatory analysis)* ML120100062 *(full regulatory analysis)*
Enhancements to Emergency Preparedness *(10 CFR 50.47)*	76 FR 72560 (November 23, 2011)	Not a backfit (portion); Cost-justified substantial safety enhancement (portion)	($75.9) to ($59.8)	Increased and consistent EP measures will decrease risk of exposure to public; increase accident mitigation if beyond operator actions;	ML112971541 *(backfit analysis and regulatory analysis)*
Enhanced Weapons, Firearms, Background Checks, and Security Event Notifications *(10 CFR Part 73)*	76 FR 6200 (February 3, 2011)	Not a backfit (portion); Adequate Protection (portion)	($70.2) to ($47.4)	Provide safety and security-related benefits that would offset the cost; enhanced regulatory efficiency; increased defense capabilities	76 FR at 6231 *(backfit analysis)* 76 FR at 6226 – 6231 *(summarizing regulatory analysis)* ML061380803; ML061440013 *(appendices from October 2006 proposed rule)*
Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock *(10 CFR 50.61)*	75 FR 13 (January 4, 2010)	Not a backfit	($57.3) to ($49.7)	Regulatory efficiency; Improvements in knowledge	ML092710544 *(regulatory analysis)*

[1] The range of net benefits result from using 3% and 7% net present values to be consistent with NUREG/BR-0058.
[2] Unless started otherwise, benefits were not quantified within the quantitative justification.
[3] The sign convention is favorable consequences are positive; adverse consequences are negative.

Rule	Federal Register Citation	Backfit Determination	Quantitative Justification[1,2,3] (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses *(10 CFR Part 51)* *(proposed rule)*	74 FR 38117 (July 31, 2009)	Not a backfit	($2.64) to ($2.29)	Improvements in knowledge; regulatory efficiency	ML083460087 *(regulatory analysis)* *NOTE: RA for final affirmed rule is ML110760321*
Aircraft Impact Assessment Rule *(10 CFR 50.150)*	74 FR 28112 (June 12, 2009)	Not a backfit (portion); Administrative Exemption (portion)	($6.0) to ($4.9)	Reduces risk to public and occupational health and offsite and onsite property; improvements in knowledge; safeguards and security considerations	*c.f.* 74 FR at 28144-28145 *(backfit analysis)* 74 FR at 28142 *(regulatory analysis)*
Power Reactor Security Requirements *(10 CFR Part 73 and 10 CFR 50.54)*	74 FR 13926 (March 27, 2009)	Not a backfit (portion); Cost-justified substantial safety enhancement (portion)	($857.3) to ($590.2)	Safeguards and security; regulatory efficiency; reduces risk to public and occupational health and offsite and onsite property	ML083390372 *(backfit analysis and regulatory analysis)* ML081680090 *(appendices)*
Fitness for Duty Programs *(10 CFR Part 26)*	73 FR 16966 (March 31, 2008)	Cost-justified substantial safety enhancement	($694) to ($445)	Reduced risk to public and occupational health and offsite and onsite property; regulatory efficiency; public perception; workplace productivity and efficiency	73 FR at 17172 *(portion of backfit analysis)* ML080580135 *(backfit analysis and regulatory analysis)*
Licenses, Certifications and Approvals for Nuclear Power Plants *(10 CFR Part 52)*	72 FR 49352 (August 28, 2007)	Not a backfit	($19.3) to $10.2 *benefits quantified*	Regulatory efficiency	ML071490350 *(regulatory analysis)*

Rule	Federal Register Citation	Backfit Determination	Quantitative Justification[1,2,3] (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Safeguards Information Protection Requirements *(10 CFR Part 73)*	73 FR 63546 (October 24, 2008)	Not a Backfit (portion); Adequate Protection (portion)	($18.8) to ($15.8)	Positive effect on public and occupational health; increased protection of onsite and offsite property; increased protection of common defense and security of the nation	ML072190656 *(regulatory analysis)*

Regulatory Action	Citation	Backfit Determination	Quantitative Justification (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Severe Accident Capable Reliable Hardened Containment Vents *Order EA-13-109*	ML13143A321	Cost-justified substantial safety enhancement	($938) to ($2,027) *benefits quantified*	Providing defense in depth; addressing significant uncertainties; supporting severe accident management and response; improving hydrogen control; addressing external events; addressing multi-unit events; considering independence of barriers improving emergency planning; considering consistency between reactor technologies; considering severe accident policy statement; addressing international experience and practices	SECY-12-0157 ML12326A675
Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations *Generic Letter 2006-XX (issuance of Generic Letter denied by Commission)*	ML061950031 *(SECY)* ML063490261 *(Commission Denial)*	Not a backfit	($52.8) to ($67.4) *benefits quantified*	Improvements in knowledge; regulatory efficiency	ML061950031

Regulatory Action	Citation	Backfit Determination	Quantitative Justification (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors *Generic Letter 2004-02*	ML042360586	Compliance	Four scenarios provided where some had negative benefits and some had positive *benefits quantified*	Regulatory efficiency; improve understanding of ECCS and CSS recirculation at PWR facilities; improve public health and safety; increase public confidence	ML042260449
Training and Qualification of Security Personnel at Nuclear Power Reactor Facilities *Regulatory Guide 5.75*	ML091690037	Not a backfit (portion); Cost-justified substantial safety enhancement (portion)	($857.3) to ($590.2)	Safeguards and security; regulatory efficiency; reduces risk to public and occupational health and offsite and onsite property	76 FR 13968 (March 27, 2009) *Relied on Power Reactor Security Rule regulatory analysis*
Guidance for the Assessment of Beyond-Design-Basis Aircraft Impacts *Regulatory Guide 1.217*	ML092900004	Not a backfit	($6.0) to ($4.9)	Reduces risk to public and occupational health and offsite and onsite property; improvements in knowledge; safeguards and security considerations	ML112101610 *(referencing 10 CFR 50.150)* 74 FR 28112, 28136 (June 12, 2009) *Relied on Aircraft Impact Assessment Rule regulatory analysis*

THE HONORABLE JEFF SESSIONS

QUESTION 3. **At our hearing, questions were raised about votes by the Commission related to a "two-person" provision in the context of material control and accounting regulations. My understanding is that the Commission directed the staff to engage in a backfit analysis. Please describe your understanding of this issue and your vote. Also, please describe the steps that the Commission directed the NRC staff to take in this regard.**

ANSWER.

I want to assure the Senator that, for over 30 years, NRC's physical security regulations have contained, and licensees have been implementing, a two-person provision for access to Category I quantities of special nuclear material. In addition, the regulations have "checks and balances" to control the rate of human errors associated with material control and accounting (MC&A) for these quantities of special nuclear material.

NRC regulations place special nuclear material into one of three categories, based on its type (plutonium or uranium) and quantity. Category 1 special nuclear material would consist of either plutonium or uranium-233 greater than 2 kilograms, or highly enriched uranium (>20% isotope uranium-235) greater than 5 kilograms. This is the category of special nuclear material considered of greatest risk to theft and diversion; consequently, it has the most stringent security and MC&A requirements.

On November 6, 2012, the NRC staff transmitted to the Commission for review a *Federal Register* notice, proposing revisions to the MC&A regulations governing NRC fuel cycle

licensees. One aspect of this proposed rulemaking was to expand the two-person provision to certain additional activities involving special nuclear material.

In accordance with the standard rulemaking process, the staff concurrently developed a draft regulatory analysis. The staff's draft analysis included estimates of the costs to both industry and the NRC from broadening this requirement, assuming the rulemaking was approved and the proposed measures were implemented. When considering such changes, the staff is also obligated under current NRC regulations either to conduct a "backfit" analysis or to demonstrate that one or more exceptions to the backfit rule apply.

As previously stated, a two-person requirement for access to Category I quantities of special nuclear material has been in NRC regulations for decades. A decision whether to extend this requirement to access to lesser-risk materials has cost implications for both the licensee and the NRC. The Commission generally requires that the public be invited to comment on whether adding such new requirements would provide a substantial enough increase in public health and safety or common defense and security to warrant the cost of the backfit. In this case the Commission was unanimous in its conclusion that the requisite backfit analysis had not been conducted. Consequently, the Commission directed the staff to "conduct a backfit analysis on the proposed two-person rule provision and include the results in the rulemaking package."

However, there were many aspects of the revision of the MC&A regulations that were, relatively easily implemented, and anticipated to make licensees' MC&A programs more efficient and effective in protecting special nuclear material. Because addressing the backfit issues would have further delayed issuance of these proposed changes to the regulations on MC&A, which had been in development for several years, the Commission was unanimous in its decision to

provide the staff an alternate path of removing the two-person provision from this particular rulemaking package and considering the issue in a future rulemaking effort.

The staff chose the alternate path. As a result, the *Federal Register* notice for this proposed rule, published Friday, November 8, 2013, states that "[i]n a future rulemaking, the NRC will consider a two-person rule to verify the accuracy of MC&A information within a fuel cycle facility. Interested stakeholders will then have the opportunity to comment regarding a two-person rule." *10 CFR Parts 40, 70, 72, 74, and 150: Amendments to Material Control and Accounting Regulations*, 78 Fed. Reg. 67224, 67226 (Friday, November 8, 2013).

The Honorable Jeff Sessions

QUESTION 4. **In your written testimony for the cancelled hearing in November before our committee, you stated that, as a result of the lapse in appropriations in October 2013, the NRC experienced at least $10 million in "lost productivity." Please describe how the $10 million figure was calculated.**

ANSWER:

During the lapse in appropriations, the NRC maintained full operations from October 1 through October 8th through the use of carryover funds. The $10 million estimate for lost productivity is a conservative estimate of the salaries and benefits for the NRC staff during the four business days from October 10-16 when the NRC was shut down and essentially all ongoing agency work was stopped. Additionally, the NRC was exclusively engaged in shutdown and start up activities for approximately ½ day on October 9 and October 17. The NRC daily salaries and benefits expenses for this five day equivalent were approximately $2.2 million per day.

The Honorable Jeff Sessions

QUESTION 5. **When do you expect the NRC to complete the Safety Evaluation Reports for the Yucca repository? Will the NRC request additional appropriations or funding from Congress to ensure completion of the Yucca process? How will such a decision be made?**

ANSWER.

The NRC staff has estimated that, with no unforeseen technical or process issues, the Safety Evaluation Report can be completed no later than January 2015. As the D.C. Circuit Court of Appeals mandamus order does not include a requirement for the Commission to request additional funds, the Commission's focus has been on how to spend the available funds as ordered by the court. Any future decision to seek additional funding would be made by the Commission as a collegial body.

The Honorable Jeff Sessions

QUESTION 6. **In your opinion, is the Nuclear Regulatory Commission currently functioning in an independent, impartial, collegial, and professional manner, and in accordance with the obligations of the Commission under law?**

ANSWER.

Yes, I believe the Commission is functioning in an independent, impartial, collegial, and professional manner and in accordance with the Commission's legal obligations.

The Honorable John Boozman

QUESTION 1. **Last year, I joined members of the Senate Subcommittee on Clean Air and Nuclear Safety, in urging you to "comply expeditiously with the writ of mandamus issued by the U.S. Court of Appeals for the D.C. Circuit in the case styled *In re Aiken County,* No. 11-1271." As acknowledged in a letter from NRC's Chief Financial Officer, the D.C. Circuit has "directed the Nuclear Regulatory Commission to *promptly* continue with the licensing process" associated with Yucca Mountain. The court found that NRC was "simply defying a law enacted by Congress, and doing so without any legal basis. " Please provide a detailed explanation of the Commission's plan and schedule to comply with the ruling of the D.C. Circuit, including a thorough explanation of the NRC's plan to complete individual Safety Evaluation Reports (SERs) for the Yucca Mountain license application.**

ANSWER.

On November 18, 2013, the Commission approved a Memorandum and Order, which set a course of action for the Yucca Mountain licensing process that is consistent with the Appeals Court decision and with the resources available. The Commission directed the staff to complete and issue the Safety Evaluation Report (SER) associated with the construction authorization application. Each volume of the SER will be issued upon its completion. The Commission directed the staff to provide monthly progress reports to the Commission on the status of the activities the Memorandum and Order directed the staff to take. NRC staff has estimated that the SER can be completed no later than January 2015, assuming no unforeseen technical or

process issues. The Commission has been providing Congress with monthly reports on its progress since October 2013; and the December 2013 report included the staff's project plan. [4]

[4] Commissioner Apostolaskis did not participate in the Memorandum and Order and direction to staff that the Commission issued on November 18, 2013. He also has not participated in deliberations on the monthly reports describing such direction and the status of the activities the Commission directed the staff to take.

The Honorable John Boozman

QUESTION 2. **Chairman Macfarlane, has the Commission indicated the need for FY2015 funding for Yucca Mountain license review to the White House or the Office of Management and Budget – yes or no? If not, why not? If so, what was the response?**

ANSWER.

The Commission considered the matter and a majority of the Commission chose not to seek FY 2015 funding for Yucca Mountain. The agency's legal assessment has determined that NRC is not obligated under either the mandamus decision issued by the United States Court of Appeals for the District of Columbia Circuit or the Nuclear Waste Policy Act to seek such funding. Therefore, the agency's efforts to date have focused on developing and executing the agency's plan to comply with the writ of mandamus.

The Honorable John Boozman

QUESTION 3. **Chairman Macfarlane, last August you received a motion from citizens requesting that you recuse yourself from any participation in proceedings relating to the Department of Energy's license application for a geologic repository at Yucca Mountain. The motion cited your well-known and lengthy record of public opposition to this repository project. Your rejection of this Motion for Recusal leads to certain legal expenses that have been, as I understand, charged to the Nuclear Waste Fund. Is it correct that these expenses have been charged to the Nuclear Waste Fund, and is this an appropriate use of resources in the Nuclear Waste Fund? If you do believe that this is an appropriate use of the Nuclear Waste Fund, please explain why.**

ANSWER.

The costs incurred by the Commission to respond both to the motion for my recusal from the adjudicatory proceedings and to the petition for review of my decision on that motion have been charged to the Nuclear Waste Fund, and I am informed by both the Chief Financial Officer and the General Counsel that this is an appropriate use of these resources. These expenditures are directly tied to one of the core activities for which the Nuclear Waste Policy Act (NWPA) specifies that Nuclear Waste Funds are to be used – the licensing of a repository – and are neither prohibited by law nor otherwise provided for by some other appropriation or statutory funding scheme. Further, NRC financial management policy requires that expenditures directly in support of NRC's NWPA activities are charged to Nuclear Waste Fund resources.

The Honorable John Boozman

QUESTION 4. **We have heard concerns regarding the availability of Commission voting records. Chairman Macfarlane, on behalf of the Commission, would you further explain and elaborate on this issue? I would appreciate the opportunity to better understand the Commission's point-of-view.**

ANSWER.

One of the Commission's principles of good regulation is openness, and the Commission makes publicly available most Commission votes, including the Commissioners' detailed explanations of their views, which often include substantive edits and comments on the proposal being voted upon. Individual Commissioner's votes are generally posted on the NRC website upon completion of the voting process. For some issues involving sensitive information, votes are not made public. Examples of sensitive information include: Classified, Safeguards, Allegation, Investigation, Security-Related, Proprietary, Privacy Act, or Federal/State/Foreign Government and International Agency-Controlled Information, or other types of Sensitive Internal Information (which includes adjudicatory, enforcement, budgetary, attorney-client or attorney work product information) not appropriate for public release.

The Honorable John Boozman

QUESTION 5. **Chairman Macfarlane, as an individual commissioner, would you further elaborate the discussion that we heard during the hearing on the necessity of the so-called "two-person rule." Please explain why it is or isn't cost-beneficial. What types of facilities are covered by the two-person rule? And, at an unclassified level, please explain the types of security that apply to those facilities.**

ANSWER.

The purpose of NRC licensees' material control and accounting (MC&A) programs is to deter, detect, and investigate unauthorized diversion or misuse of special nuclear material. For over 30 years, the NRC's physical security regulations have contained, and licensees have been implementing, a two-person provision for access to Category I quantities of special nuclear material. In addition, the regulations have "checks and balances" to control the rate of human errors associated with MC&A for these quantities of special nuclear material.

NRC regulations place special nuclear material into one of three categories, based on its type (plutonium or uranium) and quantity. Category I special nuclear material would consist of either greater than two kilograms of plutonium or uranium-233, or of greater than five kilograms of highly enriched uranium (>20% isotope uranium-235). This is the category of special nuclear material considered of greatest risk to theft and diversion; consequently, it has the most stringent security and MC&A requirements. The MC&A regulations for NRC licensees using and storing Category I quantities of special nuclear material are in 10 Code of Federal Regulations (10 CFR) Part 74. Examples of MC&A regulations for these licensees are process monitoring, item monitoring, alarm resolution, quality assurance, and accounting. The NRC

currently has two licensees that use, store and transport Category I quantities of special nuclear material: B&W Nuclear Operations in Lynchburg, Virginia, and Nuclear Fuel Services, Inc., in Erwin, Tennessee.

On November 6, 2012, the NRC staff transmitted to the Commission for review a *Federal Register* notice, proposing revisions to the MC&A regulations governing NRC fuel cycle licensees. One aspect of this proposed rulemaking was to expand the two-person provision to certain additional activities involving special nuclear material.

In accordance with the standard rulemaking process, the staff concurrently developed a draft regulatory analysis. The staff's draft analysis included estimates of the costs to both industry and the NRC from broadening this requirement, assuming the rulemaking was approved and the proposed measures were implemented. When considering such changes, the staff is also obligated under current NRC regulations either to conduct a "backfit" analysis or to demonstrate that one or more exceptions to the backfit rule apply.[5]

As previously stated, a two-person requirement for access to Category I quantities of special nuclear material has been in NRC regulations for decades. A decision on whether to extend this requirement to access to lesser-risk materials has cost implications for both the licensee and the NRC. The Commission generally requires that the public be invited to comment on whether such new requirements would provide a substantial enough increase in public health and safety or common defense and security to warrant the cost of the backfit. Consequently,

[5] The purpose of a backfit analysis is to determine whether a requirement is a "[m]odification of, or addition to, systems, structures, or components of a facility; or to the procedures or organization required to 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 previous NRC staff position," 10 CFR 70.76, "Domestic Licensing of Special Nuclear Material."

the Commission directed the staff to "conduct a backfit analysis on the proposed two-person rule provision and include the results in the rulemaking package."

However, there were many aspects of the revision of the MC&A regulations that were non-controversial, relatively easily implemented, and anticipated to make licensees' MC&A programs more efficient and effective in protecting special nuclear material. Because addressing the backfit issues would have further delayed issuance of these proposed changes to the regulations on MC&A, which had been in development for several years, the Commission provided the staff an alternate path of removing the two-person provision from this particular rulemaking package and considering the issue in a future rulemaking effort.

The staff chose the alternate path. As a result, the *Federal Register* notice for this proposed rule, published Friday, November 8, 2013, states that "[i]n a future rulemaking, the NRC will consider a two-person rule to verify the accuracy of MC&A information within a fuel cycle facility. Interested stakeholders will then have the opportunity to comment regarding a two-person rule." *10 CFR Parts 40, 70, 72, 74, and 150: Amendments to Material Control and Accounting Regulations*, 78 Fed. Reg. 67224, 67226 (Friday, November 8, 2013).

In response to your question about security, NRC regulations for security and MC&A of special nuclear material follow a graded approach; that is, the most stringent requirements are applied to material of greatest attractiveness to a potential adversary. In general, licensees using and storing Category I quantities of special nuclear material are required to demonstrate the ability to protect against the NRC's Design Basis Threat. Examples of measures required for these licensees include an armed, well-trained protective force; defense-in-depth via implementation of physical barriers, access control and intrusion detection and assessment systems; continual communications; and maintenance of up-to-date security plans and procedures. The security

regulations for NRC licensees using and storing Category I quantities of special nuclear material are in 10 CFR Part 73.

The Honorable John Boozman

QUESTION 6. **Chairman Macfarlane, as an individual commissioner, would you elaborate on the role that cost-benefit analysis plays in the review of new regulations and requirements? My understanding is that if a rule or regulation is needed to provide adequate protection of safety, the cost-benefit analysis is irrelevant, but that such analysis plays a critical role for minor safety enhancements.**

ANSWER.

The NRC uses cost-benefit analyses to help understand the overall benefits and costs of NRC regulations and requirements. The NRC's use of cost-benefit analyses is in accordance with Executive Order 13563 "Improving Regulation and Regulatory Reviews," which states that to the extent permitted by law, each agency shall "propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs." The cost-benefit analysis in support of a regulatory analysis can be used when selecting among several alternative regulatory approaches for achieving adequate protection or compliance. "Backfitting analyses" are undertaken to help determine if proposed rules and regulations should be adopted whose purpose extends beyond the agency's "adequate protection" statutory mandate and to determine whether the proposed rule provides a substantial enough increase in public health and safety or common defense and security to warrant the cost of the backfit.

The NRC prepares cost-benefit analyses for most proposed NRC regulations and makes them available to the public as part of the public comment process. This practice allows our stakeholders to provide comments on the proposed rule or regulation as well as any associated cost-benefit analysis. The NRC considers the public comments to determine if the proposed rule

or regulation should be revised before adoption, or whether the NRC should not adopt a final rule or regulation.

The Honorable John Boozman

QUESTION 7. Recently, NRC staff released a report to the Commission titled "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark 1 Boiling Water Reactor." The cover memo from this report states that "this study shows the likelihood of a radiological release from the spent fuel after the analyzed severe earthquake at the reference plant to be very low (about 1 time in 10 million years or lower). NRC staff have also informed the Commission that "the costs of expedited transfer of spent fuel to dry cask storage outweigh the benefits," that "additional studies are not needed," and that "no further regulatory action is recommended for the resolution of this issue and this Tier 3 item should be closed." (see "Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel.") Despite the extremely small risk of a radiological release from spent fuel pools due a seismic event, the Commission continues to expend limited resources and attention on this issue. In recent weeks, the Commission held a briefing on this issue. Chairman Macfarlane, as an individual commissioner, what is your rationale for continued prioritization of the spent fuel pool issue mentioned above, and do you have a reason to doubt the staff recommendations? It seems as if the Commission's focus on this issue may be an attempt to create

headlines and cause public doubt about the safety of emissions-free nuclear power. Do you agree?

ANSWER.

No. I do not agree that the Commission is attempting to make headlines or cause public doubt.

In October 2011, the NRC staff identified consideration of expedited transfer of spent fuel as an additional issue with a clear nexus to the Fukushima Daiichi event that may warrant regulatory action. This issue was specifically prioritized as a lower-priority Tier 3 item to resolve among other important Fukushima Near-Term Task Force recommendations, and required further staff study to support a regulatory action. The staff completed its consequence study in October 2013, and provided the Commission its detailed regulatory analysis and recommendation in November 2013.

This important policy matter is currently before the Commission for consideration. As it's still under consideration, it would not be appropriate to comment further, out of respect for our process.

The Honorable John Boozman

QUESTION 8. **Chairman Macfarlane, in recent years, a number of questions have been raised regarding the decision-making role of the NRC Chairman vs. the decision-making role of the entire Commission. The scope of the Chairman's authority to make an emergency declaration and the Chairman's responsibility to promptly notify others of such a decision are just two small examples of situations where the role and responsibility of the NRC Chairman has been called into question. Other examples include unilateral efforts by a previous chairman to supplant the Commission's will on policy and budget issues. The Energy Reorganization Act of 1974 states that "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 and responsibilities, and shall have one vote." Unilateral decisions by a previous chairman to disregard this requirement on a number of matters have created a dangerous precedent, setting up the Chairman as a sort of "super-Commissioner" on matters of policy and budget. Do you think it is important for Congress to reinforce provisions of law that ensure an equal role for all Commissioners in all non-emergency matters?**

ANSWER.

The NRC's organizational statutes attempt to set an appropriate balance between authorities the Chairman will exercise individually and authorities the Commission will exercise as a collegial body. Not all non-emergency matters fall into the latter category. Current law does

assign the Chairman certain individual roles commensurate with her responsibilities as the agency's Principal Executive Officer, in the areas of policy and budget development, external communications, as well as other individual functions. Current law also explicitly affirms the Commission's ultimate authority as a collegial body over adjudication, rulemaking, policy formulation, and budget decisions, and also grants the Commission explicit authority to determine, in areas of doubt, which functions are the Commission's responsibility and which are the Chairman's. Where a responsibility falls to the Commission, there is already explicit, unambiguous statutory direction that each Commissioner, including the Chairman, has equal responsibility and authority, full access to information related to his or her responsibilities, and equal voting power. I do not believe that any additional legislation is needed to reinforce the current statutory arrangement of functions or the equality of each Commission member (including the Chairman) in the Commission's collegial decision-making.

The Honorable Deb Fischer

QUESTION 1. **The NRC Principles of Good Regulation emphasize efficiency and focusing on activities that have the greatest safety significance. Rulemakings are a small portion of NRC activities that licensees must respond to. How does your agency prioritize its non-rulemaking activities to ensure that your finite resources are focused on activities of the highest safety significance in the most efficient manner? Do you believe that prioritization of non-rulemaking issues is a critical element for maintaining the agency's safety focus?**

The NRC prioritizes its non-rulemaking activities to focus on safety and considers this effort to be in keeping 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. To promote efficiency, during regular communications with the licensees, the staff identifies topics affecting safety and then communicates this information to cognizant managers at regular meetings and as needed. In doing so, work is prioritized and resources are applied to the most safety-significant activities first, followed by time-dependent activities and other activities based on their effect on safety. As operating reactor licensing requests are submitted, they are prioritized based on safety and scheduled appropriately. Additionally, operational events are reviewed, and actions taken by the staff are focused on the most safety significant. Whenever resources are limited, the focus remains on activities mitigating safety significant issues and other activities that aid the agency in accomplishing its mission.

The Honorable Deb Fischer

QUESTION 2. **At the hearing, we discussed the importance of safety improvements that have been attained as a result of voluntary industry assessments to identify and fix potential latent vulnerabilities. For fire protection assessments, NRC requires an independent and detailed industry peer review. The plant is obliged to implement the recommendations of the peer reviewers or justify to NRC during inspections why the recommendations are not being implemented. Now I understand that NRC has decided to perform an additional detailed technical review that is nearly identical to the industry independent review, which is already the subject of NRC inspection. Is this additional NRC technical review warranted? If it is, what is the basis, as it appears to be duplicative and an inefficient use of critical industry and NRC resources?**

ANSWER.

The fire Probabilistic Risk Assessment (PRA) reviews performed by the NRC staff in support of a National Fire Protection Association Standard 805 License Amendment Request (NFPA-805 LAR) do not duplicate the PRA peer review conducted by the nuclear industry under the guidance of the PRA Standard, Regulatory Guide 1.200, and Nuclear Energy Institute 05-04 and/or 07-12. The NFPA-805 LAR contains the results of these industry PRA peer reviews in terms of facts and observations (F&Os), both from the internal events and fire PRA peer reviews. The NRC staff reviews F&Os during the LAR review process. Inevitably, this necessitates re-examining some of the F&Os, and how the licensees resolved the issues. This is important because the transition to NFPA 805 depends on the licensee's assessment of the change in risk. The industry reviews of risk focus solely on the baseline PRA which, while

forming the foundation from which the change in risk is estimated, is not sufficient to ascertain the technical adequacy of the risk change analyses.

Many of the fire PRA peer reviews were conducted several years prior to an individual licensee's use of the PRA in a LAR for NFPA-805 approval. The staff questioned the quality of some of the oldest fire PRA peer reviews. Even where the peer review was known by the staff to be of high quality, some licensees had made changes to the fire PRA as part of the LAR submittal, and the NRC considers some changes to be "PRA upgrades" requiring follow-on, focused-scope peer reviews by the industry. As a result, the NRC staff has found it necessary to examine some of the peer review F&Os, and how they were resolved, while reviewing the technical aspects of transition to NFPA 805.

Senator BOXER. Thank you.
Commissioner Svinicki.

STATEMENT OF HON. KRISTINE L. SVINICKI, COMMISSIONER, U.S. NUCLEAR REGULATORY COMMISSION

Ms. SVINICKI. Thank you, Chairman Boxer, Ranking Member Vitter, Chairman Carper, Ranking Member Sessions, and members of the committee for the opportunity to appear before you today at this oversight hearing.

The Commission's chairman, Dr. Allison Macfarlane, and her statement on behalf of the Commission has provided a comprehensive description of key agency accomplishments and challenges in carrying out NRC's important mission of protecting public health and safety, and promoting the common defense and security of our Nation.

In a recent communication to all agency employees, the NRC's senior career official, the executive director for operations, stated the following: "Our future is likely to be dynamic and unpredictable, and the agency will need to remain flexible and agile as we respond to new events and external pressures. We will need to continually evaluate the work we are doing, give careful consideration as how best to use resources, and remain focused on safety and security." I agree with his statement.

As an organization which embraces the precepts of continuous learning, the NRC consistently seeks to improve its organizational effectiveness. As a member of the Commission, I will continue to work with my Commission colleagues and the NRC staff to support the agency's assessment of how we can accomplish our work efficiently and effectively, and in light of the circumstances and factors we face day to day.

I am confident that the NRC's dedicated and highly professional staff members are up to the task of meeting these challenges, as they have proven time and again over the course of the agency's history. I thank them for their sustained commitment to the agency, to its work, and to each other.

I appreciate the opportunity to appear today and look forward to your questions. Thank you.

[Ms. Svinicki's responses to questions for the record follow:]

Environment and Public Works Committee Hearing
January 30, 2014
Follow-Up Questions for Written Submission

Senator Thomas R. Carper to Commissioner Kristine L. Svinicki

QUESTION 1. Last October marked the one year anniversary of hurricane Sandy. The storm impacted 24 states. The Northeast – where many of our nuclear plants exist today – felt the brunt of its impact. I know our nuclear plants fared pretty well during Sandy, but we expect to see more and more of these storms in the future. With that in mind, what were our lessons learned from Sandy – what could we have done better, not just at our nuclear power plants, but within the federal, state and local governments? And what is the NRC doing to ensure our nuclear plants and communities are better prepared for such storms?

ANSWER:

NRC agrees that hurricane Sandy had only a minimal safety impact upon NRC licensed facilities. On October 29, 2012, one licensee, already shut down at the time, declared both a Notice of Unusual Event and an Alert due to high water levels. NRC responded to this event, monitored the other facilities in the storm's path, and subsequently prepared an After Action Report to capture strengths and weaknesses of the response efforts.

One notable resulting action with respect to operating reactors was to improve NRC's interface with the Federal Emergency Management Agency (FEMA) in support of FEMA's preliminary capabilities assessments, or PCAs. These PCAs are conducted after events that have the potential to negatively impact the ability of offsite response organizations to execute their response plans. In addition, NRC staff participated in the broader Federal effort to capture response and recovery lessons learned in an After Action Report. With respect to the NRC's activities, roles, and responsibilities, there were no substantive concerns identified to the broader Federal effort. It is also worth noting that many reactor licensees, particularly those located on the Atlantic and Gulf coasts, routinely cope successfully with weather events as severe as Hurricane Sandy. Additionally, as a result of the events in Fukushima, Japan, the NRC is requiring actions that will bolster reactor licensees' abilities to withstand many different types of severe conditions, not just those associated with severe weather.

QUESTION 2. It is my understanding that the industry is establishing two Regional Support Centers in Arizona and Tennessee that will hold emergency equipment capable of transport to any nuclear power plant within 24 hours. Do you have any additional information on these sites and the equipment they will have on-hand? How does this enhance emergency preparedness – especially in light of a flood or seismic event?

ANSWER:

The U.S. nuclear utility industry is planning to have two Regional Response Centers (RRCs) operational in the Fall of 2014. The industry contractor coordinating the RRCs is known as the Strategic Alliance for FLEX Emergency Response (SAFER). The industry reports that SAFER will maintain an office with a continuously available contact number and will activate the SAFER Control Center and the RRCs when contacted by a nuclear plant licensee. SAFER will also be responsible for ensuring the availability of equipment at the RRCs, with the ability to transport the equipment to a nuclear plant within 24 hours of the request for equipment.

The industry plans to maintain two types of equipment at the RRC. The first is Generic Equipment. Each RRC will have five sets of Generic Equipment, with four sets ready to deploy and one set in a maintenance cycle. Each set of Generic Equipment is planned to consist of one 480 volt alternating current (vac) generator, two 4160 vac generators, one high pressure pump (60 gallons per minute (gpm)), one medium pressure pump (500 gpm), and two low pressure pumps (2500 and 5000 gpm). Each set will also include the electrical cables and hoses needed to connect this equipment and portable lighting.

The second type of equipment is Non-Generic Equipment. Because some licensees are still finalizing their mitigation strategies, there is no definitive list yet of this equipment, however, some examples of potential Non-Generic Equipment are water treatment units, mobile boration units, submersible pumps, ventilation fans, and portable air compressors.

The RRC equipment is intended to enhance emergency preparedness as follows. As directed by the NRC's Mitigation Strategies Order, nuclear power plant licensees are required to cope with an extended loss of ac power and loss of normal access to the ultimate heat sink resulting from a beyond-design-basis external event, such as a seismic event or a flooding event, using a three-phase approach. The initial phases (Phase 1 and 2) rely on onsite equipment to maintain or restore cooling of the reactor core, functionality of the containment building, and cooling of the spent fuel pool. The final phase (Phase 3) requires obtaining sufficient offsite resources to sustain these functions indefinitely. The RRC supplies are intended to provide the equipment needed for Phase 3. SAFER and the licensees are also planning for providing alternate means of delivering this equipment to the site, including by helicopter, if necessary.

Senator David Vitter to Commissioner Kristine L. Svinicki

Seismic Analysis and Diablo Canyon

The U.S. Nuclear Regulatory Commission, which oversees nuclear industry safety, re-examines seismic safety at nuclear energy facilities periodically as new information becomes available. The agency began a seismic study in 2005 in light of new information that suggested the earthquake hazard at some sites east of the Rocky Mountains might be different than previously estimated. While the NRC concluded that nuclear power plants facilities are safe, it decided to examine plant safety margins in more detail.

As part of this study, the industry is re-evaluating seismic safety at nuclear energy facilities using the latest available models and methodologies. The first part of the analysis will be completed by March 31 for sites east of the Rockies and by March 12, 2015, for western sites. Depending on the results, some companies will perform more detailed evaluations of their plants' ability to withstand higher levels of ground motion. Preliminary calculations indicate that there has been no significant change in seismic safety for plants in the central and eastern United States.

Earthquake safety drew increased attention in 2011 after a tsunami triggered by a powerful earthquake disabled safety systems at the Fukushima Daiichi nuclear plant in Japan and led to a severe accident. Although it was flooding from the tsunami rather than shaking from the earthquake itself that led to the accident, the NRC folded its ongoing review of seismic safety into its post-Fukushima recommendations for U.S. reactors. The agency asked companies that operate nuclear energy facilities to re-evaluate seismic safety at their sites using the latest models and methodologies. Industry is now using the jointly developed 2012 seismic source model along with an updated ground motion model to calculate new probabilistic estimates of ground motions at the commercial nuclear power plants east of the Rocky Mountains.

QUESTION 1. What implications the revised hazard estimates may have for plant safety?

ANSWER:

In response to recommendations of the Near Term Task Force (NTTF), the NRC requested that its licensees complete a seismic hazard re-evaluation using the latest methods and models. This interim evaluation either describes how the plant's existing capacities can withstand a higher hazard or describes the plant's interim actions to enhance its ability to cope with a higher hazard. The NRC will review the interim evaluations to ensure plants can continue to operate safely while they conduct more comprehensive seismic reviews. Plants with a higher re-evaluated hazard will also complete an "expedited approach" to reinforce key safe shutdown systems, if necessary, during the following two years. Plants with a higher hazard will also conduct more in-depth seismic risk evaluations of their response to design basis, and beyond design basis ground motions. NRC will use these in-depth analyses to determine if additional regulatory actions or plant modifications are necessary.

QUESTION 2. What is the greatest seismic hazard expected to be generated by a fault near Diablo Canyon?

ANSWER:

Based on Section 6.2 of Research Information Letter 12-01, "Confirmatory Analysis of Seismic Hazard at the Diablo Canyon Power Plant (DCPP) from the Shoreline Fault Zone," Pacific Gas & Electric (PG&E) concluded in its 2011 Shoreline Fault report that the Hosgri fault is the main contributor to the total seismic hazard at Diablo Canyon. According to the analysis, two factors contribute to this conclusion. First, the Hosgri fault is deemed capable of producing up to magnitude 7.5, larger than the maximum magnitude of other faults in the vicinity of the DCPP. Second, and more importantly, the Hosgri fault has a slip rate that is up to an order of magnitude greater than other faults near the DCPP, so its activity rate or recurrence rate of large earthquakes is higher than any of the other faults in the vicinity of the DCPP. The NRC's independent assessment determined that the ground motions predicted for the Shoreline fault are at or below the levels for which the plant has previously been evaluated (i.e., the Hosgri earthquake ground motions). As such, the NRC's October 12, 2012, letter concluded that the existing design basis for the plant is sufficient to withstand ground motions from the Shoreline fault.

Currently, PG&E is in the process of updating seismic hazards at the site in accordance with NRC's March 12, 2012, request for information using the Senior Seismic Hazard Analysis Committee (SSHAC) process. The SSHAC process is used to develop a probabilistic seismic hazard assessment (PSHA) that incorporates multiple earthquake scenarios, including the frequency of occurrence of those scenarios, and includes a quantitative assessment of the uncertainty into a single analysis. The goal of the PSHA is to capture the center, body, and range of the seismic hazard values as accurately as possible from all possible earthquake scenarios including the uncertainties associated with the PSHA inputs. I am informed that active fault sources, which are considered more likely to generate large magnitude earthquakes, will dominate in a PSHA.

QUESTION 3. Is the plant designed to withstand that greatest expected seismic hazard?

ANSWER:

Yes. The reactor pressure boundary components, and all safety-related equipment needed to shut the plant down safely and maintain a safe shutdown condition, must be able to withstand the DDE/SSE. At Diablo Canyon, I am informed that this was demonstrated through a combination of calculations and tests. Because the American Society of Mechanical Engineers (ASME), Section III requirements for design and pressure boundary components and supports were not mandated by 10 CFR 50.55a until the mid-1980s, the acceptance criteria for DCPP rely on a combination of the ASME Code and the American National Standards Institute (ANSI) Code for piping, applicable at the time of initial licensing, that provide an equivalent level of safety assurance as is required by 10 CFR 50.55a.

In addition, during the licensing of Diablo Canyon, PG&E demonstrated that all structures, systems, and components that are required to remain functional following a DDE/SSE would also remain functional during a postulated Hosgri earthquake. Following extensive plant upgrading, most components met the same standard based on the Hosgri Evaluation (HE) as they had under the SSE. In a limited number of cases, the NRC approved alternative Code criteria; thus, these components still meet the applicable Code. The limited cases were individually approved and specifically documented in the NRC's safety evaluation report. The NRC's approach and conclusions were also reviewed independently by the Advisory Committee on Reactor Safeguards (ACRS) and the Atomic Safety and Licensing Board (ASLB). The ACRS reviewed the NRC staff criteria utilized in the seismic re-evaluation of DCPP for the postulated Hosgri earthquake and concluded that "...the staff's approach leads to an acceptable level of safety for DCPP." The ASLB held hearings on the DCPP seismic issues, and in a partial decision issued September 27, 1979, the ASLB concluded "...the Diablo Canyon plant will be able to withstand any earthquake that can reasonably be expected to occur on the Hosgri fault."

The NRC's March 12, 2012, request for information includes a process for evaluating seismic hazards using present-day information. The NRC staff considers the seismic hazard reevaluations being performed in accordance with this process to be distinct from the current design or licensing basis of operating plants. At Diablo Canyon, the licensee will review the new ground motion response spectrum (GMRS) information developed in accordance with this process against the DDE, and if the new GMRS exceeds the DDE, PG&E is expected to submit an interim evaluation or interim actions taken or planned to address the reevaluated hazard. The results will be analyzed to determine if plant structures, systems, and/or components need to be updated against the new hazard.

QUESTION 4. Is Diablo Canyon in compliance with NRC safety and operability requirements when it comes to seismic hazards?

ANSWER:

Yes. Licensees are required to demonstrate through modeling, testing, and evaluation that specific structures, systems, and components are seismically qualified up to the DDE/SSE. As discussed in the answer to Question 3, this same rigor was also required for Diablo Canyon up to the HE (0.75g) design basis for the same equipment. The NRC's March 12, 2012, request for information provides a process for further evaluating seismic hazards at the site. The staff expects the licensees to follow this process and additional guidance (e.g., February 20, 2014, supplemental information regarding seismic hazards reevaluations) to determine what additional actions, if any, are necessary regarding operability and ensuring safe operation of the plant based on the information developed during the seismic hazards reevaluation.

QUESTION 5. Would the NRC allow a nuclear power plant with a one in six chance of experiencing an earthquake event for which it is not designed to withstand operate?

ANSWER:

All U.S. nuclear power plants are built to withstand external hazards, including earthquakes, flooding, and tsunamis, as appropriate. Even those plants that are located in areas with low and moderate seismic activity are designed for safety in the event of such a natural disaster. Each plant is designed to a ground-shaking level that is appropriate for its location, given the possible earthquake sources that may affect the site and its tectonic environment. Ground shaking is a function of both the magnitude of the earthquake and the distance from the fault to the specific site. The seismic responses of the structures, systems, and components associated with these facilities are site specific. The plants are analyzed for certain identified faults and tectonic capabilities in the area while others are analyzed for seismic zones.

Recent analyses of the severe impact of seismic ground motion hazard for nuclear power plants in the central and eastern United States resulted in very low frequencies of occurrence (below 1 in 10,000 per year) as referenced in Information Notice 2010-018, "Generic Issue 199, 'Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants,'" dated September 2, 2010. These very low values demonstrate the robustness of nuclear power plants in the central and eastern United States with respect to their seismic designs. Generic Issue 199 has been subsumed into the process of licensees reevaluation of the seismic hazard in accordance with the NRC's March 12, 2012, request for information letter.

Regarding West Coast plants (i.e., Diablo Canyon, Columbia, and Palo Verde), the seismic hazards for these plants are also being updated in accordance with the NRC's March 12, 2012, request for information. When these plants were licensed the likelihood of exceeding the safe shutdown earthquake was not part of the seismic design process.

As stated above, licensees are in the process of reassessing their seismic hazards in accordance with the March 12, 2012, request for information. The NRC will take appropriate action in order to ensure safe operation of operating nuclear power plants, as needed.

QUESTION 6. The UCS Report alleges that Diablo Canyon has received lax oversight regarding seismic safety requirements compared to other facilities. Are there any requirements for seismic safety of Diablo Canyon that are not in place at other facilities?

ANSWER:

Yes. There are requirements for seismic safety for Diablo Canyon that are not in place at other facilities. However, as noted below and further elaborated in the Answer to Question 10, Diablo Canyon has the highest level of seismic protection of any plant in the country with three design spectra that must be met per Pacific Gas & Electric's license requirements (vice two for other plants). Additionally, to ensure public health and safety, Diablo Canyon has an automatic seismic reactor trip set point of 0.35g. If the ground acceleration at Diablo Canyon from any earthquake exceeds this 0.35g set point, both reactors will automatically shut down to maintain plant safety and the health and safety of the public. Diablo Canyon is the only operating plant in the country with an automatic seismic reactor trip.

QUESTION 7. What is the greatest seismic hazard expected to be generated by a fault near Diablo Canyon?

ANSWER:

Please see the response to Question 2.

QUESTION 8. Is the plant designed to withstand that greatest expected seismic hazard?

ANSWER:

Please see the response to Question 3.

QUESTION 9. When new information is discovered as part of Diablo Canyon's Long Term Seismic Program, such as the discovery of the Shoreline Fault in 2008, how is that information analyzed?

ANSWER:

Prior to the NRC's March 12, 2012, request for information, the new information from the Long Term Seismic Program (LTSP) was evaluated using a deterministic approach. The best example of new information being evaluated was the discovery of the Shoreline fault. As discussed below, the NRC staff performed a preliminary and a more detailed evaluation of the Shoreline fault.

In a letter dated October 20, 2011, PG&E proposed a licensing action to define an evaluation process for newly identified seismic information and incorporate ongoing commitments associated with the LTSP. Due to the issuance of NRC's March 12, 2012, request for information and the October 12, 2012, NRC letter, which provides a process for evaluating newly identified seismic information, PG&E determined it no longer had a need for the licensing action outlined in the October 20, 2011, letter and requested withdrawal of the licensing action. In an October 30, 2012 response, the NRC acknowledged the withdrawal of the licensing action.

Shortly after PG&E notified the NRC of the potential for a new fault (later referred to as the Shoreline fault), PG&E provided the NRC with sets of initial scientific data and information related to the hypothesized fault. Based on this initial information, the NRC staff immediately performed a preliminary review of possible implications of the Shoreline fault to the DCPP to determine if an immediate safety concern existed. The NRC continued to review new data and information on the Shoreline fault resulting from a collaborative effort between the U.S. Geological Survey and PG&E.

The NRC's October 12, 2012, letter to PG&E provided, in part, a summary of the results of NRC's independent assessment (which included independent external experts) of the licensee's January 7, 2011, Shoreline Fault analysis report. The licensee's report provided NRC with new geological, geophysical, and seismological data on the Shoreline fault, obtained using up-to-date methods and technologies. The NRC's independent assessment determined that the ground motions predicted for the Shoreline fault are at or below the levels for which the plant has previously been evaluated. As such, the NRC's October 12, 2012, letter concluded that the existing design basis for the plant is sufficient to withstand ground motions from the Shoreline fault.

QUESTION 10. Were there any advancements in the state of seismic design and knowledge between when acceptance criteria for Diablo Canyon's Design Earthquake and Double Design earthquake was established and when the Hosgri and Long Term Seismic Plan acceptance criteria was established and approved by the NRC and Atomic Safety Licensing Board?

ANSWER:

Yes. Diablo Canyon's original seismic evaluations were accepted prior to issuing the Unit 1 construction permit on April 23, 1968. The seismic evaluations were termed the Design Earthquake (DE), which is an operating basis earthquake (OBE)-equivalent for Diablo Canyon Power Plant (DCPP), and the Double Design Earthquake, which is a safe shutdown earthquake (SSE)-equivalent for DCPP. These seismic evaluations were performed under and met the NRC's existing requirements. The DE/OBE specified 0.2g as the largest earthquake that is expected to occur during the lifetime of the plant (a 0.2g earthquake was estimated to occur only once in more than 200 years). The DDE/SSE is simply double the ground motion of the largest expected earthquake (DE/OBE) and is not tied to any expected earthquake (a 0.4g earthquake is expected to occur only once in more than 400 years). The higher ground acceleration represented by the DDE is used to add safety margin to evaluate and ensure that the safety-related structures needed to safely shut the plant down and maintain it safely will survive.

In 1973, PG&E became aware of the Hosgri fault, which was discovered during offshore oil exploration. This fault was previously unknown, and no significant earthquake had previously been attributed to an offshore fault in that area. Because of the new discovery, the NRC delayed approval of the operating licenses until November 2, 1984 (Unit 1). The NRC required PG&E to perform a seismic re-evaluation to include the possible effects of the Hosgri fault using the latest NRC requirements. At that time, the state-of-the-art in seismic evaluation had significantly improved, so the NRC had upgraded its seismic requirements. The NRC obtained assistance in evaluating the fault from the U.S. Geological Survey (USGS) and other consultants.

When the Hosgri Evaluation (HE) was completed, the NRC accepted that this fault could possibly produce 0.75g peak ground acceleration at Diablo Canyon, but such an extreme event was expected to occur only once every 2,000 to 25,000 years. This potential high-consequence event was too infrequent to be considered to meet the intent of the Safe Shutdown Earthquake (SSE), so the NRC declared that the original seismic evaluations (the DE and DDE) remained valid. Nonetheless, the NRC required PG&E to make substantial plant modifications to be able to withstand 0.75g peak ground acceleration. The NRC added these site-specific requirements on top of the existing requirements.

Therefore, DCPP has the following licensing aspects, with unique requirements in addition to the OBE and SSE:

(a) The plant meets NRC's standard seismic requirements through the DE/OBE (0.2g) and DDE/SSE (0.4g).

(b) In addition, the plant was also required to be designed to withstand 0.75g. Since the plant was actually designed (i.e., final design, not original) and built to

withstand this, this set of requirements represents the actual level of functional seismic safety.

(c) PG&E used two different NRC-approved seismic methodologies that are part of the design and licensing bases for the plant, one for the DE and DDE, the other for the HE.

(d) The two units were required to have instrumentation installed to cause an automatic reactor trip if onsite seismic sensors register 0.35g.

(e) A license condition was added to require a confirmatory seismic study over the first 10 years of operation using the latest methods to verify that the Hosgri Evaluation remained accurate. PG&E completed this one-time action, but has maintained a continuous seismic assessment program, working with USGS and state agencies, to maintain state-of-the-art knowledge and further study the region around the plant.

(f) PG&E was required to develop a probabilistic seismic risk assessment.

As a result of the above, Diablo Canyon has the highest level of seismic protection of any plant in the country, and PG&E has developed the highest seismic knowledge base regarding its site, compared to other nuclear utilities in the United States.

QUESTION 11. What does the NRC consider to be the equivalent of the safe shutdown earthquake of Diablo Canyon?

ANSWER:

For the Diablo Canyon Power Plant (DCPP), the Double Design Earthquake (DDE) is equivalent to the Safe Shutdown Earthquake (SSE). During initial licensing of the Diablo Canyon site, two design basis earthquakes (ground motions) were established. The operating basis earthquake (OBE) represents the ground motion reasonably expected during the lifetime of the plant. At DCPP, this is called the Design Earthquake (DE), and is 0.2g. The safe shutdown earthquake is defined as having twice the acceleration of the operating basis earthquake to ensure safety margin. At DCPP, this is called the Double Design Earthquake, and is 0.4g. Pacific Gas and Electric was required to show that all equipment necessary for continued operation without undue risk to the health and safety of the public would withstand the OBE/DE (i.e., remain functional) and that all safety-related equipment needed to safely shut the plant down and maintain a safe shutdown condition would withstand the SSE/DDE.

QUESTION 12. Is there a gap between seismic protection levels at Diablo Canyon Power Plant and the seismic threat level faced at Diablo Canyon Power Plant?

ANSWER:

No. The staff is continuing to assess new seismic information at all operating nuclear power plants using the process outlined in the NRC's March 12, 2012, request for information. If the newly reevaluated hazards are more severe than what the plant had originally calculated, the information will be analyzed to determine if plant structures, systems, and/or components need to be updated against the new hazard. (See also the answer to Question 10.)

Waste Confidence

QUESTION 13.

Is the NRC still on schedule to finalize its waste confidence rulemaking by the 3rd quarter of next year?

ANSWER:

On January 23, 2014, the NRC revised its review schedule for the final versions of its Waste Confidence Generic Environmental Impact Statement (GEIS) and the final rule on the extended storage of spent nuclear fuel at the Nation's commercial nuclear power plants from September 2014, to no later than October 3, 2014. The delay reflects time lost during the government shutdown and lapse of appropriations last October. The shutdown led the agency to reschedule several public meetings and extend the public comment period on the draft versions of the GEIS and rule by nearly a month.

Fukushima Regulation Implementation

QUESTION 14. Is the NRC issuing rules before guidance is ready?

ANSWER:

No. The NRC intends to follow the rulemaking process enhancements that were established to address the Cumulative Effects of Regulation (CER). The NRC recognizes that CER is an organizational effectiveness challenge that results from a licensee or impacted entity implementing a number of complex regulatory positions, programs, or requirements within a limited implementation period and with available resources. In the NRC's efforts to address CER, NRC has enhanced the rulemaking process. One of these enhancements requires the NRC to publish draft guidance at the same time as a proposed rule and final guidance with the final rule. The goal of publishing the guidance concurrent with the rule is to ensure that those impacted by the rule have a clear understanding of what it will take to implement the rule's requirements. I am informed that the NRC intends to adhere to the CER process enhancements for all of its ongoing rulemaking activities, including those stemming from the Fukushima lessons learned.

QUESTION 15. Are there specific instances where licensees have begun work to meet a new rule or regulation only to have the NRC subsequently issue a modified regulation – resulting in re-work, added expense, delay?

ANSWER:

The NRC has not yet issued any rules pertaining to implementing lessons-learned from Fukushima. The potential rules are in the development phase and are expected to codify the requirements that were imposed by orders issued in March 2012, as well as address other recommendations not directly related to the ongoing implementation of the orders. One of the three orders issued in March 2012, the Hardened Vents Order (applicable to boiling water reactors with Mark I and Mark II containments), was superseded by an order issued in June 2013, approximately 15 months later, which required the containment vent systems to be capable of operating under severe accident conditions. This new order included the requirements of the first order and added requirements to address venting operations under the harsh conditions that might exist after significant fuel damage has occurred. The Commission attempted to issue the superseding order promptly in order to minimize any needed re-work or added expense that might occur if additional requirements were imposed after plant changes were made to satisfy the original March 2012 order. Licensees had, however, already undertaken some planning to identify needed plant and procedure modifications for complying with the original order. Consequently, additional time was provided for compliance with the new order to support the development of guidance documents and identify and plan for plant changes needed to address containment venting during severe accident conditions.

QUESTION 16. Is the hardened vents rule an example – how much time passed from time first hardened vents order was issued until the revised order was issued?

ANSWER:

As stated above in the answer to Question 15, the Hardened Vents Order (applicable to boiling water reactors with Mark I and Mark II containments) was superseded by an order issued in June 2013, approximately 15 months later, which required the containment vent systems to be capable of operating under severe accident conditions.

This new order included the requirements of the first order and added requirements to address venting operations under the severe conditions that might exist after significant fuel damage has occurred. The Commission attempted to issue the superseding order promptly in order to minimize any needed re-work or added expense that might occur if additional requirements were imposed after plant changes were made to satisfy the original March 2012 order. Licensees had, however, already undertaken some planning to identify needed plant and procedure modifications for complying with the original order. Consequently, additional time was provided for compliance with the new order to support the development of guidance documents and identify and plan for plant changes needed to address containment venting during severe accident conditions.

QUESTION 17. Are these required reworks and delays being taken into account when licensees are given deadlines by which to implement or comply with new rules?

ANSWER:

The NRC strives to develop reasonable schedules for implementation whenever a requirement, such as an order, needs to be modified. The NRC considers both the safety-significance and the practical impact on the licensees, to the extent that it is known, when determining what is reasonable. For example, in June 2013, the NRC revised requirements imposed in March 2012 on containment venting systems for boiling water reactors with Mark I and Mark II containments to ensure they would remain functional during severe accident conditions. Recognizing that some of the revised requirements were not addressed in the original order and the related implementation plans being developed by licensees, the NRC developed a phased approach to minimize delays in making safety improvements while providing additional time for licensees to evaluate and design systems to address the revised requirements.

QUESTION 18. Has the Commission evaluated work done to-date (or ordered) post Fukushima to make the US nuclear fleet even safer?

ANSWER:

In 2011, the Commission approved the staff's recommended prioritization of the Near-Term Task Force recommendations into three tiers. The staff's current efforts remain focused on the Tier 1 activities. Some adjustments to the scope of the entire effort have been made, such that most of the Tier 2 activities have been subsumed into other ongoing actions. Of the Tier 3 activities, only the issue of expedited transfer of spent fuel from pools to dry casks has been addressed; this matter is currently under Commission deliberation.

To date, the Commission has not directed a holistic assessment of the safety benefits that have been or will be realized by the regulatory measures already taken, nor a comparison of those benefits to the potential safety benefits that may be derived by any remaining activities.

QUESTION 19. Has the NRC taken into account the added safety margins gained from the implementation of the FLEX program, from spent fuel pool monitoring, and from the seismic and flooding walkdowns being conducted and taken this safety improvement into account as it considers additional regulations?

ANSWER:

The NRC is developing proposed regulations that will make the requirements of the orders (now being implemented) generically applicable to current and future licensees. The equipment included in the industry FLEX program may be used to demonstrate compliance with these ongoing rulemakings. Should the NRC decide to evaluate the need for further potential requirements in addition to the current order requirements now being converted into regulations, the NRC would need to justify any new requirements under its backfit and 10 CFR Part 52 finality regulations, and perform a regulatory analysis addressing the benefits and costs of the proposed additional requirements compared to a regulatory baseline that assumes all existing NRC requirements have been fully implemented.

The recently completed seismic and flooding walkdowns were conducted to confirm that licensees are in compliance with their current licensing basis requirements. Because licensees are expected to comply fully with all existing requirements, these walkdowns are confirmatory and are not appropriately characterized as safety improvements or additional safety requirements.

The NRC is closely following the implementation of the FLEX program and spent fuel pool monitoring instrumentation to identify any lessons learned that could inform rulemaking activities. For example, in its direction to the staff on evaluating possible regulatory requirements for engineered filters and filtration strategies for boiling water reactor containments, the Commission specified that the technical bases should assume the installation of severe accident capable hardened venting systems as required by the Order issued in June 2013.

QUESTION 20. Are new regulations based on the current status of the industry and not the status of the industry on March 2011 when Fukushima occurred?

ANSWER:

The need for each new regulation issued by the NRC is assessed against the current status of the industry at the time the requirement is issued. When the NRC publishes a proposed rule for public comment, it also solicits comments on its regulatory analysis addressing the benefits and costs of the new requirement compared to a baseline reflecting the existing regulatory requirements. When the NRC staff submits a final rule to the Commission for approval, it provides the Commission with an updated regulatory analysis that addresses the benefits and costs of the draft final requirement compared to an updated baseline reflecting any changes that may have been made to the regulatory requirements since the issuance of the proposed rule.

The NRC rulemaking process is designed and intended to be a disciplined, deliberative, and transparent process that maximizes opportunities for public stakeholder input. Rulemakings are usually conducted by internal working groups of NRC staff members of various disciplines from across the agency to ensure that the rule being developed represents the current state of knowledge. Even before formal public comments are solicited on a proposed rule, the NRC often holds public meetings at the technical basis development stage to receive input on the benefits, costs, and anticipated regulatory burden associated with each potential new requirement. The NRC occasionally issues Advance Notices of Proposed Rulemaking to advise the public of possible NRC rulemaking and to receive written input on issues relevant to the possible rulemaking. Additional public meetings are often held during the public comment period to ensure that commenters fully understand each proposed rule and are able to provide fully-informed comments. Once public comments are received and evaluated, more public meetings may be held to explain NRC's assessment of public comments and to discuss implementation schedules for the final rule. These public outreach efforts help ensure that before acting on a final rule, the Commission has available a diversity of views on any new requirements.

QUESTION 21. Will this impact the approach to Tier 2 & 3 recommendations?

ANSWER:

The Tier 2 and Tier 3 recommendations made by the Near Term Task Force (NTTF) will be informed by the current status of the industry as the industry progresses through implementing the lessons learned from the Fukushima Dai-ichi nuclear power plant accident. As discussed in SECY-11-0137, "Prioritization of Recommended Actions to Be Taken in Response to Fukushima Lessons Learned," dated October 3, 2011, Tier 2 and Tier 3 recommendations were specifically described as follows:

> Tier 2. The second tier consists of those NTTF recommendations that could not be initiated in the near term due to factors that include the need for further technical assessment and alignment, dependence on Tier 1 issues, or availability of critical skill sets. These actions do not require long term study and can be initiated when sufficient technical information and resources are available.
>
> Tier 3. The third tier consists of those NTTF recommendations that require further staff study to support a regulatory action, have an associated shorter term action that needs to be completed to inform the longer term action, are dependent on the availability of critical skill sets, or are dependent on the resolution of NTTF Recommendation 1. The staff has focused its initial efforts on developing the schedules, milestones, and resources associated with Tier 1 and Tier 2 activities. Once the staff has completed its evaluation of the resource impacts of the Tier 1 and Tier 2 recommendations, it will be able to address the Tier 3 recommendations.

The staff will continue to be cognizant of the insights gained from continued progress on the Tier 1 recommendations. This information will impact the approach to the aforementioned Tier 2 and Tier 3 recommendations.

QUESTION 22. What percentage of original concerns identified by the Near Term Task Force recommendations has this work done or ordered to-date addressed? (note, not number of recommendations but overall concerns).

ANSWER:

The NRC has made significant progress in dispositioning the recommendations and thereby evaluating the concerns behind each recommendation. NRC has assessed and prioritized all of the recommendations and has a method for addressing each of them. Some of the lower priority items are dependent on the completion of the higher priority items. The extent of the work completed varies, but all of the work is being done consistent with the established prioritization, with the objective of proceeding in the most diligent and efficient manner possible.

QUESTION 23. Are all of the recommendations still warranted? Are you doing or planning a "check and adjust" evaluation?

ANSWER:

The NRC believes that the insights provided by the recommendations in the Near Term Task Force report warrant consideration due to their relevance to enhancing safety at United States nuclear power plants. However, the NRC notes that some of the recommendations have been combined with others where the staff has determined that it is more efficient to address similar recommendations together. Additionally, with respect to the "check and adjust" evaluation, the NRC notes that the lower tiered recommendations are informed by Tier 1 recommendations and may or may not be implemented in the future based on the insights the staff gains from the work performed to address Tier 1 recommendations and other relevant factors. The NRC is committed to evaluating each of the recommendations thoroughly, in accordance with our established regulatory processes, which include stakeholder engagement, before imposing any new or revised regulatory requirements.

QUESTION 24. At some point, work could be being done for the sake of doing work and not for the sake of improving nuclear and public safety – are we at that point?

ANSWER:

The NRC is evaluating and implementing the lessons learned from the Fukushima Dai-ichi nuclear power plant accident in accordance with our established regulatory processes. These regulatory processes ensure that before the NRC proposes new or revised regulatory requirements, we establish sound technical and safety bases and subject these analyses to public comment. This process is intended to ensure that new requirements are not imposed unnecessarily.

QUESTION 25. Is the NRC moving too fast just for the sake of moving to meet a deadline?

ANSWER:

The schedule set forth by the Commission for the implementation of the recommendations made by the Fukushima Near-Term Task Force is aggressive but accounts for the prioritization of the NTTF recommendations (i.e., implementation of those recommendations with the most added safety benefits), and the feasibility of the implementation both by the industry and by the NRC staff. As such, the NRC is focused on implementing the safety-significant Tier 1 NTTF recommendations in the most efficient and effective manner possible to ensure that the safety benefits are realized as soon as reasonably practicable. While the NRC strives to adhere to established schedules, it remains sensitive to changes that can impact the overall schedule for implementing the lessons learned from the Fukushima Dai-ichi nuclear power plant accident, as is evidenced by informed adjustments already made.

QUESTION 26. On the 5-year, 2016, deadline for meeting Tier 1 regulations, plants that had a Spring 2013 refueling outage are going to be significantly challenged to meet the arbitrary 5 year deadline, especially as guidance is still being developed in cases. Has any consideration been given to the challenge these plants face?

ANSWER:

Both the Orders and the 10 CFR 50.54(f) letters sent to licensees in March of 2012 included a provision for licensees to request an extension to the established schedules. The NRC will consider schedule relaxations by licensees in accordance with these provisions on a case-by-case basis. The schedule for completion of the Hardened Vents Order extends beyond 2016 due to the original order being superseded by another order in June 2013.

Yucca Mountain

QUESTION 27. At the 12/12/13 House hearing it was evident that the Commission had not deliberated on a supplemental request for FY 14 for Yucca Mountain Activities. Is this correct?

ANSWER:

Yes. No such deliberations had occurred.

QUESTION 28. If so, have you since begun discussions either between yourselves informally or among yourselves formally on a supplemental request for FY 14 and, if not, when have you scheduled a formal discussion on a supplemental request for FY'14?

ANSWER:

I have not engaged with each of my colleagues on this matter. No formal discussion has been scheduled for Commission consideration.

QUESTION 29. Did the Court's decision arrive at the Commission in time for the Commission to factor restart of the Yucca licensing case into your FY'15 submission to OMB?

ANSWER:

No, however, the Court's decision had been issued and received by the Commission in advance of NRC's receipt of the OMB passback of the agency's FY 2015 budget request. Consequently, the court's decision was in existence and, therefore, a factor in my deliberation on NRC's response to the OMB passback.

QUESTION 30. If not, have you begun deliberations on a supplemental request for FY'15?

ANSWER:

I have taken part in no deliberations regarding a supplemental request for FY 2015. (See also the response to Question 29.)

QUESTION 31. If not, have you scheduled such deliberations?

ANSWER:

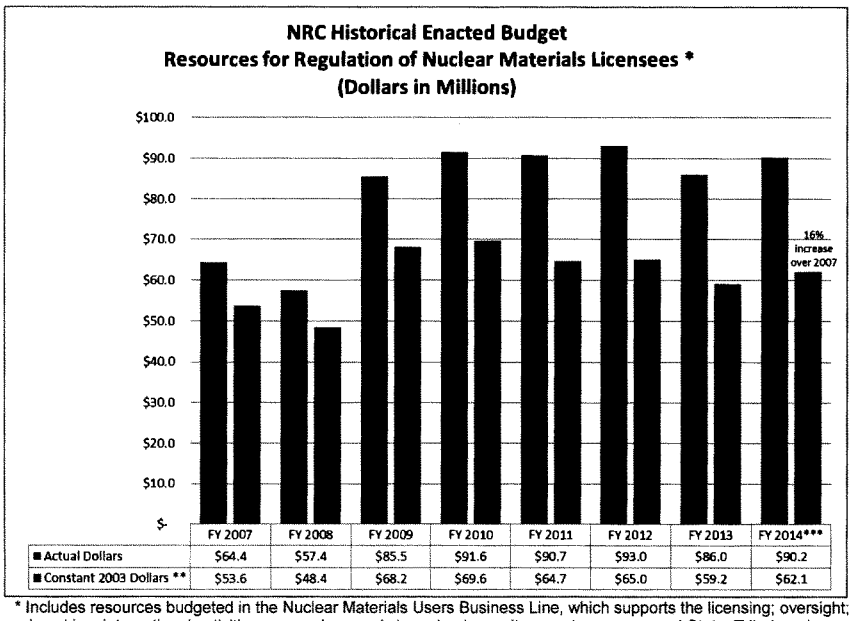
No.

QUESTION 32. The Chairman displayed a chart of NRC resources in "constant dollars" since 2007 noting that the Yucca Mountain and post-Fukushima requirements were included in those resources. How much has NRC resource expenditures declined in actual and constant dollars in regulating materials licensees?

ANSWER:

NRC resources for the regulation of materials licensees are budgeted and expended in the Nuclear Materials Users Business Line. These resources support the licensing; oversight; rulemaking; international activities; research; generic homeland security; event response; and State, Tribal, and Federal Program activities associated with the safe and secure possession, processing, handling, and use of nuclear materials for the many and diverse uses of these materials.

In fiscal year (FY) 2007, the NRC's enacted budget for Nuclear Materials Users was $64.4 million in actual dollars. In FY 2014, the enacted budget was $90.2 million in actual dollars, a 40 percent increase over FY 2007. When converted to the constant 2003 dollars shown in the chart displayed by Chairman Macfarlane, the FY 2007 enacted budget for Nuclear Materials Users was $53.6 million. In FY 2014, the enacted budget was $62.1 million in constant 2003 dollars, a 16 percent increase over FY 2007.



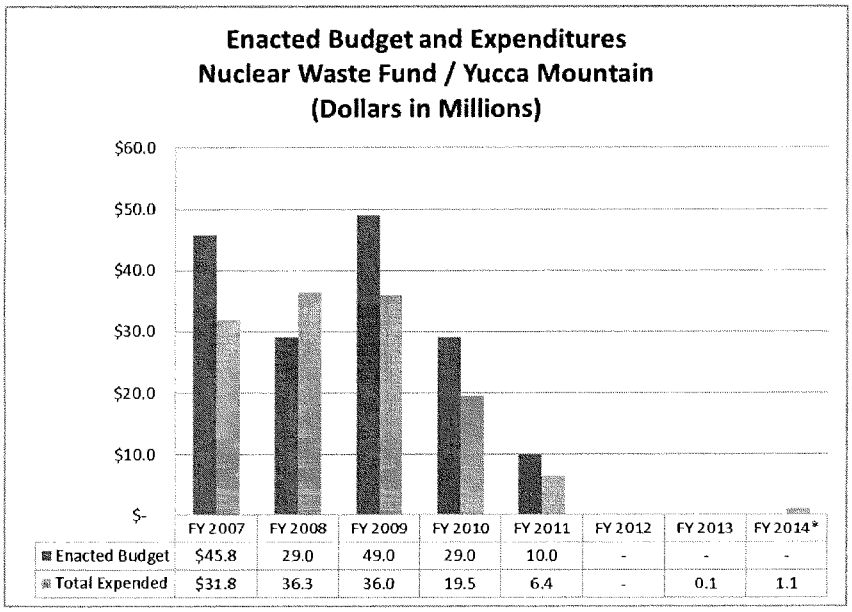
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014***
Actual Dollars	$64.4	$57.4	$85.5	$91.6	$90.7	$93.0	$86.0	$90.2
Constant 2003 Dollars **	$53.6	$48.4	$68.2	$69.6	$64.7	$65.0	$59.2	$62.1

* Includes resources budgeted in the Nuclear Materials Users Business Line, which supports the licensing; oversight; rulemaking; international activities; research; generic homeland security; event response; and State, Tribal, and Federal Program activities associated with the safe and secure possession, processing, handling, and use of nuclear materials for the many and diverse uses of these materials.
** Amounts adjusted for inflation with FY 2003 as baseline (Producer Price Index-All Commodities published 6-3-13).
*** Constant dollars calculated using the 2013 inflation factor in the Producer Price Index-All Commodities published 6-3-13.

QUESTION 33. Please provide the NRC resources and workload expenditures for Yucca Mountain for each year since 2007.

ANSWER:

In fiscal year (FY) 2007, the NRC's enacted budget for Yucca Mountain was $45.8 million. FY 2007 expenditures were $31.8 million. In FY 2011, the last fiscal year in which NRC budgeted Nuclear Waste Fund resources, the enacted budget was $10.0 million and expenditures were $6.4 million. There were no expenditures in FY 2012. Expenditures in FY 2013 were $0.1 million. FY 2014 expenditures totaled $1.1 million through February 28, 2014.



	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014*
Enacted Budget	$45.8	29.0	49.0	29.0	10.0	-	-	-
Total Expended	$31.8	36.3	36.0	19.5	6.4	-	0.1	1.1

* FY 2014 expenditures through February 28, 2014.

Government Shutdown

During the recent government shutdown, the NRC furloughed almost 3600 of the roughly 3900 members of the NRC staff. A startling number in light of the agency's public health and safety mission. A CNN report documented that only 36 percent of the total number of persons who receive a paycheck from the federal government (excluding uniformed military personnel and civilian employees of DOD) were furloughed. In comparison, the NRC furloughed more than 90 percent of its workforce.

Based on experience and our reading of the Anti-deficiency Act, it appears that the NRC has too narrowly defined the categories of personnel and activities appropriate to be retained under the Act's exception "for emergencies involving the safety of human life or protection of property." The overly narrow interpretation of that provision was manifested in the NRC's designation of approximately 300 staff as necessary to continue carrying out the agency's safety mission during the shutdown. It was also evidenced in the criteria established to determine whether a request for an emergency licensing action would qualify for processing during the furlough period.

QUESTION 34. The NRC recovers virtually all of its overhead costs through annual license fees collected pursuant to 10 CFR Part 171. During a federal government shutdown, those fees continue to be collected, although no generic services are provided. Further, NRC work on licensees' applications for specific licensing actions, including emergency and exigent license amendments or notices of enforcement discretion to avoid unnecessary plant shutdowns or to support plant startup from an outage, are covered by specific fees imposed under 10 CFR Part 170.

Would you be willing to engage Congress and the Administration to seek administrative or legislative relief that would allow fee-based activity to continue during a shutdown?

ANSWER:

Yes, the Commission would be willing to engage with Congress and the Administration on this matter.

NRC Administration

QUESTION 35. Does the NRC have a mechanism to force a detailed cross jurisdictional review of the aggregate impact of new regulatory initiatives, so that impact of actions of all divisions and branches are considered?

ANSWER:

When the NRC promulgates a new regulatory requirement, it seeks concurrence from all cognizant organizations within the NRC to ensure the requirement is well informed by a broad perspective across all program offices. Additionally, the agency recently adopted specific cumulative effects of regulation (CER) process enhancements to the rulemaking process and is currently applying those enhancements to the process used to send to licensees generic letter requests for information. One of these enhancements is that the NRC will include a specific request for comment on CER issues in any *Federal Register* notice that announces a proposed rule or a draft generic letter. This request poses questions to the public on whether there are any ongoing (or soon-to-be-implemented) activities that will impact the implementation of the proposed rule or the issuance of the final generic letter. Through this direct engagement process, the public, including nuclear power industry stakeholders, is solicited to provide to the NRC detailed information regarding the aggregate impact on their resources of the NRC's planned regulatory actions. In addition, before the NRC issues a final rule, the staff will conduct a public meeting during the final rule development stage to discuss implementation of the final rule. At this meeting, the public has another opportunity to raise concerns regarding scheduling, resources, and other constraints related to the implementation of the final requirements.

QUESTION 36. A 43% increase in staffing since 2000 (2800 then, 4000 employees today); regulatory costs increased over 54% for our plants, increased budget authority since 2000 – with sequester impacting all government agencies, in time of belt-tightening and even plant closures, is this level of staffing still appropriate?

ANSWER:

As the NRC moves toward the future, the NRC has adjusted its human capital strategies to ensure that the agency achieves its mission of protecting public health and safety and security and does so in a manner consistent with the agency's core values, reflective of our strategic goals, clear in purpose, and flexible in implementation.

The NRC is approaching work in a context of budgeted priorities and is strategically focusing on replacing employees who depart while also fine-tuning available skill sets to meet future mission needs. Over the past few years, the NRC has used a variety of methods and measures to regulate hiring and to implement and refine the organizational structure to meet changing mission needs, such as the development of short-term and long-term staffing plans, and limited/targeted external hiring for critical skills. These methods refined the hiring process and helped control full-time equivalent (FTE) utilization. As a result, the agency has made significant progress in aligning staff with the salary and benefits budget, thus allowing NRC to optimize external hiring, as needed, and within stabilized FTE levels.

In addition, one of the more prevalent challenges the NRC faces, along with the rest of the Federal government, is the increase in the number of senior staff and management eligible for retirement. The NRC recognizes the need to capture and maintain agency knowledge and skills and has made the agency's Knowledge Management program a priority to support effective approaches to knowledge collection, transfer, and use. This program includes strategic hiring and training to fill knowledge gaps and to ensure a continuous pipeline of experienced staff, establishing an information technology infrastructure to facilitate knowledge transfer, and fostering a culture of knowledge transfer and retention utilizing communities of practice.

QUESTION 37. In April 2013, NEI, on behalf of the industry, submitted recommendations on 24 ongoing regulatory actions to improve regulatory efficiency and predictability. Why has the NRC failed to respond to these recommendations?

QUESTION 38. What is the NRC's timetable for responding to these recommendations?

ANSWER:

The NRC staff reviewed NEI's April 2013 letter recommending implementation changes to 24 ongoing regulatory actions (e.g., to defer, accelerate, or eliminate). However, the letter did not provide any basis for the recommendations or any discussion of the process that was used to develop the recommendations. On October 1, 2013, NEI submitted a draft process for prioritizing regulatory actions on a plant-specific level. This draft process may represent a disciplined, plant-specific approach to identify implementation changes analogous to those generic actions identified in NEI's April 2013 letter. The NRC recently observed generic tabletop exercises of the draft process for prioritizing regulatory actions on a plant-specific level and is now observing plant-specific tabletop exercises at several facilities. In light of the ongoing activities related to NEI's October 1, 2013, letter, and because of the lack of a basis for requesting the implementation changes in the April 2013 letter, the NRC does not plan a specific response to NEI's April 2013 letter, but will continue to communicate on the issue of cumulative impact and the prioritization process.

QUESTION 39. What is the NRC's position on the industry's proposal related to prioritizing new regulatory requirements?

QUESTION 40. Why is it taking so long for the NRC to engage on this initiative?

ANSWER:

The NRC staff is responding to the Commission's Staff Requirements Memorandum (SRM) from a Commission action memorandum proposing an initiative to improve nuclear safety and regulatory efficiency. The SRM directed NRC staff to develop a notation vote paper that provides approaches for allowing licensees to propose to the NRC a prioritization of the implementation of regulatory actions as an integrated set and in a way that reflects their risk significance on a plant-specific basis. The NEI submitted a draft prioritization process on October 1, 2013. The agency then held a public meeting on the draft process in November 2013 and observed generic tabletop exercises of the process in December 2013. In addition, NRC staff observed plant-specific tabletop exercises of the process in February and March of 2014. Pending successful completion of the plant-specific tabletop exercises, our staff will observe pilot exercises. All of the exercises (generic tabletops, plant-specific tabletops, and pilot exercises) will inform the recommendations that the NRC staff will present to the Commission in a Commission vote paper (as directed by the SRM).

The staff established a timeline for this activity that allows it to thoroughly explore each option, including the legal mechanism for implementing schedule changes, backstops, scope, etc., prior to making recommendations to the Commission. The NRC staff is also engaging the public in each step of the process to ensure transparency, and believes that an appropriate prioritization process, if implemented, could enhance safety by allowing licensees to focus on items of the greatest safety significance first. The NRC staff believes that the established timeline for evaluating the various options is appropriate, because the primary focus is to ensure that the prioritization process ensures safety.

QUESTION 41. Has the NRC considered expanding the Cumulative Impacts Initiative to include rolling back existing regulatory requirements that are burdensome on licensees but provide little or no safety benefit? If not, why not?

ANSWER:

No. Although the safety significance of specific NRC regulations may vary from plant to plant due to plant-specific design and siting differences, the NRC regulatory processes are intended to carefully evaluate each regulation to ensure that any increase in regulatory burden is appropriately justified by an increase in safety. The NRC does have a strong interest in ensuring that the Cumulative Effects of Regulation (i.e., regulatory burden) are well understood and has put in place process enhancements, and is considering further enhancements, to ensure regulations are promulgated in a way that ensures licensees remain focused on those items most important to safety and security.

In July 2011, President Obama issued Executive Order 13579, which recommended that independent agencies "periodically review existing 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." In response to the Executive Order, the NRC published its final plan for retrospective analysis of existing rules on February 24, 2014 (79 FR 9981). The final plan describes the processes and activities that the NRC uses to determine whether any of its regulations should be modified, streamlined, expanded, or repealed. It concludes how these processes and activities, when considered in aggregate, meet the intent of Executive Order 13579. These NRC processes and activities include:

(1) efforts to incorporate risk assessments into regulatory decision-making;
(2) use of performance-based regulation;
(3) multiple previous and ongoing rulemaking process improvement efforts and initiatives to reduce unnecessary regulatory burden, including the staff's current initiative to address the cumulative effects of regulation;
(4) existing methodology for prioritizing its rulemaking activities;
(5) multiple opportunities for public input and significant outreach efforts to enhance public participation in the regulatory process; and
(6) coordination and communication activities with other Federal agencies, tribes, and States.

QUESTION 42. Has the Commission taken action to ensure that any intimidating behavior on the part of a Commission Chair or Commissioner is a violation of Commission internal safety and personnel policies?

ANSWER:

My fellow Commissioners and I would not tolerate the use of intimidation by any of us against NRC staff or others. It is long established NRC practice and policy that intimidating behavior is a form of misconduct and not tolerated at the NRC. Further, it is inconsistent with the NRC values, which promote cooperation and respect in the workplace. The Inspector General also has the authority to investigate employee misconduct. Therefore, we have not revised any internal safety or personnel policies to address this particular issue. I am confident that, should concerns ever arise that the Chairman or a Commissioner were engaging in inappropriate conduct of any kind, we would take appropriate steps to address those concerns.

QUESTION 43. Does the Commission, when it exercises its emergency response plan, have an Executive team that is supported by Congressional Affairs and Public Affairs personnel?

ANSWER:

Yes. Staff from both the NRC Office of Congressional Affairs and the Office of Public Affairs serve on the NRC incident response organization, led by the Executive Team, when the Headquarters Operations Center is activated. These staff and other trained responders have key roles in communicating information on the event to the public and the Congress. If only a Regional Office Incident Response Center is activated (the typical case for less severe events), the regional Public Affairs staff and headquarters Office of Congressional Affairs support the communications of the event.

QUESTION 44. Are these personnel, as part of their training, tasked to notify specific Congressional Committee staff and the public whenever the agency enters a necessary period of exercising emergency authority?

QUESTION 45. If not, why not?

ANSWER:

The Commission has updated its internal procedures consistent with the requirements of the Consolidated Appropriations Act of 2014. Consistent with the Act, the Commission's procedures require that no later than one day after the Chairman begins exercising emergency authority, he/she shall provide notice to the Committees on Appropriations of the House of Representatives and the Senate, the Committee on Energy and Commerce of the House of Representatives, and the Committee on Environment and Public Works of the Senate. This notice must include an explanation of the circumstances warranting the exercise of the Chairman's emergency authority. After this initial notice, the procedures require the Chairman to provide weekly reports to the aforementioned Congressional Committees and notify them within one day of relinquishing emergency authority. The NRC staff will be updating training for personnel in the Offices of Congressional Affairs and Public Affairs.

Notwithstanding changes to the Commission Internal Procedures to comply with the Consolidated Appropriations Act of 2014, it has been the practice of Office of Congressional Affairs personnel to notify NRC oversight committees whenever the NRC operations center is activated, regardless of whether the Chairman exercises emergency authority. If the NRC operations center is activated in response to an event at a specific facility, it is also the practice of Office of Congressional Affairs personnel to notify the Congressional delegation(s) around the facility.

It has been the practice of the Office of Public Affairs to notify the public/media when the NRC headquarters operations center is activated or when a regional office or agency headquarters has entered monitoring mode for an event at the alert or higher level, regardless of whether the Chairman exercises emergency authority. In addition, it has been the practice to regularly update the public/media on the response activities of the NRC.

QUESTION 46. In its exercises, is the Chairman (or Acting Chairman), present as part of the Executive Team for the duration of the emergency?

ANSWER:

The Chairman, or a Commissioner that she designates, leads the NRC emergency response organization during event response. The nominal approach has been that the Chairman (or Commissioner) performs this leadership function by serving as the Executive Team Director in the Operations Center; however, NRC's approach recognizes the Chairman may be called away (press conferences, White House meetings, etc.) or that long-duration response activities may preclude continuous presence.

QUESTION 47. If the Chairman departs the emergency operations center, who interacts as the Executive exercising the emergency authority?

ANSWER:

The physical location of the Chairman during an incident response does not alter her authority as Chairman and Head of Agency; she may direct the incident response from any location. When away from the Headquarters Operations Center, the Chairman may, at her discretion, delegate her Executive Team Director duties (including her emergency powers per the Reorganization Plan No. 1 of 1980). Responsibilities are traditionally delegated to another Commissioner, a senior member of the Executive Team (Executive Director for Operations/Deputy Executive Director for Operations), or to the cognizant Regional Administrator, depending upon the level of the response. The Executive Team can, in most cases, remain in contact with the Chairman if she is not in the Operations Center, and would continue to engage her as circumstances surrounding the event response warrant.

QUESTION 48. I'm not at all sure that this Commission understands its role in creating a stultifying atmosphere for the use of nuclear power in this country. While the industry continues to strive to understand how all the rulings that are currently underway and coming onto your drawing boards in the near and intermediate future can all be of equal priority in nature and deliver significant safety benefits in effect, you as a group continue to find ways to characterize your best efforts to ameliorate the problem as to better define potential requirements and to develop better cost-estimates of their implementation. The net effect is that you do not accept any responsibility for the impacts of creating requirements of dissimilar safety impact and ascribing the same priority to them. This is not an acceptable practice. Can you simply acknowledge that you do have responsibility to review your new and prospective requirements to weed out and cease working on those that have little safety impact?

ANSWER:

Yes, I acknowledge that as a member of this Commission, it is my responsibility to review and vote on proposed and draft final rules, and other substantive agency new and prospective requirements, and to reject those that, in my judgment, are not sufficiently justified in accordance with the law and NRC's regulatory framework.

As noted earlier, NRC staffing levels are at historical highs but there is much less new nuclear power plant construction than anticipated. Five units have shut down or announced they will do so.

QUESTION 49. How does NRC plan to reduce and redeploy resources to provide efficient regulation of nuclear power plants while avoiding undue cost burdens on licensees?

ANSWER:

The NRC budget execution has been adjusted in the following ways. The New Reactors budget was reduced, both in staff (full-time equivalents, or FTE) and contract support dollars, to reflect fact-of-life 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. The New Reactor resources to support licensing and oversight in FY 2012 were 591 FTE and $55 million. This was reduced in the FY 2013 estimate to 555 FTE and $28 million, which reflects the impact of the sequester reduction. The FY 2014 President's Budget is 548 FTE and $46 million.

Most staff assigned to work on new reactors are 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. Staff was also reassigned to support the Fukushima task force recommendations and the waste confidence directorate.

For the four reactors that have been shut down and transitioning to decommissioning, the budget has been reduced to reflect the reduction in resident inspectors and inspection resources. These reductions have been partially offset by the need to support the Watts Bar Unit 2 licensing, the beginning of the transition of the new reactors at Vogtle and Summer from construction to operations, and the Fukushima task force recommendations and mitigating strategies.

QUESTION 50. Does NRC have a multi-year staffing plan?

ANSWER:

The agency formulates its staffing levels (full-time equivalents, or FTEs) based on planned workload and priorities covering a two-year period (e.g., fiscal years 2014 and 2015), which is aligned with the agency budget formulation process. The information included in response to Question 51 identifies NRC planned FTEs by program, business line, and product line for FY 2014 and FY 2015.

Agency senior management meets regularly to discuss changing mission priorities and to focus on fine-tuning available skill sets to meet future mission needs. This information is used to make critical workforce planning decisions and in developing office-specific short- and long-term staffing projections to identify critical skill gaps that could jeopardize the agency's ability to carry out its mission. These projections give each office and the agency as a whole a firm idea of its longer-term staffing needs so that managers are able to plan for shifting resources internally to address workload imbalances or address critical skill gaps through the use of NRC's human capital hiring, retention, knowledge management, and development programs.

Additionally, in the year of budget execution, most offices within the NRC develop office-level staffing plans that provide more specific and targeted information, but these plans are not consolidated into an agency-level staffing plan.

QUESTION 51. Please provide it to the committee, along with pertinent assumptions about workload.

ANSWER:
As described in the previous answer, the NRC does not have a consolidated, multi-year staffing plan. However, the following table displays the NRC's two-year full-time equivalents (FTE) plan by business line for Fiscal Years (FY) 2014 and 2015. The information in the table originally appeared in the NRC's FY 2015 Congressional Budget Justification at page 6.

Budget Authority and Full-Time Equivalents

	FY 2014 Enacted		FY 2015 Request		Delta FY 2015 – FY 2014	
Major Programs	$M	FTE	$M	FTE	$M	FTE
Operating Reactors	590.1	2,140.6	577.3	2,112.3	(12.8)	(28.3)
New Reactors	221.3	767.9	237.9	846.2	$16.5	78.2
Nuclear Reactor Safety Subtotal	$811.4	2,908.5	$815.2	2,958.4	$3.8	49.9
Fuel Facilities	54.9	209.3	61.1	237.9	6.2	28.6
Nuclear Materials Users	90.2	324.8	86.5	315.2	(3.7)	(9.6)
Spent Fuel Storage and Transportation	47.6	166.1	45.3	163.0	(2.3)	(3.1)
Decommissioning and Low-Level Waste	39.8	143.2	39.3	144.2	(0.5)	1.0
Nuclear Materials and Waste Safety Subtotal	$232.5	843.5	$232.2	860.4	($0.3)	16.9
Inspector General	$12.0	63.0	12.1	63.0	$0.1	0.0
Subtotal	$1055.9	3,815.0	$1,059.5	3,881.8	$3.6	66.8
Reimbursable FTE	0.0	15.8	0.0	14.1	0.0	(1.7)
Total	$1055.9	3,830.8	$1,059.5	3,895.9	$3.6	65.1

Pertinent planning assumptions for each business line are included in the NRC's FY 2015 Congressional Budget Justification and are replicated for convenience below.

Business Line: Operating Reactors

- Workload:
  - Continuing licensing activities for 100 power reactors and completing 900 licensing actions (100 of which are Fukushima-related, six power uprates and approximately 15 ongoing reviews of compliance with National Fire Protection Association 805 for the approximately 25 reactors that will be transitioning to a risk-informed, performance-based set of requirements).
  - Continuing Fukushima lessons-learned activities, including: seismic and flooding reevaluations; staff closeout reviews and inspections of mitigating strategies; monitoring licensee implementation of the enhanced spent fuel pool instrumentation orders; completing safety evaluations for nuclear power plant licensees' Phase 1 integrated plans related to the severe accident capable hardened vents order; and emergency preparedness activities.
  - Continuing reviews for 11 license renewal applications (19 units at 12 sites) for operating reactors.
  - Continuing oversight of plants through the NRC's Reactor Oversight Process to verify that the 100 currently licensed operating nuclear power reactors continue to operate safely and securely.
  - Reviewing 18 high-priority rulemakings and three medium-priority rulemaking activities directed by the Commission, including policy development activities related to the NRC regulatory framework after the Fukushima event.
  - Conducting research based on lessons-learned from the Fukushima accident, fire safety, digital and electrical systems, materials degradation, reactor safety code development and analysis, radiation protection, probabilistic risk assessment, and evaluation of hazards from natural events.
  - Ensuring that the NRC is ready to respond around the clock and able to collect and disseminate event response information consistent with the NRC's responsibilities under the National Response Framework.

Business Line: New Reactors

- Workload:
  - Reviewing the nine combined license (COL) applications that remain active (two applicants were issued licenses, six applicants requested that their reviews be suspended, and one application was withdrawn).
  - Continuing review of three design certifications (DC) (Babcock & Wilcox mPower, U.S. EPR, and U.S. Advanced Pressurized Water Reactor (APWR)). In addition, the agency will continue discussions with Korea Hydro and Nuclear Power (KHNP) regarding the KHNP/APR-1400.
  - Continuing review of one DC renewal (Advanced Boiling Water Reactor), continuing pre-application activities for two projected DC applicants (Westinghouse and Holtec).
  - Initiating the review of one new DC (NuScale).
  - Supporting construction inspection activities of the reactors under construction (Vogtle Units 3 and 4, Summer Units 2 and 3, and Watts Bar Unit 2).
  - Performing 30 vendor inspections to ensure integrity of the supply chain.

Business Line: Fuel Facilities

- Workload:
  - Licensing conversion/deconversion, enrichment, fuel fabrication and greater than critical mass facilities, including new facilities at MOX.
  - Supporting regulatory activities related to agency follow-up of the Fukushima event, including actions from the Fukushima Near-Term Task Force and inspections for fuel cycle facilities conducted under Temporary Instruction 2600/015, "Evaluation of Licensee Strategies for the Prevention and/or Mitigation of Emergencies at Fuel Facilities."
  - Coordinating inspection procedures, event coordination, and the inspections for verification of the MOX principal systems, structures, and components.
  - Rulemaking in security-related areas, including enhanced security at fuel cycle facilities (CAT I and III), material categorization, the 10 CFR Part 26 Fitness-for-Duty Program, and fingerprinting for safeguards information access.
  - Facilitating application of the International Atomic Energy Agency safeguards at fuel cycle facilities, international coordination, and assistance on next generation safeguards designs.

Business Lines: Nuclear Materials Users

- Workload:
  - Completing approximately 2,000 materials licensing reviews (new applications, amendments, renewals, and terminations).
  - Completing approximately 900 routine health and safety inspections as well as reciprocity and reactive inspections, and a registration and follow-up inspection program for certain general licensees.
  - Conducting four materials waste safety rulemakings, as well as continuing an interactive liaison with industry and professional societies to develop new codes and consensus standards, and to review petitions for rulemaking submitted to the agency.
  - Reviewing import/export authorizations of nuclear components and radiological materials and Executive Branch Subsequent Arrangements and proposed export licenses pursuant to 10 CFR Part 810.
  - Controlling and tracking imports and exports of sources, and bilateral and multilateral activities initiated for the exchange of technical information for the safe handling, storage, transport, and disposal of nuclear waste.
  - Operating the Integrated Source Management Portfolio to track sources, and enhancing security of radioactive materials.
  - Supporting the National Materials Program, including 10 to 12 Integrated Materials Performance Evaluation Program reviews for Agreement State and NRC programs to ensure that they are adequate to protect public health and safety and compatible with NRC programs.
  - Coordinating and funding state participation in NRC training courses (including Agreement State training and travel) and responding to state technical assistance requests.
  - Interacting with the Conference of Radiation Control Program Directors, Inc., and the Organization of Agreement States, Inc., and developing and maintaining policies and procedures for the Agreement State program.

Business Line: Spent Fuel Storage and Transportation

- Workload:
  - Reviewing approximately 65 radioactive material transportation package design applications and approximately 22 spent nuclear fuel (SNF) storage applications to ensure the safe and secure storage of SNF.
  - Supporting the Renewal of the Prairie Island independent spent fuel storage installation (ISFSI) license.
  - Completing 16 safety inspections of storage and transportation cask vendors, fabricators, and designers, and of ISFSI pad construction, dry-run operations, initial loading operations, and routine operations.
  - Evaluating the regulatory framework and possible future rulemaking to support and respond to changes in the national high-level waste and spent nuclear fuel management program.

Business Line: Decommissioning and Low-Level Waste

- Workload:
  - Licensing reviews for decommissioning 14 power and early demonstration reactors, seven research and test reactors, 23 complex materials facilities, and 38 uranium recovery facilities.
  - Licensing for up to 40 military and civilian sites with naturally occurring and accelerator-produced radioactive materials sites and depleted uranium contamination.
  - Reviewing eight to ten environmental and safety licensing applications (hearings included) for uranium recovery facilities, as well as licensing activities associated with seven operating uranium recovery facilities.
  - Overseeing decommissioning and uranium recovery operations, low-level waste program activities and waste-incidental-to reprocessing activities at two U.S. Department of Energy sites.
  - Providing research-related assistance on complex licensing cases, such as application of codes for decommissioning reviews and site reviews employing bioremediation as the remediation process chosen for site cleanup at shallow sites with uranium contamination and uranium in situ recovery facilities.

QUESTION 52. Please compare anticipated future staffing levels to those of the early 2000s, before NRC significantly expanded the number of employees.

ANSWER:

Provided below is a chart, by business line, comparing the number of NRC full-time equivalents enacted for FY 2000 and FY 2014, along with the number requested for FY 2015.

FULL-TIME EQUIVALENTS[1]			
Business Line	**FY 2000 Enacted**	**FY 2014 Enacted**	**FY 2015 Request**
Operating Reactors	1,888.2	2,140.6	2,112.3
New Reactors	0.0	767.9	846.2
Fuel Facilities	141.3	209.3	237.9
Spent Fuel Storage and Transportation	93.7	166.1	163.0
Nuclear Materials Users	385.6	324.8	315.2
Decommissioning and Low-Level Waste	175.6	143.2	144.2
High-Level Waste	72.6	0.0	0.0
Total	**2,757.0**	**3,752.0**	**3,818.8**

[1]Numbers may not add due to rounding.

Decommissioning

QUESTION 53.

NRC staff recently completed a study on pools versus dry cask storage, what were the results of that study?

ANSWER:

The process for storing irradiated nuclear fuel, in both spent fuel pools (SFPs) and dry casks, is well-established and provides adequate protection of public health and safety. The referenced NRC study, titled "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor" is commonly referred to as the Spent Fuel Pool Study. This study focused on characterizing the offsite impacts from a postulated SFP accident at a reference site. The Spent Fuel Pool Study did not explicitly consider dry cask storage.

After issuing the Spent Fuel Pool Study in October 2013, the NRC staff issued a related generic analysis (COMSECY-13-0030). This generic analysis focused on whether further consideration should be given to the issue of having reactor licensees reduce the amount of spent fuel stored in their SFPs by requiring the expedited transfer of some of this spent fuel into dry storage casks. In this analysis, the NRC staff considered the broad history of NRC oversight of spent fuel storage, SFP operating experience (domestic and international), and past studies of SFP safety, as well as the October 2013 Spent Fuel Pool Study.

QUESTION 54. Did that study find that current methods for managing used fuel protect public health and safety?

ANSWER:

The NRC staff's view is that the present manner in which spent fuel is stored, both in spent fuel pools and in dry casks, provides adequate protection of public health and safety. The Spent Fuel Pool Study and the generic analysis in COMSECY-13-0030 support this view.

QUESTION 55. What is the NRC's priority for addressing submittals and license amendment requests for plants in decommissioning?

ANSWER:

On June 13, 2013, the NRC staff issued a letter to all operating reactor licensees discussing the impact on regulatory and licensing reviews as a result of the earthquake and tsunami at the Fukushima Dai-ichi nuclear power plant. The staff explained that it would continue to assess and redefine priorities while ensuring that the process does not displace ongoing work that has greater safety benefit, work that is necessary for continued safe operation, or other existing high-priority work. The staff developed a prioritization methodology that applies to all licensee requests for licensing actions, including requests for plants in decommissioning. The methodology considers many factors when establishing the priority of a licensing request, including whether the requested action affects reactor safety; impacts safe plant restart or continued operation; or is the result of Commission, Congressional, or Executive direction. Within this methodology, decommissioning licensing actions, including amendments and exemptions, are considered "routine licensing activities" and are thus given the same treatment as licensing actions requested by non-decommissioning reactors, under the factors described above.

The NRC does allow for discretion in the application of the prioritization methodology based on case-specific circumstances. For example, management can assign resources where the availability of certain skill sets factors into the decision of when to perform a review.

QUESTION 56.

NRC delays in review of decommissioning plants' submittals result in unnecessary depletion of the decommissioning trust funds and potentially unnecessary cost increases to electric customers in regulated markets and a lack of necessary funds in unregulated markets. Decommissioning plants are limited in their ability to make changes to plant configurations in a safe and timely manner and expeditiously reduce staff and costs until the NRC approves license amendment requests and other submittals.

> How do you respond to the concerns that NRC delays in reviewing decommissioning plants' submittals result in unnecessarily high decommissioning costs?

ANSWER:

The NRC staff developed a prioritization methodology that applies to all licensee requests for licensing actions. The methodology considers many factors when establishing the priority of a licensing request, including whether the requested action affects reactor safety; impacts safe plant restart or continued operation; or is the result of Commission, Congressional, or Executive direction. Within this methodology, decommissioning licensing actions, including amendments and exemptions, are considered "routine licensing activities" and are thus given the same treatment as licensing actions requested by other non-decommissioning reactors under the factors described above. The NRC staff evaluates the licensee's submittals using the prioritization methodology and is applying the appropriate resources to the review of decommissioning licensing actions. While a licensee may request expedited review of certain licensing actions that it believes would reduce the cost of decommissioning, the NRC staff must weigh the impact of this request against other licensing actions it has under review and distribute its resources appropriately.

When looking at the impact of perceived delays in reviewing licensee submittals against the cost of decommissioning, the NRC staff weighs its mission to protect public health and safety, and to promote the common defense and security, against increased operating costs associated with processing licensing actions. The NRC has specific regulations in place to provide reasonable assurance that funds will be available for the decommissioning process (see 10 CFR 50.75, "Reporting and Recordkeeping for Decommissioning Planning"). These funds are specifically designated for radiological decontamination of the facility. Funding for areas where the licensee requires NRC action to reduce cost, the most significant of which are in the areas of emergency preparedness and security, are not related to radiological decontamination. Funding for these activities would come from sources other than the decommissioning trust fund and should have no impact on radiological safety or the decontamination activities of the site.

Cost/Benefit Analyses

QUESTION 57. Why have the NRC rule implementation cost estimates been so wrong, with actual costs ranging from three to more than 10 times the NRC estimates?

ANSWER:

The NRC acknowledges that in some cases there have been large differences between the NRC's estimated costs of rule implementation and actual industry implementation costs. The main reason for such differences is that the NRC does not have access to detailed or aggregate cost information for most of our regulated entities. If regulated entities provide detailed cost information for an NRC regulatory proposal during the proposed rule public comment period, then the NRC could refine its initial cost estimates to account for the detailed cost information. However, the NRC's experience to date is that commenters rarely provide cost information of sufficient detail to support adjustment of the NRC's cost estimates. As the regulated community has indicated, this is because they are typically unable to provide detailed comments on NRC's implementation costs estimates during the proposed rule stage as those costs depend upon implementation guidance, which is not available at the time the NRC requests public comment on a proposed regulatory action.

To improve the NRC's cost estimating processes, the agency is now conducting case studies of past cost-benefit analyses to identify lessons learned that could be used to improve the accuracy of future cost-benefit analyses. The results of the case studies to date show that there are often significant divergences between the costs estimated before the regulation is issued compared to the actual costs incurred by regulated entities after the final rule is published. Typically, these divergences result from different assumptions made by the NRC and the regulated entities regarding the changes from the status quo needed to comply with the new requirement. Other contributors to differences in estimated versus actual costs include differing assumptions on how a licensee will achieve compliance, different timing of compliance, variability between plant sites, and lack of industry cost data. Furthermore, the NRC has been advised that the regulated entities consider some types of cost data to be proprietary information, which they wish to withhold from public disclosure.

The NRC is taking several actions to improve the accuracy of future cost estimates. First, the NRC now publishes draft implementation guidance concurrent with the publication of proposed rules and final implementation guidance concurrent with final rules. Developing implementation guidance concurrent with each rule will help to ensure that the NRC and industry have a common understanding of the effort required for a licensee to comply with the new requirement. This should also aid with developing cost estimates based on the expected method the licensee will use to achieve compliance with the proposed regulatory action. Second, the NRC is continuing its case studies of past NRC cost-benefit analyses to identify additional lessons learned. The staff is working with nuclear power industry stakeholders to explore possible ways in which these stakeholders can provide the NRC with more detailed information on implementation costs (cost averages, ranges, etc.) without disclosing proprietary information. The NRC's cost-benefit improvement activities are described in "Plan for Updating the U.S. Nuclear Regulatory Commission's Cost-Benefit Guidance" (SECY-14-0002).

QUESTION 58. What training and oversight do NRC staff receive pertaining to the performance of regulatory analyses (cost-benefit analyses)?

ANSWER:

The NRC imposes minimum experience, skill, and education requirements on staff performing regulatory analyses consistent with the GAO series GG-0110 cost analyst/economist position descriptions. The NRC cost analysts are expected to be knowledgeable and experienced in topics relevant to cost-benefit analyses involving the nuclear power cycle and the direct and indirect economic impacts upon those segments of society affected by nuclear reactor technology, nuclear facility design, reactor systems, and engineering safety features. They are trained in economics and cost-benefit methodology and can apply the knowledge and techniques to a wide array of cost or benefit estimates including cost of delay, production cost differentials, financial costs, operation and maintenance costs, capital costs, radiological exposure cost, and socioeconomic and environmental impacts. NRC cost analysts have (1) knowledge of nuclear reactor concepts, component designs, and fundamental operating characteristics of nuclear reactors; (2) basic knowledge of, or experience in, reactor operations; and (3) basic knowledge of, or experience in, analysis of reactor safety systems.

NRC cost analysts have education that is comparable to undergraduate level training (i.e., Bachelor's Degree in Business Administration, Economics, Accounting, or Finance), plus experience in applying this knowledge to the public health and safety, environmental, and antitrust impacts of nuclear power plants and other nuclear facilities and licenses. Some NRC cost analysts also maintain certifications as Contract Officer Representatives, registered Professional Engineers, and/or maintain active member status in professional societies (e.g., Society for Benefit-Cost Analysts).

Draft NRC cost-benefit analyses receive independent reviews before they are finalized by the staff or presented to the Commission for approval, by (1) other knowledgeable NRC cost analysts, (2) NRC technical staff knowledgeable in the safety issues that the rule is addressing, and (3) NRC project management staff who are responsible for coordinating implementation of the rule. Following these reviews, the draft cost-benefit analyses are reviewed by several NRC managers who are responsible for the technical, policy, and legal staff involved with the effort. Furthermore, draft versions of NRC regulatory analyses for rulemakings are released for public comment at the proposed rule stage. All comments received are addressed as part of the final rulemaking package.

QUESTION 59. What corrective actions have the NRC taken in response to these flawed regulatory analyses?

ANSWER:

The NRC is taking several actions to improve the accuracy of its cost estimates. First, the NRC now publishes draft implementation guidance concurrent with the publication of proposed rules and final implementation guidance concurrent with final rules. Developing implementation guidance concurrent with each rule will help to ensure that the NRC and industry have a common understanding of the effort required for a licensee to comply with the new requirement, and should also aid with developing cost estimates based on the expected method the licensee will use to achieve compliance with the proposed regulatory action. Second, the NRC is continuing its case studies of past NRC cost-benefit analyses to identify additional lessons learned. The staff is working with nuclear power industry stakeholders to explore possible ways in which these stakeholders can provide the NRC with more detailed information on implementation costs (cost averages, ranges, etc.) without disclosing proprietary information. Third, the NRC is taking a comprehensive and holistic approach to updating its guidance pertaining to cost-benefits analyses. The NRC's cost-benefit analysis update activities are described in "Plan for Updating the U.S. Nuclear Regulatory Commission's Cost-Benefit Guidance" (SECY-14-0002).

Stable Regulatory Environment

Certainly you all subscribe to the principle, "Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition." And certainly you all agree that NRC actions must, "lend stability to the nuclear operational and planning processes."

QUESTION 60. Do you agree?

QUESTION 61. These are directly from your own Principles of Good Regulation, and if you disagree you either are disavowing these and/or should be telling us about a major activity to overhaul them and why.

ANSWER:

Yes, I agree that established regulations should be perceived to be reliable and not unjustifiably in a state of transition. I also agree that NRC actions must lend stability to the nuclear operational and planning processes.

Should new safety issues arise revealing a potential lack of adequate protection of public health and safety, the NRC must take appropriate and justified regulatory action with full consideration of all relevant factors. These factors include the magnitude of the potential threat to public health and safety, societal costs and benefits, and regulatory stability and predictability for both the public and nuclear industry stakeholders. Such actions, to the extent possible, will be designed to minimize adverse impacts on licensee operational and planning processes.

QUESTION 62. Does the Commission still hold that the risks associated with nuclear plants are sharply reduced when they have permanently shut-down?

ANSWER:

Yes. The overall risks associated with nuclear plants are sharply reduced when they permanently shut down. During the first year after a nuclear power plant is permanently shut down, the licensee prepares the plant for safe decommissioning. The actions taken by the licensee include the modification of systems, shipment of radioactive waste, emptying of tanks, draining of systems, and electrical isolation of components. All nuclear fuel is removed from the reactor vessel and placed in the spent fuel pool or into dry-cask storage. Therefore, for a permanently shut down nuclear power plant, the potential for a release of water containing radioactivity is significantly reduced and the potential for a reactor accident is eliminated, thereby sharply reducing the overall risk associated with an operating reactor.

In addition, consistent with agency procedures, the NRC typically maintains a resident inspector onsite during part of the first year after permanent shutdown. The resident inspector oversees the plant transition from operation to permanent shutdown, in order to verify that the licensee complies with its license, technical specifications, and procedures. As during plant operations, the resident inspection staff is supplemented with special inspection expertise as needed, which includes security, emergency response, health physics, environmental monitoring, and engineering. NRC inspections continue throughout decommissioning until the licensee demonstrates that the site meets the license termination requirements. The level of decommissioning inspections will be commensurate with the licensee's planned decommissioning activities.

QUESTION 63. Have the permanently shut-down plants that have undergone decommissioning done so to the Commission's satisfaction?

ANSWER:

Yes, all eleven NRC licensed nuclear power plants decommissioned to date have met the NRC's unrestricted release requirements for site release. Each has terminated its NRC operating reactor license and been able to release its reactor plant footprint for unrestricted use. Several of these sites retain their spent nuclear fuel in dry cask storage, and the storage facility remains under NRC licensing and oversight. The eleven plants that have completed decommissioning used the reactor decommissioning strategy of DECON (prompt or active dismantlement) or SAFSTOR (delayed dismantlement) followed by DECON.

Each of these nuclear power plants was decommissioned satisfactorily in accordance with the NRC's regulations. Experience gained from these decommissioning projects has been well documented by both the NRC and the nuclear industry. Lessons learned from past nuclear power reactor decommissioning projects have been captured in industry reports and in NRC guidance and regulations.

QUESTION 64. What policy change did the Commission debate in open forum that allowed the staff to consider changes to the process, like devoting NRC resources to establishing a Citizens Advisory Board, last week at a public meeting in California?

ANSWER:

To my knowledge, no policy changes have been made concerning a proposed request to make Citizens Advisory Boards (CABs) an NRC requirement.

For the NRC to recognize Citizens Advisory Boards and grant them official status would be a policy change and may require amendments to the Atomic Energy Act. The NRC does not officially recognize or endorse any special interest group, public or private organizations, coalitions, or individuals.

All members of the public are given a fair and equal opportunity to comment on a licensee's Post-Shutdown Decommissioning Activities Report (PSDAR), decommissioning strategies, and License Termination Plan. Under current regulations, the NRC is required to publish a notice of the receipt of the licensee's PSDAR, make the PSDAR available for public comment, schedule a meeting in the vicinity of the location of the licensed facility to discuss the PSDAR within 60 days of receipt, and publish a notice of the meeting in the *Federal Register* and another forum readily accessible to individuals in the vicinity of the site. Another opportunity for public involvement is when the licensee's License Termination Plan is submitted for NRC approval.

QUESTION 65. What safety risk issues drive such a change?

QUESTION 66. Is the staff and the Commission promoting stability by introducing new concepts on the fly?

ANSWER:

To my knowledge, no policy changes have been made or are planned to make Citizens Advisory Boards an NRC requirement.

Earlier this year you issued an order asking a Board to determine if a "de facto" license amendment was present in a licensee response to a Commission-defined Confirmatory Action Letter (CAL). This process states agreements that a licensee makes and envisions a level of discussion between the NRC and the licensee. Once agreed upon, the licensee is expected to meet the agreed upon conditions. The Commission interrupted that process. The licensee did, in fact, submit an "actual" license amendment under the Commission regulations. However, by then, the Commission had already inserted itself into the process by referring the "de facto" question to the Board.

QUESTION 67. When did the Commission and staff consider and take public views on the concept of a "de Facto" license amendment?

QUESTION 68. Where in the Commission's guidance is the term, "de Facto license amendment," located?

ANSWER:

The concept of a "'de facto' license amendment" arises from Federal court and Commission case law (rather than any specific Commission guidance or regulation) and is rooted in the question whether a challenged NRC authorization constitutes a license amendment, and therefore necessitates an associated hearing opportunity within the meaning of Section 189a of the Atomic Energy Act. Whether a particular agency action constitutes a "'de facto' license amendment" is a highly fact-specific question that arises in litigation; as such, the NRC has not sought public comments on the concept. The seminal Commission case on the topic is *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant), CLI-96-13, 44 NRC 315 (1996).

QUESTION 69. What imminent and urgent safety issue was present in this case that led you to intervene with an Order?

ANSWER:

None. The referenced decision, CLI-12-20, was issued in response to a petition to intervene and request for hearing, as well as a request for stay, filed by a third party, Friends of the Earth. In its Order, the Commission: (1) referred an asserted regulatory violation to the Executive Director for Operations for appropriate action; (2) referred a portion of the petition to the Atomic Safety and Licensing Board Panel (Panel) for consideration whether the Confirmatory Action Letter issued by the agency to the licensee "constitutes a *de facto* license amendment that would be subject to a hearing opportunity under [Atomic Energy Act] Section 189a, and, if so . . whether the petition meets the standing and contention admissibility requirements of 10 C.F.R. § 2.309"; and (3) denied the petitioner's discretionary hearing and stay requests.

This Order constituted a routine exercise of Commission adjudicatory decision-making. In particular, referral of the "adjudicatory" portion of the hearing petition to the Panel was consistent with past adjudications of this type. Licensing boards historically have resolved disputes about whether a Staff action constitutes a "de facto" license amendment within the meaning of Section 189a. These cases often involve questions of fact, which are generally decided by the boards. *See, e.g., Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-89-28, 30 NRC 271, 275-78 (1989), *aff'd*, ALAB-940, 32 NRC 225 (1990).

QUESTION 70. When did the Commission meet and develop internal guidance with public comment on when it would intervene in any future Confirmatory Action Letter?

ANSWER:

The Commission has not met on this topic, nor has it developed guidance with respect to this issue. As discussed in response to Questions 67 and 68, the question whether an NRC action (such as issuance of a Confirmatory Action letter) constitutes a "de facto" amendment to a license arises in the context of an adjudicatory challenge, and is decided on a case-by-case basis when it arises in the context of an adjudicatory challenge.

QUESTION 71. Do you recognize at all that the Commission's stated purposes of this CAL process were rendered meaningless in this case by the order you issued?

ANSWER:

The vitality of the CAL was not affected by the Commission's November 2012 order. The NRC staff issued the CAL on March 27, 2012, to confirm the actions that the licensee, Southern California Edison Company, committed to take prior to returning SONGS Units 2 and 3 to power operation. On June 7, 2013, Edison informed the Staff of its determination not to seek restart of Units 2 and 3. Following that notification, and after the licensee further notified the Staff that it had permanently defueled both units, the Staff closed the CAL in August 2013. Until its closure, the CAL remained in effect, irrespective of—and independent of—the ongoing adjudication. In view of Edison's decision to shutter the plant, no party pursued appeals in the adjudication; instead, the NRC staff sought vacatur of the Licensing Board's decision in the case, LBP-13-7. Consistent with prior practice, the Commission subsequently vacated LBP-13-7 without giving any opinion on its validity.

QUESTION 72. Do you recognize that by choosing to insert itself into this process, the Commission negated the regulatory stability of the CAL process by taking an "ad hoc" action in this case?

ANSWER:

In its decision of May 13, 2013 (LBP-13-7), the Licensing Board in the SONGS matter concluded that, in this instance, the "CAL process" constituted a "de facto" license amendment proceeding that is subject to a hearing opportunity. On the day appeals of LBP-13-7 were due to be filed with the Commission, the licensee informed the NRC Staff of its determination to retire SONGS Units 2 and 3. The NRC Staff thereafter sought to vacate the Board's decision in view of the licensee's decision to permanently retire the units. The issues decided by the Board in LBP-13-7 were mooted by the shutdown decision, which left no live controversy between the litigants. Although an unreviewed licensing board decision has no precedential effect in any event, the Commission vacated LBP-13-7 in a December 2013 decision (CLI-13-9), which has the effect of rendering the decision legally void. Vacatur ensures the regulatory stability of the CAL process, because it resolves any uncertainty associated with status of the unreviewed Board decision. In short, while litigants in future proceedings may cite to LBP-13-7, it is only persuasive, not binding precedent in any proceeding.

SONGS

On September 23, 2013, the NRC issued a Notice of Nonconformance to Mitsubishi Heavy Industries (MHI) for a faulty proprietary computer model that it utilized in its design and production of replacement steam generators for the San Onofre Nuclear Generating Station (SONGS) in Southern California. The NRC also cited Southern California Edison, the licensee, for failing to ensure that MHI's modeling and analysis were adequate. The design errors by MHI resulted in SONGS being shut down permanently, eliminating 2,200 megawatts of emission-free electricity from California's power supply and placing California ratepayers in the position of bearing enormous costs for defective equipment.

QUESTION 73. What does a Notice of Nonconformance against a vendor mean, and what was the NRC's finding in this case?

ANSWER:

The NRC Enforcement Policy (revised July 9, 2013) supports the NRC's mission to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment. Adequate protection is presumptively assured by compliance with NRC requirements. Compliance with NRC requirements, including regulations, technical specifications, license conditions, and Orders, provides reasonable assurance to the NRC and the public that safety and security are being maintained. The application of the Policy ensures that associated enforcement actions properly reflect the safety or security significance of such violations.

The Enforcement Policy applies to all NRC licensees and applicants, to various categories of non-licensees, and to individual employees of licensed and non-licensed entities involved in NRC-regulated activities. These include, but are not limited to, the vendors supplying safety-related components to NRC licensees.

Within the NRC Enforcement Policy, the Notice of Nonconformance is defined as follows:

> Notice of Nonconformance (NON) is a written notice describing the failure of a licensee's contractor to meet commitments that have not been made legally binding requirements by the NRC (e.g., a commitment made in a procurement contract with a licensee or applicant as required by 10 CFR Part 50, Appendix B). (If the contractor deliberately fails to meet the terms of a procurement contract, the NRC may issue a violation under the Deliberate Misconduct Rule in 10 CFR 50.5.) NONs request that non-licensees provide written explanations or statements describing corrective steps (taken or planned), the results achieved, the dates when corrective actions will be completed, and measures taken to preclude recurrence.

A nonconformance was issued in the September 20, 2013, inspection report of Mitsubishi Heavy Industries, Ltd (MHI). Based on the results of NRC's inspection of MHI conducted at the Mitsubishi Nuclear Energy Systems offices in Arlington, Virginia, from August 5 through August 9, 2013, the NRC determined that certain activities were not conducted in accordance with NRC requirements in Appendix B to Title 10 of the Code of Federal Regulations (10 CFR) Part 50 that were contractually imposed upon MHI by its customers or by NRC licensees.

Criterion III of Appendix B to 10 CFR Part 50 states, in part, that, "measures shall be established to assure that applicable regulatory requirements and the design basis...are correctly translated into specifications, drawings, procedures, and instructions." It also states,

in part, that, "measures shall be established for the identification and control of design interfaces and for coordination among participating design organizations. These measures shall include the establishment of procedures among participating design organizations for the review, approval, release, distribution, and revision of documents involving design interfaces."

Contrary to the Appendix B criteria described above, during the design of replacement steam generators for Southern California Edison from approximately 2004 to 2008, NRC concluded that MHI did not establish measures for control of design interfaces between the MHI Steam Generator Design Section and the MHI Takasago Research and Development Center related to the thermal hydraulic and vibration analyses used for aspects of the San Onofre Nuclear Generating Station, Unit 2 and Unit 3 replacement steam generator design. Specifically, the output of the FIT-III thermal-hydraulic code and input to the flow induced vibration analysis software (FIVATS) vibration code were not verified to be in accordance with MHI design requirements. MHI failed to convert the wide gap flow velocity output results from the FIT-III analysis to narrow gap flow velocities needed as input for the FIVATS vibration analysis code. The details are described in the NRC inspection report of MHI.

QUESTION 74. Was un-redacted information provided to the NRC from MHI, the problem vendor, important to your investigation that found that MHI's computer modeling was faulty?

ANSWER:

I am informed that, as part of the NRC inspection of Mitsubishi Heavy Industries, Ltd (MHI) conducted at the Mitsubishi Nuclear Energy Systems offices in Arlington, Virginia from August 5 through August 9, 2013, the information important to the inspection and related processes were made available to the inspection team. The MHI documentation provided for NRC review was not redacted. MHI also made available key employees from Japan to answer questions posed by the NRC staff. The inspection team was able to discuss certain activities related to the MHI root cause analysis and corrective actions to have reasonable assurance that those quality assurance activities were conducted in accordance with NRC requirements that were contractually imposed upon MHI by its customers.

The NRC endeavors to protect the public health and safety and the environment by overseeing vendor compliance with NRC's regulations for assuring the integrity of domestic and global parts and services supplied to nuclear power reactors. Vendors manufacture a range of components such as fasteners, pumps, valves, and reactor vessels, as well as provide design, engineering, and construction services. While most vendors do not hold NRC licenses, they are nonetheless bound through contracts with licensees, applicants, or other vendors to comply with NRC's quality assurance regulations contained in Appendix B to Title 10, Code of Federal Regulations 10 CFR, Part 50 (Appendix B). Vendors are also required to comply with 10 CFR Part 21. The NRC conducts reactive and routine inspections of vendors' implementation of Appendix B and Part 21 requirements.

Mitsubishi Heavy Industries (MHI) was found to have provided defective replacement steam generators to Southern California Edison (SCE) with faulty computer modeling which severely under-predicted the vibration that caused extensive tube wear leading to a radioactive leak at the San Onofre Nuclear Generating Station (SONGS). In the NRC's Notice of Nonconformance issued in September, 2013, the NRC states that "*certain activities were not conducted in accordance with NRC requirements that were contractually imposed upon MHI by its customers or by NRC licensees.*" In addition, the NRC noted that MHI's computer modeling errors were found in the design of steam generators at four other nuclear plants, however, the corrective actions taken by MHI would prevent issues that led to the tube failures from being introduced into future US design and fabrication activities.

QUESTION 75. Has the NRC conducted an inventory of the work MHI has performed within the US fleet?

ANSWER:

I am informed that the NRC reviewed MHI activities related to projects and equipment supplied to U.S. nuclear power plants. MHI components supplied to US plants included the following:

Plant	Equipment	Delivery
Surry - 1	Reactor vessel head (RVH)	2003
North Anna	Control rod drive mechanism (CRDM)	2004
Kewaunee	RVH, CRDM	2004
Point Beach - 1	RVH, CRDM	2005
Point Beach - 2	RVH, CRDM	2005
Farley - 1	RVH, CRDM	2004
Farley - 2	RVH, CRDM	2005

Plant	Equipment	Delivery
Millstone - 2	RVH	2005
Fort Calhoun	Replacement steam generator (RSG)	2006
Fort Calhoun	RVH	2006
Fort Calhoun	Replacement pressurizer (RPZ)	2006
HB Robinson - 2	RVH, CRDM	2005
Prairie Island - 1	RVH, CRDM	2006
Prairie Island - 2	RVH, CRDM	2005
South Texas - 1	RVH, CRDM	2009
South Texas - 2	RVH, CRDM	2010
San Onofre - 2	RSG, RVH	2008
San Onofre - 3	RSG, RVH	2010
Potential new plant construction: Comanche Peak - 3, 4	United States Advanced Pressurized-Water Reactor (US-APWR)	MHI Design Control Document Original Submittal: 12/31/2007

As noted in response to Question 74, the NRC vendor inspection of Mitsubishi Heavy Industries, Ltd (MHI) conducted in August 2013, evaluated if sufficient corrective action was taken by MHI to preclude the design interface control issues from being introduced into future U.S. design and fabrication activities. The final vendor inspection report contained one notice of nonconformance related to inadequate design interface control between different design sections within the MHI organization.

QUESTION 76. Has the NRC reviewed MHI's role in other projects, whether it is steam generator components or another role they may have played at other plants? If not, when will you be conducting that review?

ANSWER:

I am informed that, in accordance with the requirements for the reporting of defects mandated by 10 CFR Part 21, MHI issued a Part 21 report dated October 5, 2012, indicating that Fort Calhoun Nuclear Generating Station was the only other U.S. licensee that had similar replacement steam generators (RSGs) that could be susceptible to tube wear. In this report, MHI concluded that due to a higher natural frequency, Fort Calhoun is not affected by wear in steam generator tubes. The Fort Calhoun RSGs have operated for more than three fuel cycles with no evidence of U-bend tube degradation. Other steam generators designed by MHI (operating internationally) are of a different design and have a variety of tube sizes, tube pitches, and operating conditions. These steam generators have experienced power operation without significant tube wear.

QUESTION 77. Has the NRC issued any alerts to other plants regarding MHI's problematic computer modeling?

ANSWER:

The NRC provides specific reporting requirements to any licensee, applicant, contractor, or subcontractor that relate to a licensee's or applicant's activities through 10 CFR 21 "Reporting of Defects and Noncompliance," 10 CFR 50.72 "Immediate notification requirements for operating nuclear power reactors" and 10 CFR 50.73 "Licensee event report system." Additionally, NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," contains guidelines that the NRC staff considers acceptable for use in meeting the requirements of 10 CFR 50.72 and 50.73. The associated reports are issued via the NRC website (http://www.nrc.gov/reading-rm/doc-collections/#event), which provides a platform for maximum communication of events, reports associated with Power Reactor status, Event Notifications, Part 21 reports, Preliminary Notification Reports and Licensee Event Reports.

The regulations under 10 CFR Part 21, "Reporting of Defects and Noncompliance," in part, implement Section 206 of the Energy Reorganization Act and specify the conditions under which information must be submitted when a licensed facility, activity, or basic component fails to comply with the Atomic Energy Act of 1954, as amended, or NRC regulations. Specifically, Part 21 provides (a) that the facility, activity or basic component supplied to such facility or activity fails to comply with the Atomic Energy Act of 1954, as amended, or any applicable rule, regulation, order, or license of the Commission relating to substantial safety hazards, or (b) that the facility, activity, or basic component supplied to such facility or activity contains defects, which could create a substantial safety hazard, to immediately notify the Commission of such failure to comply or such defect, unless he has actual knowledge that the Commission has been adequately informed of such defect or failure to comply.

I am informed that Part 21 reports associated with Mitsubishi Nuclear Energy System specific to steam generator tubes at San Onofre Nuclear Generating Station were reported as noted in the table that follows.

Log No	Notifier	Description	Report Date	Event No./ Accession No.
2012-18-03	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Wear Adjacent to Retainer Bars (San Onofre 3)	10/05/2012	ML12283A243
2012-18-02	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Wear Adjacent to Retainer Bars (San Onofre 3)	09/07/2012	ML12255A054
2012-18-01	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Wear Adjacent to Retainer Bars (San Onofre 3)	06/04/2012	ML12157A311
2012-18-00	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Leak During First Cycle After Steam Generator Replacement (San Onofre 3)	04/19/2012	ML121210672

In addition to these reporting requirements, the NRC also performs reactive inspections to follow up on significant industry events. Management Directive 8.3, "NRC Incident Investigation Program," discusses the process for performing reactive inspections. The NRC takes into account both deterministic and quantitative (risk) criteria when deciding whether to perform a reactive inspection and what level of inspection is warranted by an event. In the case of San Onofre, the NRC sent an Augmented Inspection Team to the site to follow-up on the steam generator issue. The team report from July 18, 2012, makes several references to the steam generator modeling process used at San Onofre. The report is publicly available.

QUESTION 78. Does the NRC routinely disseminate information on problem vendors like MHI to the nuclear industry?

ANSWER:

The NRC publishes vendor inspection reports on the public NRC website and typically provides more than 30 vendor inspection reports per year. Additionally, in order to disseminate information on vendor performance, the NRC issues generic communications (e.g., Information Notices) or makes direct contact with the licensee when warranted.

In general, vendor inspection reports communicate and evaluate aspects of the vendor's regulatory compliance with the provisions of Title 10 of the Code of Federal Regulations (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." These issues are documented in findings written in vendor inspection reports available on the NRC public website.

QUESTION 79. In this or any other case where there is problem vendor like MHI, what is the NRC's responsibility in protecting other licensees and the customers they serve?

ANSWER:

The NRC is statutorily mandated under Section 103 of the Atomic Energy Act of 1954, as amended, to issue licenses only to persons "who are equipped to observe and who agree to observe such safety standards to protect health and to minimize danger to life or property as the Commission may, by rule, establish; and who agree to make available to the Commission such technical information and data concerning activities under such licenses as the Commission may determine necessary to promote the common defense and security and to protect the health and safety of the public." Additionally, Section 206 of the Energy Reorganization Act of 1974 includes requirements for reporting of defects. This section requires those owning, operating, or supplying the components of any facility licensed under the Atomic Energy Act to notify the NRC if they obtain information that any facility or component does not comply with the Atomic Energy Act or the NRC's regulations relating to a substantial safety hazard or if a component has a defect that could create a substantial safety hazard. As noted in the previous answer, the NRC has numerous methods it uses to disseminate this information to licensees.

When warranted, the NRC communicates information to a wide stakeholder base through a combination of generic communications (see table below), regulatory requirements, licensing, safety oversight including inspection, assessment of performance and enforcement, operational experience evaluation, and regulatory support activities.

Generic Communication	Description
Bulletins	(1) Request licensee actions and/or information to address significant issues regarding matters of safety, security, safeguards, or environmental significance that have great urgency, and (2) require a written response.
Generic Letters	(1) Request licensee actions and/or information to address issues regarding emergent or routine matters of safety, security, safeguards, or environmental significance, and (2) require a written response.
Information Notices	Communicate operating or analytical experience to the nuclear industry. Information notices may also communicate the results of recently completed research. The industry is expected to review the information for applicability and consider appropriate actions to avoid similar problems.
Regulatory Issue Summaries	(1) Communicate and clarify NRC technical or policy positions on regulatory matters that have not been communicated to or are not broadly understood by the nuclear industry, (2) inform the nuclear industry of opportunities for regulatory relief, (3) communicate previous NRC endorsement of industry guidance on technical or regulatory matters, (4) provide guidance to applicants and licensees on the scope and detail of information that should be provided in licensing applications to facilitate NRC review, and (5) request the voluntary participation of the nuclear industry in NRC-sponsored pilot programs or the voluntary submittal of information, which will assist the NRC in the performance of its functions.

Senator Jeff Sessions to Commissioner Kristine L. Svinicki

QUESTION 1. Status of nuclear power

a. Please describe the factors that, in your view, may be contributing to a decline in nuclear power as a share of overall U.S. electricity generation?

b. Please describe the factors that, in your view, may have contributed to the shutdown of nuclear units announced since 2012.

ANSWER:

a) The NRC is a safety regulator and, as such, does not regulate the broader economic and market factors that may be contributing to a decline in nuclear power as a share of overall U.S electricity generation. Through interactions with other agencies and the industry, however, the NRC is aware of factors that may be affecting the share of nuclear power generated in the U.S., including the cost of other forms of energy and market structures which affect the pricing of electricity.

b) The reasons for shutdowns of nuclear units since 2012 that have been provided by NRC licensees in official notifications of cessation of operation have included the cost of repairs, the economics of power generation, and operational uncertainties.

QUESTION 2.

After Fukushima, there was renewed discussion about spent fuel pools at nuclear power plants. My understanding is that the NRC's current position is that spent nuclear fuel can be safely kept in spent fuel pools or relocated to dry cask storage; in other words, that both options are safe and that NRC requirements do not require transfer to dry cask storage. In fact, the NRC staff issued a report dated November 12, 2013, finding "that the expedited transfer of spent fuel to dry cask storage would provide only a minor or limited safety benefit, and that its expected implementation costs would not be warranted."

a. What factors are relevant to the NRC's consideration of this issue?

b. What is the next step in the NRC's process on this topic?

ANSWER:

a. The process for storing irradiated nuclear fuel, in both spent fuel pools (SFPs) and dry casks is well-established and provides adequate protection of public health and safety. The NRC conducted a study, titled "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor" which is commonly referred to as the Spent Fuel Pool Study. This study focused on characterizing the offsite impacts from a postulated SFP accident at a reference site. The Spent Fuel Pool Study did not explicitly consider dry cask storage.

   After issuing the Spent Fuel Pool Study in October 2013, the NRC staff issued a related generic analysis (COMSECY-13-0030). This generic analysis focused on whether further consideration should be given to the issue of having reactor licensees reduce the amount of spent fuel stored in their SFPs by requiring the expedited transfer of some of this spent fuel into dry storage casks. In this analysis, the NRC staff considered the broad history of NRC oversight of spent fuel storage, SFP operating experience (domestic and international), and past studies of SFP safety, as well as the October 2013 Spent Fuel Pool Study.

   The NRC staff's view is that the present manner in which spent fuel is stored, both in SFPs and in dry casks, provides adequate protection of public health and safety. The Spent Fuel Pool Study and the generic analysis in COMSECY-13-0030 support this view.

b. The NRC staff provided its recommendation regarding expedited transfer of spent fuel to dry casks to the Commission in November 2013 via COMSECY-13-0030, "Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel." The staff recommended that no additional studies or regulatory analyses of the issue of expedited transfer of spent fuel be pursued and that this Tier 3 Japan lessons-learned activity be closed. This recommendation is currently being evaluated by the Commission.

QUESTION 3.

There are concerns about the potential for erosion of the Commission's longstanding regulations and policies pertaining to the Backfit Rule.

a. Please describe your understanding of the Backfit Rule.

ANSWER:

The NRC's Backfit Rule (10 CFR 50.109) for nuclear power plants ensures that the NRC conducts a structured evaluation whenever it seeks to impose new or changed requirements on nuclear power plant licensees. In general, if the NRC seeks to impose a new or changed requirement (the backfit) on the design, construction, organization or procedures governing the operation of a nuclear power plant, then the NRC must show the backfit constitutes a substantial increase in public health and safety or common defense and security, and that the substantial increase is justified by the cost of the backfit. There are three exceptions to this general requirement: (i) the backfit is needed to comply with an NRC requirement in effect at the time of the NRC's licensing approval of the facility, (ii) the backfit is needed to ensure adequate protection to public health and safety; or (iii) the backfit is needed to re-define the level of protection that is considered to be adequate. The NRC backfit analyses, which include cost-benefit analyses, are consistent with OMB guidance and in accordance with Executive Order 13563 "Improving Regulation and Regulatory Reviews," which states that to the extent permitted by law, each agency shall "propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs."

NRC regulations analogous to the Backfit Rule apply to new nuclear power plants such as the Vogtle and Summer reactors in Georgia and South Carolina, and new power plant designs approved in design certification rules. The NRC refers to these backfit-like regulations as the "issue finality provisions" of 10 CFR Part 52.

b. Under what circumstances, if any, has the NRC 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?

c. Would you agree that allowing a qualitative analysis to override a quantitative analysis, which found that a proposed rule's costs outweighed its benefits, would undermine the regulatory reliability provided by the Backfit Rule?

ANSWER:

The Commission prefers to rely on quantitative inputs in all of its regulatory analyses, including those the agency conducts pursuant to the Backfit Rule. This preference comports with long-standing OMB guidance in OMB Circular A-4, Regulatory Analysis (2003). "Sound quantitative estimates of benefits and costs, where feasible, are preferable to qualitative descriptions of benefits and costs because they help decision makers understand the magnitudes of the effects of alternative actions." (OMB Circular A-4 at 26.) As a result, the overwhelming majority of the agency's regulatory analyses and backfit analyses are supportable by quantitative factors alone.

Nonetheless, the agency will consider qualitative inputs in regulatory analyses and backfit analyses when those inputs are not quantifiable. This is consistent with the NRC's and the Federal government's guidance on cost-benefit analyses. OMB Circular A-4 notes that "some important benefits and costs (e.g., privacy protection) may be inherently too difficult to quantify or monetize given current data and methods." (OMB Circular A-4 at 26-27.) Thus, considering qualitative inputs in addition to quantitative inputs in regulatory analyses, including backfit analyses, may be appropriate when quantitative data is not available for some benefits and costs that are inherently difficult to quantify.

In most cases, the monetary costs of implementing regulations that necessitate facility changes at nuclear power plants are quantifiable. Cost estimating is a well-understood activity and is one of the first steps taken when undertaking any planned facility change. Likewise, benefits are usually quantified in terms of averted dose to the public because the required facility changes reduce the likelihood of a future accident. The agency has several methods available to quantify these benefits in a disciplined fashion. But, there are some potential benefits from safety regulations at nuclear power plants that are intangible. Examples such as improvements to the NRC's regulatory efficiency or improvements to knowledge resulting from reduction of technical uncertainty on a matter of public health and safety or common defense and security are not easily quantified.

The NRC staff has compiled the attached list (Table 1) of power reactor regulatory actions (rulemakings, regulatory guides, generic letters, etc.) taken in the last 16 years in which the consideration of qualitative factors as benefits justified a decision that may not have been cost-justified by quantifiable factors alone. It is interesting to note, however, that of the 15 examples offered by the NRC staff, eight were not backfits (as defined by the Backfit Rule). Of the seven examples that were backfits, five cases required the performance of a formal backfit analysis while the remaining two examples did not require a formal backfit analysis because they were adequate protection issues. Given the hundreds of regulatory actions the agency undertakes every year, this table represents a very small fraction of the agency's regulatory actions and clearly exhibits how few cases exist of qualitative factors – alone – justifying a backfit that would not have been otherwise justifiable. Perhaps this simply reflects the Commission's and the Federal government's policy of relying on quantitative factors to the greatest extent possible in

regulatory analyses and reinforces the view that the application of qualitative factors historically has been, and should continue to be, measured and judicious.

TABLE 1 – LIST OF POWER REACTOR REGULATORY ACTIONS WHERE QUALITATIVE FACTORS JUSTIFIED A DECISION THAT MAY NOT HAVE BEEN QUANTITATIVELY COST-JUSTIFIED

Rule	Federal Register Citation	Backfit Determination	Quantitative Justification[1,2,3] (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Requirements for Maintenance of Inspections, Tests, Analyses, and Acceptance Criteria *(10 CFR 52.99)*	77 FR 51880 (August 28, 2012)	Not a Backfit	($2.16) to ($1.98)	Regulatory efficiency; improvements in knowledge; general public	77 FR at 51890-91 *(summarizing regulatory analysis)* ML120100062 *(full regulatory analysis)*
Enhancements to Emergency Preparedness *(10 CFR 50.47)*	76 FR 72560 (November 23, 2011)	Not a backfit (portion); Cost-justified substantial safety enhancement (portion)	($75.9) to ($59.8)	Increased and consistent EP measures will decrease risk of exposure to public; increase accident mitigation if beyond operator actions;	ML112971541 *(backfit analysis and regulatory analysis)*
Enhanced Weapons, Firearms, Background Checks, and Security Event Notifications *(10 CFR Part 73)*	76 FR 6200 (February 3, 2011)	Not a backfit (portion); Adequate Protection (portion)	($70.2) to ($47.4)	Provide safety and security-related benefits that would offset the cost; enhanced regulatory efficiency; increased defense capabilities	76 FR at 6231 *(backfit analysis)* 76 FR at 6226 – 6231 *(summarizing regulatory analysis)* ML061380803; ML061440013 *(appendices from October 2006 proposed rule)*

1 The range of net benefits result from using 3% and 7% net present values to be consistent with NUREG/BR-0058.
2 Unless started otherwise, benefits were not quantified within the quantitative justification.
3 The sign convention is favorable consequences are positive; adverse consequences are negative.

Rule	Federal Register Citation	Backfit Determination	Quantitative Justification[1,2,3] (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock *(10 CFR 50.61)*	75 FR 13 (January 4, 2010)	Not a backfit	($57.3) to ($49.7)	Regulatory efficiency; Improvements in knowledge	ML092710544 *(regulatory analysis)*
Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses *(10 CFR Part 51) (proposed rule)*	74 FR 38117 (July 31, 2009)	Not a backfit	($2.64) to ($2.29)	Improvements in knowledge; regulatory efficiency	ML083460087 *(regulatory analysis)* *NOTE: RA for final affirmed rule is ML110760321*
Aircraft Impact Assessment Rule *(10 CFR 50.150)*	74 FR 28112 (June 12, 2009)	Not a backfit (portion); Administrative Exemption (portion)	($6.0) to ($4.9)	Reduces risk to public and occupational health and offsite and onsite property; improvements in knowledge; safeguards and security considerations	*c.f.* 74 FR at 28144-28145 *(backfit analysis)* 74 FR at 28142 *(regulatory analysis)*
Power Reactor Security Requirements *(10 CFR Part 73 and 10 CFR 50.54)*	74 FR 13926 (March 27, 2009)	Not a backfit (portion); Cost-justified substantial safety enhancement (portion)	($857.3) to ($590.2)	Safeguards and security; regulatory efficiency; reduces risk to public and occupational health and offsite and onsite property	ML083390372 *(backfit analysis and regulatory analysis)* ML081680090 *(appendices)*

Rule	Federal Register Citation	Backfit Determination	Quantitative Justification[1,2,3] (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Fitness for Duty Programs *(10 CFR Part 26)*	73 FR 16966 (March 31, 2008)	Cost-justified substantial safety enhancement	($694) to ($445) *insufficient modeling*	Reduced risk to public and occupational health and offsite and onsite property; regulatory efficiency; public perception; workplace productivity and efficiency	73 FR at 17172 *(portion of backfit analysis)* ML080580135 *(backfit analysis and regulatory analysis)*
Licenses, Certifications and Approvals for Nuclear Power Plants *(10 CFR Part 52)*	72 FR 49352 (August 28, 2007)	Not a backfit	($19.3) to $10.2 *benefits quantified*	Regulatory efficiency	ML071490350 *(regulatory analysis)*
Safeguards Information Protection Requirements *(10 CFR Part 73)*	73 FR 63546 (October 24, 2008)	Not a Backfit (portion); Adequate Protection (portion)	($18.8) to ($15.8)	Positive effect on public and occupational health; increased protection of onsite and offsite property; increased protection of common defense and security of the nation	ML072190656 *(regulatory analysis)*

Regulatory Action	Citation	Backfit Determination	Quantitative Justification (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Severe Accident Capable Reliable Hardened Containment Vents *Order EA-13-109*	ML13143A321	Cost-justified substantial safety enhancement	($938) to ($2,027) *benefits quantified*	Providing defense in depth; addressing significant uncertainties; supporting severe accident management and response; improving hydrogen control; addressing external events; addressing multi-unit events; considering independence of barriers improving emergency planning; considering consistency between reactor technologies; considering severe accident policy statement; addressing international experience and practices	SECY-12-0157 ML12326A675
Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations *Generic Letter 2006-XX (issuance of Generic Letter denied by Commission)*	ML061950031 *(SECY)* ML063490261 *(Commission Denial)*	Not a backfit	($52.8) to ($67.4) *benefits quantified*	Improvements in knowledge; regulatory efficiency	ML061950031

Regulatory Action	Citation	Backfit Determination	Quantitative Justification (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors *Generic Letter 2004-02*	ML042360586	Compliance	Four scenarios provided where some had negative benefits and some had positive *benefits quantified*	Regulatory efficiency; improve understanding of ECCS and CSS recirculation at PWR facilities; improve public health and safety; increase public confidence	ML042260449
Training and Qualification of Security Personnel at Nuclear Power Reactor Facilities *Regulatory Guide 5.75*	ML091690037	Not a backfit (portion); Cost-justified substantial safety enhancement (portion)	($857.3) to ($590.2)	Safeguards and security; regulatory efficiency; reduces risk to public and occupational health and offsite and onsite property	76 FR 13968 (March 27, 2009) *Relied on Power Reactor Security Rule regulatory analysis*
Guidance for the Assessment of Beyond-Design-Basis Aircraft Impacts *Regulatory Guide 1.217*	ML092900004	Not a backfit	($6.0) to ($4.9)	Reduces risk to public and occupational health and offsite and onsite property; improvements in knowledge; safeguards and security considerations	ML112101610 *(referencing 10 CFR 50.150)* 74 FR 28112, 28136 (June 12, 2009) *Relied on Aircraft Impact Assessment Rule regulatory analysis*

QUESTION 4. At our hearing, questions were raised about votes by the Commission related to a "two person" provision in the context of material control and accounting regulations. My understanding is that the Commission directed the staff to engage in a backfit analysis. Please describe your understanding of this issue and your vote. Also, please describe the steps that the Commission directed the NRC staff to take in this regard.

ANSWER:

NRC regulations place special nuclear material into one of three categories, based on its type (plutonium or uranium) and quantity. Category I special nuclear material consists of either plutonium or uranium-233 greater than 2 kilograms, or highly enriched uranium (>20% isotope uranium-235) greater than 5 kilograms. This is the category of special nuclear material considered of greatest risk to theft and diversion; consequently, the most stringent security and material control and accounting requirements are applied to its control. For over 30 years, NRC's physical security regulations have contained a two-person provision for access to Category I quantities of special nuclear material.

The two-person rule referred to in the hearing was part of a proposed NRC rulemaking to revise the material control and accounting (MC&A) requirements (10 CFR Part 74) and would have required all fuel cycle licensees to have two qualified and authorized individuals present during certain activities involving special nuclear material. The technical basis for the two-person rule was to provide the capability to better detect diversion or misuse of special nuclear material at fuel fabrication and uranium enrichment facilities, which already have robust security measures. The Commission has previously determined that the current level of very robust security measures at these facilities as required by existing NRC security regulations provides adequate protection of public health and safety. Therefore, two-person rule requirements could provide only incremental benefits, which the staff had not quantified. Consequently, the Commission determined that a backfit analysis was appropriate and needed.

The Commission therefore directed the staff to "conduct a backfit analysis on the proposed two-person rule provision and include the results in the rulemaking package." (Staff Requirements Memorandum for COMSECY-12-0026, "Revision to Proposed Rule: Amendments to Material Control and Accounting Regulations.") The Commission also provided the staff an alternative path, stating that "if the staff believes significantly more time is needed to address this backfit issue, the staff could remove the two-person rule provision from this rulemaking package and consider the issue in a future rulemaking effort." The Commission further directed that if this alternative was selected, the *Federal Register* notice for the rule should include a statement that the two-person provision would be considered for rulemaking in the future and that interested stakeholders would have the opportunity to comment. As a result, the *Federal Register* notice for this proposed rule, published Friday, November 8, 2013, states that "[i]n a future rulemaking, the NRC will consider a two-person rule to verify the accuracy of MC&A information within a fuel cycle facility. Interested stakeholders will then have the opportunity to comment regarding a two-person rule." *10 CFR Parts 40, 70, 72, 74, and 150: Amendments to Material Control and Accounting Regulations*, 78 Fed. Reg. 67224, 67226 (Friday, November 8, 2013).

As is reflected in my vote on this matter, when considering changes that would impact certain types of NRC-licensed fuel cycle facilities that possess special nuclear material, the staff is obligated under current NRC regulations either to conduct a backfit analysis or to demonstrate that one or more exceptions apply. The Commission provided the NRC staff the option of considering the two-person rule in a future rulemaking because addressing the backfit issues

would have further delayed issuance of the proposed changes to the regulations on material control and accounting, many aspects of which were non-controversial, readily implemented, and anticipated to make licensees' material control and accounting programs more efficient and effective in protecting special nuclear material. Ultimately, the staff decided to move forward with the rulemaking absent the two-person provision to avoid further delays to these improvements.

QUESTION 5. In your opinion, is the Nuclear Regulatory Commission currently functioning in an independent, impartial, collegial, and professional manner, and in accordance with the obligations of the Commission under law?

ANSWER:

Yes, I believe the Commission is functioning in an independent, impartial, collegial, and professional manner and in accordance with the Commission's legal obligations. Having said that, and as a reflection of the NRC as a continuous learning organization, we always strive to do better.

Senator John Boozman to Commissioner Kristine L. Svinicki

QUESTION 1. Last year, I joined members of the Senate Subcommittee on Clean Air and Nuclear Safety, in urging the Commission to "comply expeditiously with the writ of mandamus issued by the U.S. Court of Appeals for the D.C. Circuit in the case styled *In re Aiken County*, No. 11-1271." As acknowledged in a letter from NRC's Chief Financial Officer, the D.C. Circuit has "directed the Nuclear Regulatory Commission to *promptly* continue with the licensing process" associated with Yucca Mountain. The court found that NRC was "simply defying a law enacted by Congress, and... doing so without any legal basis." Commissioner Svinicki, as an individual Commissioner, do you believe the Commission should express the need for FY2015 funding for the Yucca Mountain license review to the White House and/or the Office of Management and Budget? Please explain.

ANSWER:

The agency's budget request is determined through a collegial voting process of the entire Commission. To date, a Commission majority has not been established to support a policy of seeking funding for the Yucca Mountain license review. I will continue to deliberate on and discuss this matter with my Commission colleagues in the course of our agency's budget formulation process.

QUESTION 2. Commissioner Svinicki, would you further elaborate on the discussion that we heard during the hearing on the necessity of the so-called "two-person rule." Please explain why it is or isn't cost-beneficial. What types of facilities are covered by the two-person rule? And, at an unclassified level, please explain the types of security that apply to those facilities.

ANSWER:

NRC regulations place special nuclear material into one of three categories, based on its type (plutonium or uranium) and quantity. Category I special nuclear material consists of either plutonium or uranium-233 greater than 2 kilograms, or highly enriched uranium (>20% isotope uranium-235) greater than 5 kilograms. This is the category of special nuclear material considered of greatest risk to theft and diversion; consequently, the most stringent security and material control and accounting requirements are applied to its control. For over 30 years, NRC's physical security regulations have contained a two-person provision for access to Category I quantities of special nuclear material.

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The Commission therefore directed the staff to "conduct a backfit analysis on the proposed two-person rule provision and include the results in the rulemaking package." (Staff Requirements Memorandum for COMSECY-12-0026, "Revision to Proposed Rule: Amendments to Material Control and Accounting Regulations.") The Commission also provided the staff an alternative path, stating that "if the staff believes significantly more time is needed to address this backfit issue, the staff could remove the two-person rule provision from this rulemaking package and consider the issue in a future rulemaking effort." The Commission further directed that if this alternative was selected, the *Federal Register* notice for the rule should include a statement that the two-person provision would be considered for rulemaking in the future and that interested stakeholders would have the opportunity to comment. As a result, the *Federal Register* notice for this proposed rule, published Friday, November 8, 2013, states that "[i]n a future rulemaking, the NRC will consider a two-person rule to verify the accuracy of MC&A information within a fuel cycle facility. Interested stakeholders will then have the opportunity to comment regarding a two-person rule." *10 CFR Parts 40, 70, 72, 74, and 150: Amendments to Material Control and Accounting Regulations*, 78 Fed. Reg. 67224, 67226 (Friday, November 8, 2013).

As is reflected in my vote on this matter, when considering changes that would impact certain types of NRC-licensed fuel cycle facilities that possess special nuclear material, the staff is obligated under current NRC regulations either to conduct a backfit analysis or to demonstrate that one or more exceptions apply. The Commission provided the NRC staff the option of considering the two-person rule in a future rulemaking because addressing the backfit issues would have further delayed issuance of the proposed changes to the regulations on material

control and accounting, many aspects of which were non-controversial, readily implemented, and anticipated to make licensees' material control and accounting programs more efficient and effective in protecting special nuclear material. Ultimately, the staff decided to move forward with the rulemaking absent the two-person provision to avoid further delays to these improvements.

QUESTION 3. Commissioner Svinicki, would you elaborate on the role that cost- benefit analysis plays in the review of new regulations and requirements? My understanding is that if a rule or regulation is needed to provide adequate protection of safety, the cost-benefit analysis is irrelevant, but that such analysis plays a critical role for minor safety enhancements.

ANSWER:

The NRC uses cost-benefit analyses in regulatory analyses to establish the overall benefits and costs of NRC regulations and requirements, and in backfitting analyses to help determine if proposed backfitting in rules and regulations – not involving adequate protection or compliance with NRC requirements – should be adopted. The cost-benefit analysis in a regulatory analysis can be used when selecting among several alternative regulatory approaches for achieving adequate protection or compliance. The NRC use of cost-benefit analyses is in accordance with Executive Order 13563 "Improving Regulation and Regulatory Reviews," which states that to the extent permitted by law, each agency shall "propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs."

The NRC prepares cost-benefit analyses for most proposed NRC regulations and makes them available to the public as part of the public comment process. This practice allows the public to provide comments on the proposed rule or regulation, as well as the cost-benefit analysis. The NRC considers these public comments in evaluating whether the proposed rule or regulation should be adopted or revised before adoption.

QUESTION 4. Recently, NRC staff released a report to the Commission titled "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark 1 Boiling Water Reactor." The cover memo from this report states that "this study shows the likelihood of a radiological release from the spent fuel after the analyzed severe earthquake at the reference plant to be very low (about 1 time in 10 million years or lower)." NRC staff have also informed the Commission that "the costs of expedited transfer of spent fuel to dry cask storage outweigh the benefits," that "additional studies are not needed," and that "no further regulatory action is recommended for the resolution of this issue and this Tier 3 item should be closed." (See "Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel.") Despite the extremely small risk of a radiological release from spent fuel pools due a seismic event, the Commission continues to expend limited resources and attention on this issue. In recent weeks, the Commission held a briefing on this issue. Commissioner Svinicki, can you explain the rationale for continued prioritization of the spent fuel pool issue mentioned above, and do you have a reason to doubt the staff recommendations? It seems as if the Commission's focus on this issue may be an attempt to create headlines and cause public doubt about the safety of emissions-free nuclear power. Do you agree?

ANSWER:

In October 2011, the NRC staff identified consideration of expedited transfer of spent fuel as an additional issue with a clear nexus to the Fukushima Dai-ichi event that may warrant regulatory action. As a result, the NRC staff has undertaken the evaluation referred to in your question. The staff completed its consequence study in October 2013, and provided the Commission its detailed regulatory analysis and recommendation in November 2013.

This matter is currently before the Commission for consideration. I have reviewed the decision record and cast my vote in this matter, however, as of this writing, the Commission's deliberation is still ongoing. When it is concluded, my vote and associated views will be posted to the agency's public website.

QUESTION 5. Commissioner Svinicki, in recent years, a number of questions have been raised regarding the decision-making role of the NRC Chairman vs. the decision-making role of the entire Commission. The scope of the Chairman's authority to make an emergency declaration and the Chairman's responsibility to promptly notify others of such a decision are just two small examples of situations where the role and responsibility of the NRC Chairman has been called into question. Other examples include unilateral efforts by a previous chairman to supplant the Commission's will on policy and budget issues. The *Energy Reorganization Act of 1974* states that "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 and responsibilities, and shall have one vote." Unilateral decisions by a previous chairman to disregard this requirement on a number of matters have created a dangerous precedent, setting up the Chairman as a sort of "super-Commissioner" on matters of policy and budget. Do you think it is important for Congress to reinforce provisions of law that ensure an equal role for all Commissioners in all non-emergency matters?

ANSWER:

The Commission is currently operating in a collegial manner but I acknowledge that Congress may elect at any time to amend or strengthen provisions of law that, in its view, are being misinterpreted or misapplied by individuals or agencies and that such action can clarify an agency's understanding and confine future actions to those that the Congress explicitly condones.

Senator BOXER. Thank you, commissioner.

Commissioner Apostolakis.

STATEMENT OF HON. GEORGE APOSTOLAKIS, COMMISSIONER, U.S. NUCLEAR REGULATORY COMMISSION

Mr. APOSTOLAKIS. Chairman Boxer, Ranking Member Vitter, Chairman Carper, Ranking Member Sessions, and members of the committee, good morning.

As Chairman Macfarlane stated, we have made a great deal of progress in implementing the lessons learned from the Fukushima accident. I would like to add that we know a lot more today about what it will take to implement the lessons learned than we did in 2011, when the Commission set its goal to "strive to complete and implement the lessons learned from the Fukushima accident within 5 years, by 2016."

It is important not to focus exclusively on the 5-year goal to complete the recommendations but, rather, on the entire process, which allows us to improve safety significantly by implementing the highest priority safety enhancements in a well informed and effective manner.

I emphasize that for the most safety significant enhancements we expect to meet the 5-year implementation goal. Schedules will extend beyond 2016 in the case of the boiling water reactor containment vents because additional requirements were imposed after issuance of the initial orders. In another case the guidance for addressing seismic hazard reevaluations was revised in order to implement safety enhancements and actual plant modifications earlier, while allowing licensees more time to complete comprehensive site-specific seismic risk analysis.

In my view, these actions are consistent with the original intent of the Commission to promptly and effectively implement the lessons learned from Fukushima. Thank you.

[Mr. Apostolakis's responses to questions for the record follow:]

Environment and Public Works Committee Hearing
January 30, 2014
Follow-Up Questions for Written Submission

QUESTIONS FOR COMMISSIONER APOSTOLAKIS

Question from the Honorable Thomas R. Carper

1. **In September of last year, I along with Senators Sessions, Barrasso and Cardin, sent a letter to the Commission encouraging the NRC to streamline the licensing process for dry cask storage. Since we sent our letter, we understand the NRC has implemented a new, expedited process for approving dry cask storage designs. Could you elaborate on that process and share with us any feedback that you have received from the industry?**

Answer

The NRC staff continues to work toward achieving regulatory efficiencies in the dry cask licensing process, while ensuring that public health and safety is maintained. Since September 2013, the NRC staff has improved two specific stages of the spent fuel storage licensing review process. The first improvement modified the NRC's acceptance review process for incoming requests for dry cask licensing actions. The acceptance review process is designed to ensure that applicants provide adequate information to support timely completion of the detailed staff review. The changes to the acceptance review process are intended to ensure that acceptance reviews are completed within 60 days of receipt of the application, and to facilitate an applicant's ability to submit timely responses to requests for supplemental information by encouraging the use of "off the shelf" or existing information as opposed to the applicant developing new analyses. The modified acceptance review process provides the applicants with a more transparent and reliable start to the technical review.

The second improvement is focused on our internal processes to improve communications and streamline the review process. In this regard, once the detailed technical review is completed, the staff has enhanced its internal processes for obtaining concurrence on documents such as licenses, certificates, and safety evaluation reports. This improvement is intended to ensure that these documents move quickly from the NRC staff to the licensees and certificate holders. Additionally, the NRC's webpage has been updated to publicly communicate the status of storage systems under review (http://www.nrc.gov/waste/spent-fuel-storage.html), including links to the licensing and certification schedule for dry cask storage systems and also the schedule for rulemakings for dry cask storage. The NRC staff has also improved its direct interactions with applicants by holding routine teleconferences to communicate the status of reviews and any challenges faced by the staff and applicants in completing the process.

Additional improvements are still being developed and implemented, such as standardizing safety evaluation report language. Feedback from cask vendors, certificate holders, and licensees has been positive, with stakeholders reporting that they now have a better understanding of the NRC licensing process and acknowledging that timeliness has improved.

Questions from the Honorable David Vitter

With respect to responses to questions 1 through 33 from Senator Vitter to me on seismic analysis and Diablo Canyon, Waste Confidence, Fukushima Regulation Implementation, and Yucca Mountain, I provide the following response.

Answer

I concur with Chairman Macfarlane's responses on behalf of the Commission to questions 1 through 33 to the Chairman.

Government Shutdown

34. The NRC recovers virtually all of its overhead costs through annual license fees collected pursuant to 10 CFR Part 171. During a federal government shutdown, those fees continue to be collected, although no generic services are provided. Further, NRC work on licensee's applications for specific licensing actions, including emergency and exigent license amendments or notices of enforcement discretion to avoid unnecessary plant shutdowns or to support plant startup from an outage, are covered by specific fees imposed under 10 CFR part 170.

Would you be willing to engage Congress and the Administration to seek administrative or legislative relief that would allow fee-based activity to continue during a shutdown?

Answer

Yes.

With respect to responses to questions 35 through 52 from Senator Vitter to me on NRC Administration, I provide the following response.

Answer

I concur with Chairman Macfarlane's responses on behalf of the Commission to questions 39 through 58 to the Chairman.

With respect to responses to questions 53 through 56 from Senator Vitter to me on Decommissioning, I provide the following response.

Answer

I concur with Chairman Macfarlane's responses on behalf of the Commission to questions 59 through 62 to the Chairman.

With respect to responses to questions 57 through 59 from Senator Vitter to me on Cost/Benefit Analyses, I provide the following response.

Answer

I concur with Chairman Macfarlane's responses on behalf of the Commission to questions 63 through 65 to the Chairman.

With respect to responses to questions 60 through 72 from Senator Vitter to me on Stable Regulatory Environment, I provide the following response.

Answer

I concur with Chairman Macfarlane's responses on behalf of the Commission to questions 66 through 78 to the Chairman.

With respect to responses to questions 73 through 79 from Senator Vitter to me on SONGS, I provide the following response.

Answer

I concur with Chairman Macfarlane's responses on behalf of the Commission to questions 79 through 85 to the Chairman.

Questions from the Honorable Jeff Sessions

1. **Status of nuclear power:**

   a. **Please describe the factors that, in your view, may be contributing to a decline in nuclear power as a share of overall U.S. electricity generation.**

   b. **Please describe the factors that, in your view, may have contributed to the shutdown of nuclear units announced since 2012.**

Answer

I concur with Chairman Macfarlane's responses to questions 1.a and 1.b provided on behalf of the Commission.

2. **In 2009, the President nominated you to serve on the NRC and you were unanimously confirmed by the Senate in 2010.**

   a. **What would you say have been some of your key accomplishments or activities on the Commission in your first term?**

Answer

Key accomplishments and activities include:

- "A Proposed Risk Management Regulatory Framework" (published as report NUREG-2150; April 2012). This report proposes a strategic vision and options for adopting a more comprehensive and holistic risk-informed, performance-based regulatory approach for reactors, materials, waste, fuel cycle, and transportation that would continue to ensure the safe and secure use of nuclear materials. It describes a framework under which the agency could be regulating 10 to 15 years in the future. The staff will provide the Commission with options for implementing this proposal later this year.

- "Use of Risk Insights to Enhance Safety Focus of Small Modular Reactor Reviews" (jointly with former Chairman Jaczko; July 9, 2010). The objective of this proposal, which was approved by the Commission, is to accelerate the development of a licensing framework informed by risk insights from Probabilistic Risk Assessments for Small Modular Reactors (SMRs) and to do so in a manner that makes the reviews of SMR design certification and combined license applications more safety focused and more efficient.

- "Utilization of Expert Judgment in Regulatory Decision Making" (January 19, 2011). The objective of this proposal, which was approved by the Commission, is to ensure that the formal utilization of expert judgment is applied consistently in regulatory decision making throughout the Agency to promote a more transparent basis for regulatory decisions when expert judgment is required.

- "Proposed Initiative to Improve Nuclear Safety and Regulatory Efficiency" (jointly with Commissioner Magwood; November 5, 2012). The objective of this proposal, which was approved by the Commission, is to enhance safety by promoting the use of the risk significance of current and emerging reactor issues in an integrated manner and on a plant-specific basis when prioritizing regulatory actions, in order to recognize that each operating nuclear power plant has unique contributors to risk.

- "Revision to 10 CFR Part 61 Low Level Waste" (jointly with Commissioner Magwood; November 3, 2011). The objective of this proposal, which was approved by the Commission, is to change the more complex rulemaking envisioned by the staff regarding site-specific analysis in order to bring a clearer risk-informed approach to 10 CFR Part 61.

- "Proposed Initiative to Conduct a Lessons-Learned Review of the NRC's Force-on-Force Inspection Program" (jointly with Commissioner Ostendorff; January 3, 2014). The purpose of this proposal, which was approved by the Commission, is to evaluate whether any adjustments are necessary to ensure the program is accomplishing its intended objectives effectively and whether NRC and licensee efforts are focused on the most important issues to ensure security and safety at the sites.

b. What are some of the issues or challenges you would look forward to working on during a second term?

Answer

In addition to the opportunity to contribute further to the implementation of the major initiatives listed above, I would continue to focus on the following issues, particularly the use of risk information in their resolution:

- Seismic and flooding hazard re-evaluations for operating nuclear power plants
- Fukushima lessons learned
- Fire protection issues
- License renewal beyond 60 years for operating nuclear power plants
- Small Modular Reactor licensing
- Waste Confidence Decision

3. There are concerns about the potential for erosion of the Commission's longstanding regulations and policies pertaining to the Backfit Rule.

a. Please describe your understanding of the Backfit Rule.

b. Under what circumstances, if any, has the NRC 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?

c. Would you agree that allowing a qualitative analysis to override a quantitative analysis, which found that a proposed rule's costs outweighed its benefits, would undermine the regulatory reliability provided by the Backfit Rule?

Regarding responses to questions 3 a., b. and c. from Senator Sessions to me:

Answer

I concur with Chairman Macfarlane's responses on behalf of the Commission to questions 2. a. b. and c. to the Chairman.

4. **At our hearing, questions were raised about votes by the Commission related to a "two person" provision in the context of material control and accounting regulations. My understanding is that the Commission directed the staff to engage in a backfit analysis. Please describe your understanding of this issue and your vote.**

   Also, please describe the steps that the Commission directed the NRC staff to take in this regard.

Answer

Licensees that are authorized to possess special nuclear material are placed into categories based on their security risk. Category I licensees pose the highest security risk, while Categories II and III licensees pose less of a security risk for reasons such as the amount or attractiveness of the material in the context of theft or sabotage. Category I licensees have been subject to checks and balances (reflecting the two-person rule concept) in their Material Control and Accounting (MC&A) programs as has been required by NRC regulations for decades. There are two licensees in Category I.

The staff proposed to apply the two-person requirement to other users of special nuclear material regardless of attractiveness. The Commission's direction to the staff included the options to either justify the proposed two-person rule provision or remove it from the rulemaking package and consider it in a future rulemaking after undertaking a backfit analysis. The staff chose the option of removing the two-person rule provision and to consider it in a future rulemaking, if justified.

Under current NRC regulations, the staff is required to either conduct a backfit analysis or demonstrate that exceptions apply.

5. **In your opinion, is the Nuclear Regulatory Commission currently functioning in an independent, impartial, collegial, and professional manner, and in accordance with the obligations of the Commission under law?**

Answer

Yes, I do.

Questions from the Honorable John Boozman

1. **Last year, I joined members of the Senate Subcommittee on Clean Air and Nuclear Safety, in urging the Commission to "comply expeditiously with the writ of mandamus issued by the U.S. Court of Appeals for the D.C. Circuit in the case styled *In re Aiken County,* No. 11-1271." As acknowledged in a letter from NRC's Chief Financial Officer, the D.C. Circuit has "directed the Nuclear Regulatory Commission to *promptly* continue with the licensing process" associated with Yucca Mountain. The court found that NRC was "simply defying a law enacted by Congress, and... doing so without any legal basis." Commissioner Apostolakis, as an individual commissioner, do you believe the Commission should express the need for FY2015 funding for the Yucca Mountain license review to the White House and/or the Office of Management and Budget? Please explain.**

Answer

The Commission considered the matter as part of the deliberation on our appeal of the OMB FY 2015 Budget Passback and a majority of the Commission (of which I was a part) chose not to seek FY 2015 funding for Yucca Mountain. My view is that this is a reasonable and pragmatic position given recent budget history and Administration policy.

2. **Commissioner Apostolakis, would you further elaborate on the discussion that we heard during the hearing on the necessity of the so-called "two-person rule." Please explain why it is or isn't cost-beneficial. What types of facilities are covered by the two-person rule? And, at an unclassified level, please explain the types of security that apply to those facilities.**

Answer

Licensees that are authorized to possess special nuclear material are placed into categories based on their security risk. Category I licensees pose the highest security risk, while Categories II and III licensees pose less of a security risk for reasons such as the amount or attractiveness of the material in the context of theft or sabotage. Category I licensees have been subject to checks and balances (reflecting the two-person rule concept) in their Material Control and Accounting (MC&A) programs as has been required by NRC regulations for decades. There are two licensees in Category I.

The staff proposed to extend the two-person requirement to other users of special nuclear material regardless of attractiveness. The Commission's direction to the staff included the options to either justify the proposed two-person rule provision or remove it from the rulemaking package and consider it in a future rulemaking after undertaking a backfit analysis. The staff chose the option of removing the two-person rule provision and to consider it in a future rulemaking, if justified.

Under current NRC regulations, except for cases where the proposed requirement is needed to provide adequate protection to the health and safety of the public or is necessary for the common defense and security, the staff is required to either conduct a backfit analysis or demonstrate that exceptions apply.

While security of nuclear facilities and materials the NRC regulates has always been a priority, the terrorist attack of September 11, 2001, spurred even more stringent security requirements. Today, NRC-

regulated nuclear facilities are widely considered among the most secure components of the nation's critical infrastructure. This robust security is achieved in layers, with multiple protections, similar to the way that safety in nuclear power plants is accomplished through multiple back-up systems. Examples of security protections include well-trained and armed security officers, physical barriers, and intrusion detection and surveillance systems. Another layer of protection is in place for coordinating threat information and response. The NRC works closely with the Department of Homeland Security, FBI, intelligence agencies, the Departments of Defense and Energy, States, and local law enforcement. This coordination ensures that the NRC can act quickly on any threats to its licensed facilities.

Category I fuel fabrication facilities must show that they can defend against an adversary that possesses a set of characteristics defined as the Design Basis Threat (DBT). The DBT is based on assessments of the tactics, techniques and procedures used by terrorist groups and organizations. The NRC is continually re-evaluating the threat environment and considers changes to the DBT, if necessary.

In addition, NRC resident inspectors assigned to each Category I fuel cycle facility provide an onsite NRC presence for direct observation and verification of the licensee's ongoing activities. Through the results obtained from all oversight efforts, the NRC determines whether licensees comply with regulatory requirements and can provide high assurance of adequate protection against the design basis threat for theft or diversion and radiological sabotage of special nuclear material.

NRC's requires annual inspection of physical security programs for highly enriched uranium (HEU) Category I facilities. These inspections address program areas that include access control, alarms and barriers, as well as security force training and contingency response. The core inspection program also requires two MC&A inspections annually and a transportation security inspection once every three years.

3. **Commissioner Apostolakis, would you elaborate on the role that cost-benefit analysis plays in the review of new regulations and requirements? My understanding is that if a rule or regulation is needed to provide adequate protection of safety, the cost-benefit analysis is irrelevant, but that such analysis plays a critical role for minor safety enhancements.**

Answer:

The NRC uses cost-benefit analyses in regulatory analyses to help understand the overall benefits and costs of NRC regulations and requirements, and in backfitting analyses to help determine if proposed backfitting in rules and regulations (not involving adequate protection or compliance with NRC requirements) should be adopted. The cost-benefit analysis in a regulatory analysis can be used when selecting among several alternative regulatory approaches for achieving adequate protection or compliance.

Cost-benefit analysis for safety enhancements is consistent with President Obama's Executive Order on *Identifying and Reducing Regulatory Burdens* dated May 10, 2012, that states "we should be especially careful not to impose unjustified regulatory requirements."

4. **Recently, NRC staff released a report to the Commission titled "Consequence Study of a Beyond- Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark 1 Boiling Water Reactor." The cover memo from this report states that "this study shows the likelihood of a radiological release from the spent fuel after the analyzed severe earthquake at the reference plant to be very low**

(about 1 time in 10 million years or lower). NRC staff have also informed the Commission that "the costs of expedited transfer of spent fuel to dry cask storage outweigh the benefits," that "additional studies are not needed," and that "no further regulatory action is recommended for the resolution of this issue and this Tier 3 item should be closed." (see "Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel.") Despite the extremely small risk of a radiological release from spent fuel pools due a seismic event, the Commission continues to expend limited resources and attention on this issue. In recent weeks, the Commission held a briefing on this issue. Commissioner Apostolakis, can you explain the rationale for continued prioritization of the spent fuel pool issue mentioned above, and do you have a reason to doubt the staff recommendations? It seems as if the Commission's focus on this issue may be an attempt to create headlines and cause public doubt about the safety of emissions-free nuclear power. Do you agree?

Answer:

This is an active matter before the Commission, therefore I should not comment at this time. The Commission is not attempting to create headlines.

5. **Commissioner Apostolakis, in recent years, a number of questions have been raised regarding the decision-making role of the NRC Chairman vs. the decision-making role of the entire Commission. The scope of the Chairman's authority to make an emergency declaration and the Chairman's responsibility to promptly notify others of such a decision are just two small examples of situations where the role and responsibility of the NRC Chairman has been called into question. Other examples include unilateral efforts by a previous chairman to supplant the Commission's will on policy and budget issues. The *Energy Reorganization Act of 1974* states that "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 and responsibilities, and shall have one vote." Unilateral decisions by a previous chairman to disregard this requirement on a number of matters have created a dangerous precedent, setting up the Chairman as a sort of "super- Commissioner" on matters of policy and budget. Do you think it is important for Congress to reinforce provisions of law that ensure an equal role for all Commissioners in all non-emergency matters?**

Answer:

I do not believe there is a need for Congressional action on these matters.

Senator BOXER. Thank you, commissioner.

Commissioner Magwood.

STATEMENT OF HON. WILLIAM D. MAGWOOD, IV, COMMISSIONER, U.S. NUCLEAR REGULATORY COMMISSION

Mr. MAGWOOD. Thank you, Chairman Boxer. Good morning to you and to Ranking Member Vitter, Chairman Carper, Ranking Member Sessions, and members of the subcommittee. We appreciate the opportunity to appear before you today to discuss the work of our agency.

Chairman Macfarlane's comments capture the full range of activities and, as you can see, it has been an extraordinarily busy time for the NRC. I will add briefly that we appreciate the encouragement from this committee as we have received to the Fukushima Daiichi disaster. Since March 2011, the NRC has learned vital lessons from this disaster and taken clear, rational action to enhance nuclear safety. We have kept our pledge to neither overreact nor underreact to the events in Japan, and I believe we have gotten it just about right.

Our challenge now, both for NRC and its licensees, is to absorb the post-Fukushima activities into our normal work and prioritize it appropriately. Doing so will require us to understand how to manage the preparation for beyond design basis events in concert with our ongoing efforts to protect against much more likely accident scenarios. Considerable work lay ahead, and I am confident that the agency is up to the challenge.

So again I thank you for your engagement during the last 3 years of hard work. I look forward to answering any questions you have.

[Mr. Magwood's responses to questions for the record follow:]

The Honorable Tom Carper

QUESTION 1. **In response to the Fukushima event, the Commission continues to pursue a long list of lessons learned from the accident. The NRC has several deadlines to meet in the next couple of years to meet the timeline established in March 2012. Are there any issues that have been much more difficult to address than expected? If so, what have they been? Are there issues that have been become a lesser concern since the Task Force issued their recommendations? Are there any issues that have become a greater concern and we need to pay greater attention?**

ANSWER.

The NRC has continued to make progress implementing the lessons learned from the Fukushima disaster and we are on or ahead of our established schedules. Although some of the recommendations may have been more challenging than expected, the NRC has adapted effectively. Over the past three years, as the NRC's efforts have transitioned from lessons learned evaluation to regulatory requirement development and now to implementation, it was reasonable to assume that issues would arise which would be more difficult to address than originally planned. For example, during development of the licensees' plans for compliance with the Mitigating Strategies Order, additional generic issues were identified, and, therefore, the NRC needed to expend greater technical resources than originally planned. As a result of these efforts, the NRC has resolved all of these generic issues. Similarly, as the NRC has progressed with requiring nuclear power plants to conduct updated seismic reevaluations using present-day scientific methods, we learned that even some methods developed within the past decade

required further updating. As such, the NRC allocated the necessary staff resources to update appropriate portions of the methods on an aggressive schedule. While this resulted in minor delays to some interim milestones, corresponding changes to expedite certain seismic safety enhancements at the plants by 2016 will ultimately result in plants being better protected against seismic events at an earlier date than originally scheduled.

On the other hand, some recommendations have progressed more smoothly than anticipated. For example, the NRC has completed ahead of schedule many milestones associated with the regulatory actions regarding communications capabilities needed to respond effectively to a Fukushima-like event. This effort has progressed without any major challenges, allowing both licensees and the NRC staff to achieve milestones efficiently and effectively. Based on our last assessment, as reflected in the staff's six-month update to the Commission on lessons-learned activities issued at the end of March 2014, our initial prioritization of the Near Term Task Force recommendations remains valid.

The Honorable Tom Carper

QUESTION 2. **In March 2012, the NRC issued three orders requiring licensees to inspect their equipment and evaluate their seismic and flooding vulnerabilities. I understand that they all submitted their evaluations to the NRC in November 2012. Generally, what were their findings and has the NRC found the responses acceptable? When should we expect to see the NRC's safety assessments of each of the licensee's walkdown reports?**

ANSWER.

In March 2012, the NRC issued Requests for Information that asked licensees to inspect (*i.e.,* "walkdown") their plants and evaluate potential seismic and flooding vulnerabilities. (These requests were issued on the same day as the three orders related to mitigating strategies, spent fuel pool instrumentation, and hardened vents.) In November 2012, the licensees submitted their walkdown reports for both seismic and flooding vulnerabilities. No immediate safety concerns were found. However, some licensees identified conditions for which the flooding or seismic protection for a subset of components at their facilities was degraded in comparison to the facilities' licensing bases. These conditions were entered into the licensees' corrective action programs and are being resolved. The NRC has conducted inspections at each of nuclear power plant site to ensure that they remain protected against hazards. The NRC has begun to issue the staff assessments of the licensees' walkdown reports. We anticipate completing our reviews and issuing the remaining staff assessments by June 30, 2014.

The flooding and seismic reevaluations require much more extensive analysis and are, therefore, on a different schedule.

For the flooding reevaluations, nuclear power plants are divided into three groups with staggered schedules for submission of reevaluations. These schedules reflect a prioritization based on the following criteria: (1) the anticipated need for a site to perform an integrated assessment; (2) the speed at which the reevaluation can be performed; and (3) the efficiency and effectiveness of how staff and industry resources can be applied to performing the evaluations for each site. The first two groups' reevaluations were submitted on March 12, 2013, and March 12, 2014, respectively. The third is due March 12, 2015. The staff is reviewing the first two groups' reevaluations, and expects to issue most safety assessments for the plants in the first group by June 30, 2014.

The seismic reevaluations were submitted by March 30, 2014, for plants in the central eastern United States, and are due March 30, 2015, for plants in the western United States. The NRC has begun the process of reviewing the seismic reevaluation reports that were submitted at the end of March.

The Honorable David Vitter

QUESTION 1. **What implications the revised hazard estimates may have for plant safety?**

ANSWER.

The process to reevaluate the earthquake effects, or hazards, using current information is expected to make operating reactors safer.

In response to the accident at the Fukushima Dai-ichi nuclear power plant caused by the March 11, 2011, Tohoku earthquake and subsequent tsunami, the Commission established a Near-Term Task Force (NTTF) to conduct a systematic review of NRC processes and regulations and to determine if the agency should make additional improvements to its regulatory system. The NTTF developed a set of recommendations intended to clarify and strengthen the regulatory framework. In response to recommendations of the NTTF the NRC requested that its licensees complete a seismic hazard re-evaluation using the latest methods and models. This interim evaluation either describes how the plant's existing capacities can withstand the higher hazard, or the plant's interim actions to enhance its ability to cope with the higher hazard. The NRC will review the interim evaluations to ensure those plants can continue to operate safely while they conduct more comprehensive seismic reviews. Plants found to have a higher seismic hazard after re-evaluation will also complete an "expedited approach" to further reinforce key safe shutdown systems, if necessary, during the following two years. Plants with a higher hazard will also conduct more in-depth seismic risk evaluations of their response to design basis, and beyond design basis ground motions. NRC will use these in-depth analyses to determine if additional regulatory actions or plant modifications are necessary.

The Honorable David Vitter

QUESTION 2. What is the greatest seismic hazard expected to be generated by a fault near Diablo Canyon?

ANSWER.

There are a number of faults that are considered to be active near the Diablo Canyon Power Plant (DCPP), including the Shoreline and Hosgri faults. Based on Section 6.2 of the Research Information Letter 12-01, "Confirmatory Analysis of Seismic Hazard at the Diablo Canyon Power Plant (DCPP) from the Shoreline Fault Zone," PG&E, the plant owner, concluded in its 2011 Shoreline Fault Report that the Hosgri fault is the main contributor to the total seismic hazard at Diablo Canyon. Two factors contribute to this conclusion. First, the Hosgri fault is deemed capable of producing earthquakes up to M7.5, larger than the maximum magnitude of other faults in the vicinity of the DCPP. Second, and more importantly, the Hosgri fault has a slip rate that is up to an order of magnitude greater than other faults near the DCPP, so its activity rate or recurrence rate of large earthquakes is higher than any of the other faults in the vicinity of the DCPP. The NRC's independent assessment determined that the ground motions predicted for the Shoreline fault are at or below the levels for which the plant has previously been evaluated (including the Hosgri earthquake ground motions). As such, the NRC's October 12, 2012, letter concluded that the existing design basis for the plant is sufficient to withstand ground motions from the Shoreline fault.

Currently, PG&E is in the process of updating seismic hazards at the site in accordance with the March 12, 2012, request for information using the Senior Seismic Hazard Analysis Committee (SSHAC) process. The SSHAC process is used to develop a probabilistic seismic hazard assessment (PSHA) that incorporates multiple earthquake scenarios, including the frequency of

occurrence of those scenarios, and includes a quantitative assessment of the uncertainty into a single analysis. The goal of the PSHA is to capture the center, body, and range of the seismic hazard values as accurately as possible from all possible earthquake scenarios including the uncertainties associated with the PSHA inputs. Active fault sources that are considered more likely to generate large magnitude earthquakes will dominate in a PSHA.

The Honorable David Vitter

QUESTION 3. **Is the plant designed to withstand the greatest expected seismic hazard?**

ANSWER.

Yes, the reactor pressure boundary components, and all safety-related equipment needed to shut the plant down safely and maintain a safe shutdown condition, must be able to withstand the Double Design Earthquake/Safe Shutdown Earthquake (DDE/SSE). Diablo Canyon demonstrated, through a combination of calculations and tests, its ability to withstand such an earthquake. Because the American Society of Mechanical Engineers (ASME), Section III requirements for design and pressure boundary components and supports were not mandated by 10 CFR 50.55a until the mid-1980s, the acceptance criteria for DCPP rely on combination of the ASME Code and the American National Standards Institute (ANSI) Code for piping, applicable at the time of initial licensing, that provide an equivalent level of safety assurance as is required by 10 CFR 50.55a.

In addition, during the licensing of Diablo Canyon, PG&E demonstrated that all structures, systems, and components that are required to remain functional following a Double Design Earthquake/Safe Shutdown Earthquake (DDE/SSE) would also remain functional during a postulated Hosgri earthquake. Following extensive plant upgrading, most components met the same standard based on Hosgri Evaluation (HE) as it had under the SSE. In a limited number of cases, the NRC approved alternative Code criteria; thus these components still meet the applicable Code. The limited cases were individually approved and specifically documented in the NRC's safety evaluation report. The NRC's approach and conclusions were also reviewed independently by the Advisory Committee on Reactor Safeguards (ACRS) and the Atomic

Safety and Licensing Board (ASLB). The ACRS reviewed the NRC staff criteria utilized in the seismic re-evaluation of DCPP for the postulated Hosgri earthquake and concluded that "...the staff's approach leads to an acceptable level of safety for DCPP." The ASLB held hearings on the DCPP seismic issues, and in a partial decision issued September 27, 1979, the ASLB concluded "...the Diablo Canyon plant will be able to withstand any earthquake that can reasonably be expected to occur on the Hosgri fault".

The March 12, 2012, request for information includes a process for evaluating seismic hazards using present-day information. The staff considers the seismic hazard reevaluations being performed in accordance with this process to be distinct from the current design or licensing basis of operating plants. At Diablo Canyon, the licensee will review the new ground motion response spectrum (GMRS) information developed in accordance with this process against the DDE, and if the new GMRS exceeds the DDE, PG&E is expected to submit an interim evaluation or interim actions taken or planned to address the reevaluated hazard. The results will be analyzed to determine if plant structures, systems, and/or components need to be updated against the new hazard.

The Honorable David Vitter

QUESTION 4. **Is Diablo Canyon in compliance with NRC safety and operability requirements when it comes to seismic hazards?**

ANSWER.

Yes, Diablo Canyon is in compliance with NRC safety and operability requirements related to seismic hazards. Licensees are required to demonstrate through modeling, testing, and evaluation that specific structures, systems, and components are seismically qualified up to the Double Design Earthquake/Safe Shutdown Earthquake (DDE/SSE). As discussed in the answer to Question 3, this same rigor was also required for Diablo Canyon up to the Hosgri Earthquake (HE) (0.75g) design basis for the same equipment. The March 12, 2012, request for information provides a process for further evaluating seismic hazards at the site. The staff expects the licensees to follow this process and additional guidance (e.g., February 20, 2014, supplemental information regarding seismic hazards reevaluations) to determine what additional actions, if any, are necessary regarding operability and ensuring safe operation of the plant based on the information developed during the seismic hazards reevaluation.

The Honorable David Vitter

QUESTION 5. **Would the NRC allow a nuclear power plant with a one in six chance of experiencing an earthquake event for which it is not designed to withstand operate?**

ANSWER.

No, we would not. All U.S. nuclear power plants are built to withstand external hazards, including earthquakes, flooding, and tsunamis, as appropriate. Even those plants that are located in areas with low and moderate seismic activity are designed for safety in the event of such a natural disaster. Each plant is designed to a ground-shaking level that is appropriate for its location, given the possible earthquake sources that may affect the site and its tectonic environment. Ground shaking is a function of both the magnitude of the earthquake and the distance from the fault to the specific site, as well as other factors such as local bedrock or soil conditions. The seismic responses of the structures, systems, and components associated with these facilities are site specific. Some plants are analyzed for certain identified faults and tectonic capabilities in the area while others are analyzed for seismic zones, depending on the local geologic environment. While this analysis proceeds, we are confident that these nuclear power plants are safe to continue operating.

On September 2, 2010, NRC staff issued Information Notice 2010-018, "Generic Issue 199, 'Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants." This notice informed all nuclear power plant licensees of updated analyses by the United States Geological Survey that altered estimates of the seismic hazard in the central and eastern United States (CEUS). The NRC staff concluded in 2010 that all operating nuclear plants were safe and a safety/risk assessment confirmed that the overall seismic risk estimates remained small for operating nuclear power plants. The NRC staff also

confirmed that the current seismic design of plants still have safety margin, but further site specific analyses were needed. On March 12, 2012, the NRC combined the previous effort on seismic re-reevaluation with the Near-Term Task Force review of insights from the Fukushima Dai-Ichi accident and required information from all operating plants to gather additional information concerning the seismic hazards at all sites. The letter required licensees to provide a seismic hazard interim evaluation and screening report within 1.5 years from the date of the letter for CEUS nuclear plants and within 3 years for Western United States (WUS) plants. The WUS plants required additional time to develop an updated, site-specific probabilistic seismic hazard analysis due to the West Coast's complex seismic features and remain on track to submit those evaluations in March 2015.

The CEUS licensees submitted the re-evaluated seismic hazards or letter of intent to provide the hazard for their sites by letters dated March 2014. On May 9, 2014, the NRC staff issued the screening and prioritization results regarding the seismic hazard re-evaluations and concluded that the operating nuclear plants continue to remain safe. In addition, the staff also concluded that the previous safety/risk assessment remained valid and that plants can continue to safely operate while additional more detailed evaluations are conducted.

The NRC will continue to take the appropriate actions based on the latest available information as the seismic re-evaluations continue for all operating plants in the United States.

The Honorable David Vitter

QUESTION 6. **The USC Report alleges that Diablo Canyon has received lax oversight regarding seismic safety requirements compared to other facilities. Are there any requirements for seismic safety of Diablo Canyon that are not in place at other facilities?**

ANSWER.

Yes, there are requirements for seismic safety for Diablo Canyon that are not in place at other facilities. However, as noted below and further elaborated in the Answer to Question 10, Diablo Canyon has the highest level of seismic protection of any plant in the country with three design spectra they must meet per Pacific Gas & Electric's license requirements (compared with two spectra for other plants). Additionally, to ensure public health and safety, Diablo Canyon has an automatic seismic reactor trip set point of 0.35g. If the ground acceleration at Diablo Canyon from any earthquake exceeds this 0.35g set point, both reactors will automatically shut down to maintain plant safety and the health and safety of the public. It is the only operating plant in the country with an automatic seismic reactor trip.

The Honorable David Vitter

QUESTION 7. **What is the greatest seismic hazard expected to be generated by a fault near Diablo Canyon?**

ANSWER.

Discussed in the answer to Question 2.

The Honorable David Vitter

QUESTION 8. **Is the plant designed to withstand the greatest expected seismic hazard?**

ANSWER.

Discussed in the answer to Question 3.

The Honorable David Vitter

QUESTION 9. **When new information is discovered as part of Diablo Canyon's Long Term Seismic Program, such as the discovery of the Shoreline Fault in 2008, how is that information analyzed?**

ANSWER.

Prior to the March 12, 2012, request for information, the new information from the Long Term Seismic Program (LTSP) was evaluated using a deterministic approach. The best example of new information being evaluated was the discovery of the Shoreline Fault. As discussed below, the staff performed both preliminary and a more detailed evaluation of the Shoreline Fault.

In a letter dated October 20, 2011, PG&E proposed a licensing action to clearly define an evaluation process for newly identified seismic information and incorporate ongoing commitments associated with the LTSP. Due to the issuance of the March 12, 2012 request for information and the October 12, 2012, NRC letter, which provides a process for evaluating newly identified seismic information, PG&E determined it no longer had a need for the licensing action outlined in the October 20, 2011, letter and requested withdrawal of the licensing action. In an October 30, 2012 NRC letter, the NRC acknowledged the withdrawal of the licensing action.

Shortly after PG&E notified the NRC of the potential for a new fault (later referred to as the Shoreline Fault), PG&E provided the NRC with sets of initial scientific data and information related to the hypothesized fault. Based on this initial information, the NRC staff immediately performed a preliminary review of possible implications of the Shoreline fault to the DCPP to determine if an immediate safety concern existed. The NRC continued to review new data and

information on the Shoreline fault resulting from a collaborative effort between the U.S. Geological Survey and PG&E.

The NRC's October 12, 2012 letter to PG&E provided, in part, a summary of the results of NRC's independent assessment (which included independent external experts) of the licensee's January 7, 2011 Shoreline Fault analysis report. The licensee's report provided NRC with new geological, geophysical, and seismological data on the Shoreline fault, obtained using up-to-date methods and technologies. The NRC's independent assessment determined that the ground motions predicted for the Shoreline fault are at or below the levels for which the plant has previously been evaluated. As such, the NRC's October 12, 2012 letter concluded that the existing design basis for the plant is sufficient to withstand ground motions from the Shoreline fault.

The Honorable David Vitter

QUESTION 10. **Were there any advancements in the state of seismic design and knowledge between when acceptance criteria for Diablo Canyon's Design Earthquake and Double Design Earthquake was established and when the Hosgri and Long Term Seismic Plan acceptance criteria was established and approved by the NRC and Atomic Safety Licensing Board?**

ANSWER.

Yes. Diablo Canyon's original seismic evaluations were accepted prior to issuing the Unit 1 construction permit on April 23, 1968. The seismic evaluations were called the Design Earthquake (DE), which is an operating basis earthquake (OBE)-equivalent for Diablo Canyon Power Plant (DCPP), and the Double Design Earthquake (DDE), which is a safe shutdown earthquake (SSE)-equivalent for DCPP. These seismic evaluations were performed under, and met, the NRC's requirements at that time. The DE/OBE specified 0.2g as the largest earthquake that is expected to occur during the lifetime of the plant (a 0.2g earthquake was estimated to occur only once in more than 200 years). The DDE/SSE is simply double the ground motion of the largest expected earthquake (DE/OBE), and is not tied to any expected earthquake (0.4g earthquake is expected to occur once in more than 400 years). The higher ground acceleration represented by the DDE is used to add safety margin to evaluate and ensure that the safety-related structures needed to safely shut the plant down and maintain it safely will survive.

In 1973, Pacific Gas & Electric became aware of the Hosgri fault, which was discovered offshore during oil exploration. This fault was previously unknown, and no significant

earthquake had previously been attributed to an offshore fault in that area. Because of the new discovery, the NRC delayed approval of the operating licenses until November 2, 1984 (Unit 1). The NRC required PG&E to perform a seismic re-evaluation to include the possible effects of the Hosgri fault using the latest NRC requirement. At that time, the state-of-the-art in seismic evaluation had significantly improved, so the NRC had upgraded its seismic requirements. The NRC obtained assistance in evaluating the fault from U.S. Geological Survey (USGS) and other consultants.

When the Hosgri Evaluation (HE) was completed, the NRC accepted that this fault could possibly produce 0.75g peak ground acceleration at Diablo Canyon, but such an extreme event was expected to occur once every 2,000 – 25,000 years. This potential high-consequence event was too infrequent to be considered to meet the intent of the SSE, so the NRC declared that the original seismic evaluations (the DE and DDE) remained valid. Nonetheless, the NRC required PG&E to make substantial plant modifications to be able to withstand 0.75g peak ground acceleration. The NRC added these site-specific requirements on top of the existing requirements.

Therefore, DCPP has the following licensing aspects, with unique requirements in addition to the OBE and SSE:

(a) The plant meets NRC's standard seismic requirements through the DE/OBE (0.2g) and DDE/SSE (0.4g).

(b) In addition, the plant was also required and designed to withstand 0.75g. Since the plant was actually designed (i.e., final design, not original) and built to withstand a Hosgri-generated earthquake, this set of requirements represents the actual level of functional seismic safety.

(c) PG&E used two different NRC-approved seismic methodologies that are part of the design and licensing bases for the plant, one for the DE and DDE, the other for the HE.

(d) The two units were required to have instrumentation installed to cause an automatic reactor trip if onsite seismic sensors register 0.4g.

(e) A license condition was added to require a confirmatory seismic study over the first 10 years of operation using the latest methods to verify that the Hosgri Evaluation remained accurate. PG&E completed this one-time action, but has maintained a continuous seismic assessment program, working with USGS and state agencies to maintain state-of-the-art knowledge and further study the region around the plant.

(f) PG&E was required to develop a probabilistic seismic risk assessment.

As a result of the above, Diablo Canyon has the highest level of seismic protection of any plant in the country, and PG&E has developed the highest seismic knowledge base regarding its site as compared to other nuclear utilities in the U.S.

The Honorable David Vitter

QUESTION 11. **What does the NRC consider to be the equivalent of the safe shutdown earthquake of Diablo Canyon?**

ANSWER.

For the Diablo Canyon Power Plant (DCPP), the Double Design Earthquake (DDE) is equivalent to the Safe Shutdown Earthquake (SSE). During initial licensing of the Diablo Canyon site, two design basis earthquakes (ground motions) were established. The operating basis earthquake (OBE) represents the ground motion reasonably expected during the lifetime of the plant. At DCPP, this is called the Design Earthquake (DE), and is 0.2g. The safe shutdown earthquake is defined as having twice the acceleration of the operating basis earthquake to ensure safety margin. At DCPP, this is called the Double Design Earthquake, and is 0.4g. Pacific Gas and Electric (PG&E, the licensee) was required to show that all equipment necessary for continued operation without undue risk to the health and safety of the public would withstand the OBE/DE (i.e., remain functional), and that all safety-related equipment needed to safely shut the plant down and maintain a safe shutdown condition would withstand the SSE/DDE.

The Honorable David Vitter

QUESTION 12. **Is there a gap between seismic protection levels at Diablo Canyon Power Plant and the seismic threat level faced at Diablo Canyon Power Plant?**

ANSWER.

No. The staff is continuing to assess new seismic information at all operating nuclear power plants using the process outlined in the March 12, 2012, request for information. If the newly reevaluated hazards are higher than those originally estimated for the plant, the information will be analyzed to determine if plant structures, systems, and/or components need to be updated against the new hazard. (See the answer to Question 10.)

The Honorable David Vitter

QUESTION 13. **Is the NRC still on schedule to finalize its waste confidence rulemaking by the 3rd quarter of next year?**

ANSWER.

On January 23, 2014, the NRC revised its review schedule for the final versions of its Waste Confidence Generic Environmental Impact Statement (GEIS) and the final rule on the extended storage of spent nuclear fuel at the Nation's commercial nuclear power plants from September 2014, to no later than October 3, 2014. The delay reflects time lost during the government shutdown and lapse of appropriations last October. The shutdown caused the agency to reschedule several public meetings and, consequently, extend the public comment period on the draft versions of the GEIS and rule by nearly a month.

The Honorable David Vitter

QUESTION 14. **Is the NRC issuing rules before guidance is ready?**

ANSWER.

No. The Commission directed the staff in October 2011 to follow the rulemaking process enhancements that address the Cumulative Effects of Regulation (CER) as outlined in the NRC staff's policy paper (SECY-11-0032, "Consideration of the Cumulative Effects of Regulation in the Rulemaking Process"). The NRC recognizes that CER is an organizational effectiveness challenge that results from a licensee or impacted entity implementing a number of complex regulatory positions, programs, or requirements within a limited implementation period and with available resources. In the NRC's efforts to address CER, NRC has enhanced the rulemaking process. One of these enhancements requires the NRC to publish draft guidance at the same time as a proposed rule, and final guidance with the final rule. Meeting the goal of publishing the guidance concurrent with the rule ensures that everyone impacted by the rule has an understanding of what it will take to implement the rule's requirements. The NRC is adhering to the CER process enhancements for all of its ongoing rulemaking activities, including those stemming from the Fukushima lessons learned.

The Honorable David Vitter

QUESTION 15. **Are there specific instances were licensees have begun work to meet a new rule or regulation only to have the NRC subsequently issue a modified regulation—resulting in re-work, added expense, delay?**

ANSWER.

The NRC has not yet issued any rules pertaining to implementing lessons-learned from Fukushima. The potential rules are in the development phase and are expected to codify the requirements that were imposed by orders issued in March 2012 as well as address other recommendations not directly related to the ongoing implementation of the orders. One of the three orders issued in March 2012, the Hardened Vents Order (applicable to boiling water reactors with Mark I and Mark II containments), was superseded by an order issued in June 2013, approximately 15 months later, which required the containment vent systems to be capable of operating under severe accident conditions. This new order included the requirements of the first order and added requirements to address venting operations under the harsh conditions that might exist after significant fuel damage has occurred. The Commission specifically decided to supersede the original order when it did to minimize any needed re-work or added expense that might occur if additional requirements were imposed after plant changes were made to satisfy the original March 2012 order. Licensees had undertaken some planning to identify needed plant and procedure modifications for complying with the original order. In addition, extra time was provided for compliance with the new order to support the development of guidance documents and identify and plan for plant changes needed to address containment venting during severe accident conditions.

The Honorable David Vitter

QUESTION 16. **Is the hardened vents rule an example—how much time passes from the first hardened vents order until the revised order was issued?**

ANSWER.

As stated above in the answer to Question #15, the Hardened Vents Order (applicable to boiling water reactors with Mark I and Mark II containments), was superseded by an order issued in June 2013, approximately 15 months later, which required the containment vent systems to be capable of operating under severe accident conditions.

The Honorable David Vitter

QUESTION 17. **Are these required reworks and delays being taken into account when licensees are given deadlines by which to implement or comply with new rules?**

ANSWER.

Yes. The NRC strives to develop reasonable schedules for implementation whenever a requirement, such as an order, needs to be modified. The NRC considers both the safety-significance and the practical impact of the rule on the licensees, to the extent that it is known, when determining what is reasonable. For example, in June 2013, the NRC revised requirements imposed in March 2012 on containment venting systems for boiling water reactors with Mark I and Mark II containments to ensure they would remain functional during severe accident conditions. Recognizing that some of the revised requirements were not addressed in the original order and the related implementation plans being developed by licensees, the NRC developed a phased approach to minimize delays in making safety improvements while providing additional time for licensees to evaluate and design systems to address the revised requirements.

The Honorable David Vitter

QUESTION 18. **Has the Commission evaluated work done to-date (or ordered) post Fukushima to make the US nuclear fleet even safer?**

ANSWER.

Yes, we are considering the work completed and the work ordered to be completed as we consider remaining post-Fukushima activities identified by the Near Term Task Force. For example, the March 2012 Mitigating Strategies Orders addressed the key lesson learned from the Fukushima accident, specifically, that each site must identify the site-specific hazards it faces and have the equipment and training necessary to mitigate a beyond design basis event. Those orders in turn are the basis for the evaluations in the Station Black Out (SBO) rulemaking effort. The principal objective of the SBO rule is to establish requirements that provide additional mitigation capability for extreme external events that lead to extended loss of AC power. The rule will reflect the requirements imposed in the 2012 orders, along with insights gleaned from implementation of the orders. The 2012 orders and eventual SBO rulemaking in my opinion are important to enhance the safety of currently operating reactors. Additionally, the risks posed by flooding and seismic events are being evaluated for each site consistent with the key lesson of understanding the site-specific risks. Site-specific decisions will be made to modify the licensing basis, if necessary.

In my opinion, these Tier 1 actions, along with an assessment of communications during an emergency event address the most important lessons from the Fukushima event. There are remaining items that are in Tier 2 and Tier 3 that continue to be evaluated and will be dispositioned. Some may result in new requirements, if the lessons to be learned show a gap in

our current requirements but some, because of the overall safety impact of the Mitigating Strategies Order and other steps already taken, may not be necessary.

The Honorable David Vitter

QUESTION 19. **Has the NRC taken into account the added safety margins gained from the implementation of the FLEX program, from spent fuel pool monitoring, and from the seismic & flooding walkdowns being conducted and taken this safety improvement into account as it considers additional regulations?**

ANSWER.

The NRC is developing proposed regulations that will make the requirements of the orders (now being implemented) generically applicable to current and future licensees. The equipment included in the industry FLEX program may be used to demonstrate compliance with these ongoing rulemakings. Should the NRC decide to evaluate the need for further potential requirements in addition to the current order requirements now being converted into regulations, the NRC would need to justify any new requirements under its backfit and Part 52 finality regulations, and perform a regulatory analysis addressing the benefits and costs of the proposed additional requirements compared to a regulatory baseline that assumes all existing NRC requirements have been fully implemented.

The recently completed seismic and flooding walkdowns were conducted to confirm that licensees are in compliance with their current licensing basis requirements. Because licensees are expected to fully comply with all existing requirements, these walkdowns are confirmatory and should not be characterized as safety improvements, or additional safety requirements.

The NRC is closely following the implementation of the FLEX program and spent fuel pool monitoring instrumentation to identify any lessons learned that could inform rulemaking

activities. For example, in its direction to the staff on evaluating possible regulatory requirements for engineered filters and filtration strategies for boiling water reactor containments, the Commission specified that the technical bases should assume the installation of severe accident capable hardened venting systems as required by the Order issued in June 2013.

The Honorable David Vitter

QUESTION 20. **Are new regulations based on the current status of the industry and not the status of the industry on March 2011 when Fukushima occurred?**

ANSWER.

Yes, implementation of new regulations would assume that post-Fukushima orders will be followed on schedule. The need for each new regulation issued by the NRC is assessed against the current status of the industry at the time the requirement is issued. When the NRC publishes a proposed rule for public comment, it also solicits comment on a regulatory analysis addressing the benefits and costs of the new requirement compared to a baseline reflecting the existing regulatory requirements. When the NRC staff submits a final rule to the Commission for approval, it provides the Commission with an updated regulatory analysis that addresses the benefits and costs of the draft final requirement compared to an updated baseline reflecting any changes that may have been made to the regulatory requirements since the issuance of the proposed rule.

The NRC rulemaking process is designed and intended to be a disciplined, deliberative, and transparent process that maximizes opportunities for public stakeholder input. Rulemakings are usually conducted by internal working groups of NRC staff members of various disciplines from across the agency to ensure that the rule being developed represents the current state of knowledge. Even before formal public comments are solicited on a proposed rule, the NRC often holds public meetings at the technical basis development stage to receive input on the benefits, costs, and anticipated regulatory burden associated with each potential new requirement. The NRC also may issues Advance Notices of Proposed Rulemaking (ANPRs) to

advise the public of possible NRC rulemakings and to receive written input on issues relevant to the possible rulemakings. Additional public meetings are often held during the public comment period to ensure that commenters fully understand each proposed rule and are able to provide fully-informed comments. Once public comments are received and evaluated, more public meetings may be held to explain NRC's assessment of public comments and to discuss implementation schedules for the final rule. After the staff submits a draft final rule to the Commission, a public Commission meeting may be held at which key stakeholders are often invited to provide their views directly to the Commission. These public outreach efforts help ensure that before voting on the final rule, the Commission has access to stakeholder views on the proposal.

The Honorable David Vitter

QUESTION 21. **Will this impact approach to Tier 2 & 3 recommendations?**

ANSWER.

The agency's response to Tier 2 and Tier 3 recommendations will be informed by the current status of the industry as the industry responds to the lessons learned from the Fukushima Daiichi accident. As discussed in SECY-11-0137, "Prioritization of Recommended Actions to be taken in Response to Fukushima Lessons Learned," dated October 3, 2011, Tier 2 actions are those that could not be initiated in the near term due to factors that include the need for further technical assessment and alignment, dependence on actions taken with regard to Tier 1 issues, or availability of critical skill sets. These actions do not require long term study and can be initiated when sufficient technical information and resources are available.

As described in SECY-11-0137, the third tier consists of those actions that require further staff study to support a regulatory action, have an associated shorter term action that needs to be completed to inform the longer term action, are dependent on the availability of critical skill sets, or are dependent on the resolution of NTTF Recommendation 1. The staff has focused its initial efforts on developing the schedules, milestones, and resources associated with Tier 1 and Tier 2 activities. Once the staff has completed its evaluation of the resource impacts of the Tier 1 and Tier 2 activities, it will be able to address the Tier 3 recommendations.

As indicated, the staff has been, currently is, and will continue to be cognizant of the insights gained from continued progress on the Tier 1 recommendations. This information will impact the approach to the aforementioned Tier 2 and Tier 3 recommendations.

The Honorable David Vitter

QUESTION 22. **What percentage of original concerns identified by the Near-Term Task Force Recommendations has this work done or ordered to-date addressed? (note, not number of recommendations but overall concerns.)**

ANSWER.

The agency has not precisely quantified the safety benefits undertaken as a result of the Near Term Task Force recommendations. As a result, we are not in a position to provide a clear answer to this question. However, we are continuously monitoring the work and we are making significant progress on implementing the recommendations and thereby addressing the concerns behind each recommendation. We have assessed and prioritized all of the recommendations, and we have a method for addressing each of them. Some of the lower priority items are dependent on the completion of the higher priority items. The extent of the work completed varies, but all the work is being done consistent with our established prioritization and goals. As noted in my response to Question 18, the Tier 1 actions address the vast majority of the lessons learned from the Fukushima event.

The Honorable David Vitter

QUESTION 23. **Are all of the recommendations still warranted? Are you doing or planning a "check and adjust" evaluation?**

ANSWER.

The insights provided by the recommendations in the Near Term Task Force report continue to warrant consideration due to their importance in enhancing safety at United States nuclear power plants. However, the NRC notes that some of the recommendations have been combined with others where the staff has determined that it is more efficient to address similar recommendations together. Additionally, with respect to the "check and adjust" evaluation, the NRC notes that the lower tiered recommendations are informed by Tier 1 recommendations and may or may not be implemented in the future based on the insights the staff gains from the work performed to address Tier 1 recommendations. The NRC is committed to evaluating each of the recommendations thoroughly in accordance with our established regulatory processes, which include stakeholder engagement, before imposing any new or revised regulatory requirements.

The Honorable David Vitter

QUESTION 24. **At some point, work could be being done for the sake of doing work and not for the sake of improving nuclear and public safety -- are we at that point?**

ANSWER.

No, we do not believe we are at that point. The NRC is evaluating and implementing the lessons learned from the Fukushima-Daiichi nuclear power plant accident in accordance with our established regulatory processes. These regulatory processes ensure that before the NRC proposes new or revised regulatory requirements, we establish sound technical and safety bases and openly discuss these with stakeholders such as the nuclear industry. This open and transparent process ensures the NRC considers all feedback prior to determining whether new safety and security requirements are imposed.

The Honorable David Vitter

QUESTION 25. **Is the NRC moving too fast just for the sake of moving to meet a deadline?**

ANSWER.

The Near-Term task Force recommendations are being implemented because the Commission believes they will positively impact safety at commercial power reactors. The schedule set forth by the Commission for the implementation of the recommendations made by the Fukushima Near-Term Task Force is aggressive but accounts for the prioritization of the NTTF recommendations (i.e., implementation of those recommendations with the most added safety benefits), and the feasibility of the implementation both by the industry and by the NRC staff. As such, the NRC is focused on implementing the safety-significant "Tier 1" NTTF recommendations in the most efficient and effective manner possible to ensure that the safety benefits are realized as soon as reasonably practicable. While the NRC strives to adhere to established schedules, it remains sensitive to changes that can impact the overall schedule for implementing the lessons learned from the Fukushima Dai-ichi nuclear power plant accident, as is evidenced by informed adjustments already made.

The Honorable David Vitter

QUESTION 26. **On the 5-year, 2016, deadline for meeting Tier 1 regulations, plants that had a Spring 2013 refueling outage are going to be significantly challenged to meet the arbitrary 5 year deadline, especially as guidance is still being developed in cases. Has any consideration been given to the challenge these plants face?**

ANSWER.

Both the Orders and the 10 CFR 50.54(f) letters sent to licensees in March 2012 included a provision for licensees to request an extension to the established schedules. The NRC will consider schedule relaxations by licensees in accordance with these provisions on a case-by-case basis. The schedule for completion of the Hardened Vents Order extends beyond 2016 due to the original order being superseded by another order in June 2013.

The Honorable David Vitter

QUESTION 27. **At the 12/12/13 House hearing it was evident that the Commission had not deliberated on a supplemental request for FY 14 for Yucca Mountain Activities. It this correct?**

ANSWER.

Yes, that is correct. No such deliberations had occurred at that point.

The Honorable David Vitter

QUESTION 28. **If so, have you since begun discussions either between yourselves informally or among yourselves formally on a supplemental request for FY 14 and, if not, when have you scheduled a formal discussion on a supplemental request for FY' 14?**

ANSWER.

Yes. My Commissioner colleagues and I have engaged in informal discussions on this subject during routine periodic meetings.

The Honorable David Vitter

QUESTION 29. **Did the Court's decision arrive at the Commission in time for the Commission to factor restart of the Yucca licensing case into your FY'15 submission to OMB?**

ANSWER.

No.

The Honorable David Vitter

QUESTION 30. **If not, have you begun deliberations on a supplemental request for FY'15?**

ANSWER.

The Commission has not discussed this matter in terms of supplemental funding. However, the Commission did consider this matter during our appeal of the OMB FY 2015 Budget Passback.

The Honorable David Vitter

QUESTION 31. **If not, have you scheduled such deliberations?**

ANSWER.

No such deliberations are scheduled at this time, but members of the Commission meet regularly and this subject will likely be discussed in the normal course of business.

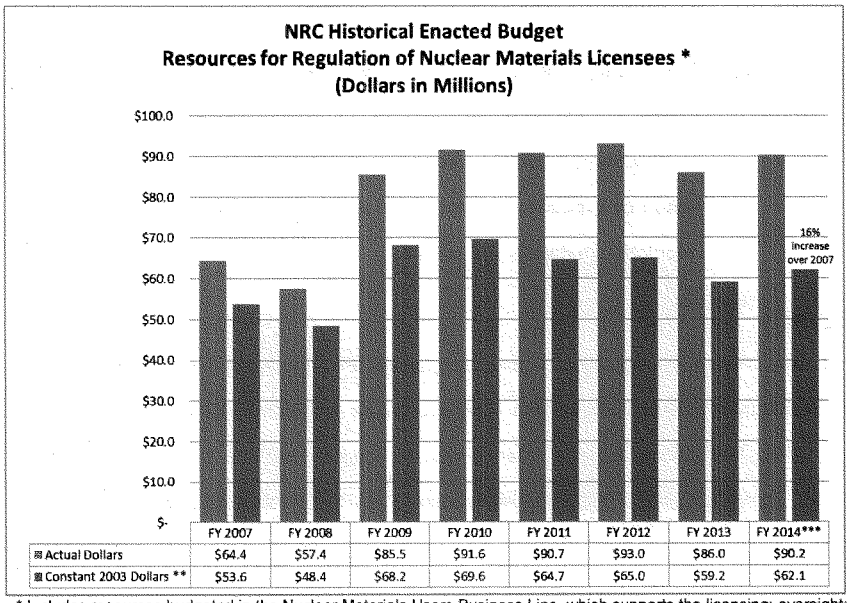
The Honorable David Vitter

QUESTION 32. The Chairman displayed a chart of NRC resources in "constant dollars" since 2007 noting that the Yucca Mountain and post-Fukushima requirements were included in those resources. How much has NRC resource expenditures declined in actual and constant dollars in regulating materials licensees?

ANSWER.

NRC resources for the regulation of materials licensees are budgeted and expended in the Nuclear Materials Users Business Line. These resources support the licensing; oversight; rulemaking; international activities; research; generic homeland security; event response; and State, Tribal, and Federal Program activities associated with the safe and secure possession, processing, handling, and use of nuclear materials for the many and diverse uses of these materials.

In fiscal year (FY) 2007, the NRC's Enacted budget for Nuclear Materials Users was $64.4 million in actual dollars. As demonstrated in the attached chart, in FY 2014, the Enacted budget was $90.2 million in actual dollars, a 40 percent increase over FY 2007. When converted to the constant 2003 dollars shown in the chart displayed by Chairman Macfarlane, the FY 2007 Enacted budget for Nuclear Materials Users was $53.6 million. In FY 2014, the Enacted budget was $62.1 million in constant 2003 dollars, a 16 percent increase over FY 2007.



	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014***
Actual Dollars	$64.4	$57.4	$85.5	$91.6	$90.7	$93.0	$86.0	$90.2
Constant 2003 Dollars **	$53.6	$48.4	$68.2	$69.6	$64.7	$65.0	$59.2	$62.1

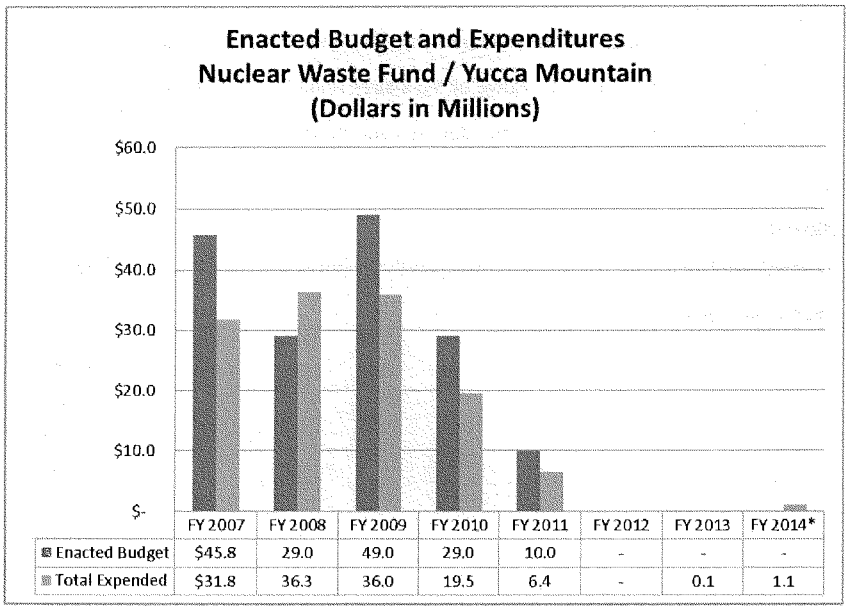
* Includes resources budgeted in the Nuclear Materials Users Business Line, which supports the licensing; oversight; rulemaking; international activities; research; generic homeland security; event response; and State, Tribal, and Federal Program activities associated with the safe and secure possession, processing, handling, and use of nuclear materials for the many and diverse uses of these materials.
** Amounts adjusted for inflation with FY 2003 as baseline (Producer Price Index-All Commodities published 6-3-13).
*** Constant dollars calculated using the 2013 inflation factor in the Producer Price Index-All Commodities published 6-3-13.

The Honorable David Vitter

QUESTION 33. Please provide the NRC resources and workload expenditures for Yucca Mountain for each year since 2007.

ANSWER.

In fiscal year (FY) 2007, the NRC's Enacted budget for Yucca Mountain was $45.8 million. FY 2007 expenditures were $31.8 million. In FY 2011, the last fiscal year in which NRC budgeted Nuclear Waste Fund resources, the Enacted budget was $10.0 million and expenditures were $6.4 million. There were no expenditures in FY2012. Expenditures in FY 2013 were $0.1 million. FY 2014 expenditures totaled $1.1 million through February 28, 2014.



	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014*
Enacted Budget	$45.8	29.0	49.0	29.0	10.0	-	-	-
Total Expended	$31.8	36.3	36.0	19.5	6.4	-	0.1	1.1

* FY 2008 includes expenditures against $27.0M in funding from prior years in addition to the $29.0M from the Enacted budget.
** FY 2014 expenditures through February 28, 2014.

The Honorable David Vitter

QUESTION 34. **The NRC recovers virtually all of its overhead costs through annual license fees collected pursuant to 10 CFR Part 171. During a federal government shutdown, those fees continue to be collected, although no generic services are provided. Further, NRC work on licensee's applications for specific licensing actions, including emergency and exigent license amendments or notices of enforcement discretion to avoid unnecessary plant shutdowns or to support plant startup from an outage, are covered by specific fees imposed under 10 CFR part 170.**

Would you be willing to engage Congress and the Administration to seek administrative or legislative relief that would allow fee-based activity to continue during a shutdown?

ANSWER.

Yes, the Commission would be willing to engage with Congress and the Administration to consider this matter.

The Honorable David Vitter

QUESTION 35. **Does the NRC have a mechanism to force a detailed cross jurisdictional review of the aggregate impact of new regulatory initiatives, so that impact of actions of all divisions and branches are considered?**

ANSWER.

When the NRC promulgates a new regulatory requirement, it seeks concurrence from all cognizant organizations within the NRC to ensure the requirement is well informed by a broad perspective across all program offices. Additionally, the agency recently adopted specific cumulative effects of regulation (CER) process enhancements to the rulemaking process and is currently applying those enhancements to the process used to send to licensees generic letter requests for information. One of these enhancements is that the NRC will include a specific request for comment on CER issues in any *Federal Register* notice that announces a proposed rule or a draft generic letter. This request poses questions to the public on whether there are any ongoing (or soon-to-be-implemented) activities that will impact the implementation of the proposed rule or the issuance of the final generic letter. Through this direct engagement process, the public, including nuclear power industry stakeholders, is responsible for providing the NRC with detailed information regarding the aggregate impact on their resources of the NRC's planned regulatory actions. In addition, before the NRC issues a final rule, the staff will conduct a public meeting during the final rule development stage to discuss implementation of the final rule. At this meeting, the public has another opportunity to raise concerns regarding scheduling, resources, and other constraints related to the implementation of the final requirements.

The Honorable David Vitter

QUESTION 36. **A 43% increase in staffing since 2000 (2800 then, 4000 employees today); regulatory costs increased over 54% for our plants, increased budget authority since 2000 – with sequester impacting all government agencies, in time of belt-tightening and even plant closures, is this level of staffing still appropriate?**

ANSWER.

The agency formulates its staffing levels based on planned workload and priorities, therefore staffing levels are appropriate at the time the agency budget is formulated for that fiscal year. However, workload at the NRC continues to shift and change. While the number of operating plants has decreased, NRC staffing has shifted internally to better align with changing priorities. For example, the FY 2015 budget supports implementing Fukushima lessons learned; increasing cyber security licensing activities; increasing work related to Generic Issue-191; reviewing new applications for medical isotope production facilities; completing decommissioning activities at Kewaunee, Crystal River 3, and San Onofre Units 1 and 2; reviewing a new uranium enrichment facility license application; reviewing a possible amendment to expand operations for International Isotopes; and progressing with revisions to the Fuel Cycle Oversight program as well as continuing support for new reactor licensing and construction inspection workload and the associated infrastructure.

To keep pace, we are taking a fresh and realistic look at each of our business and corporate support lines. Based on where we believe we will be in five years we will continue to adjust, refine, and redirect our activities and strategies as appropriate. We are assembling a "best estimate scenario" of our future in 2019 that, among other things, includes a thorough

understanding of where we will be in the new large light water reactor application and review process, a realistic view of which advanced reactors will have applications under review or be in construction, a best estimate of the size of the operating fleet, and a vision for our other key program areas. This estimate also includes an assessment of our various corporate support functions and costs that have already been aligned to programmatic priorities through the streamlining and centralizing of resources. We will be using this information to develop and execute the strategies necessary to remain on mission, while continuing to monitor the internal and external environments, and also working to enhance our agility and organization capacity. We are being proactive about our future, addressing challenges as they arise, and maintaining a focus on the mission.

The Honorable David Vitter

QUESTION 37. **In April 2013, NEI, on behalf of the industry, submitted recommendations on 24 ongoing regulatory actions to improve regulatory efficiency and predictability. Why has the NRC failed to respond to these recommendations?**

ANSWER.

As a result of an initiative Commissioner Apostolakis and I proposed in 2012, the staff was directed to develop potential approaches for allowing licensees to propose to NRC a prioritization of the implementation of regulatory actions as an integrated set and in a way that reflects their risk significance on a plant-specific basis. NEI's April 2013 letter referenced this initiative.

The NRC reviewed NEI's April 2013 letter recommending implementation changes to 24 ongoing regulatory actions (e.g., to defer, accelerate, or eliminate), and acknowledged NEI's recommendation during a May 2013 public meeting, where the NRC staff and NEI agreed to continue working together on this issue.. Subsequently, on October 1, 2013, NEI submitted a draft process for prioritizing regulatory actions on a plant-specific level. The NRC has been actively reviewing this draft process, which may represent a disciplined, plant-specific approach to identify implementation changes analogous to those generic actions identified in NEI's April 2013 letter. The NRC staff conducted two public meetings with NEI to discuss the draft process in November and December 2013. NEI, in collaboration with the nuclear industry, then conducted, and the staff observed, plant-specific tabletop exercises of the process implementation February and March 2014 at three nuclear power plants. Therefore, the NRC staff has been actively working with NEI and the nuclear industry to address the issues raised in April 2013.

In April 2014, the NRC staff asked for further Commission direction on the next steps of this initiative in COMSECY-14-0014, "Cumulative Effects of Regulation and Risk Prioritization Initiative: Update on Recent Activities and Recommendations for Path Forward." If the Commission were to approve the staff's recommendation, NRC staff would continue to work with the industry on pilot programs of the proposed NEI processes in 2014 and provide a paper to the Commission in 2015 describing what future steps the NRC should take in these areas and ask for Commission approval to implement those future steps to address the cumulative effects of regulation.

The Honorable David Vitter

QUESTION 38. **What is the NRC's timetable for responding to these recommendations?**

ANSWER.

Please see the response to Question 37, above.

The Honorable David Vitter

QUESTION 39. **What is the NRC's position on the industry's proposal related to prioritizing new regulatory requirements?**

ANSWER.

The NRC staff is responding to the Commission's Staff Requirements Memorandum (SRM) arising from the memo Commissioner Apostolakis and I authored which proposed an initiative to improve nuclear safety and regulatory efficiency. The SRM directed NRC staff to develop a notation vote paper that provides approaches for allowing licensees to propose to the NRC a prioritization of the implementation of regulatory actions as an integrated set and in a way that reflects their risk significance on a plant-specific basis. The NEI submitted a draft prioritization process on October 1, 2013. The agency then held a public meeting on the draft process in November 2013 and observed generic tabletop exercises of the process in December 2013. In addition, NRC staff observed plant-specific tabletop exercises of the process in February–March 2014. Pending successful completion of the plant-specific tabletop exercises, our staff will observe pilot exercises. All of the exercises (generic tabletops, plant-specific tabletops, and pilot exercises) will inform one of several options that NRC staff will present to the Commission in a Commission vote paper (as directed by the SRM). The staff established a timeline for this activity that allows it to thoroughly explore each option, including the legal mechanism for implementing schedule changes, backstops, scope, etc., prior to making recommendations to the Commission. Our staff is also engaging the public in each step of the process to ensure transparency, and our staff believes that an appropriate prioritization process, if implemented, could enhance safety by allowing licensees to focus on items of the greatest safety significance first. NRC staff therefore believes that the established timeline for evaluating the various options is appropriate.

The Honorable David Vitter

QUESTION 40. **Why is it taking so long for the NRC to engage on this initiative?**

ANSWER.

Please see the response to Question 39.

The Honorable David Vitter

QUESTION 41. **Has the NRC considered expanding the Cumulative Impacts Initiative to include rolling back existing regulatory requirements that are burdensome on licensees but provide little or no safety benefit? If not, why not?**

ANSWER.

Not at the current time. Currently, the NRC is considering enhancements to ensure regulations are promulgated in a way that ensures licensees remain focused on those items most important to safety and security. However, it is possible that consideration of a process to consider the need for requirements on a site-specific basis will emerge from our current efforts. Although the safety significance of specific NRC regulations may vary from plant to plant due to plant-specific design and siting differences, the NRC believes that its existing regulatory processes carefully evaluate each regulation to ensure that any increase in regulatory burden is appropriately justified by an increase in safety. The NRC does have a strong interest in ensuring that the Cumulative Effects of Regulation (i.e., regulatory burden) are well understood and has put in place process enhancements.

The Honorable David Vitter

QUESTION 42. **Has the Commission taken action to ensure that any intimidating behavior on the part of a Commission Chair or Commissioner is a violation of Commission internal safety and personnel policies?**

ANSWER.

My fellow Commissioners and I would not tolerate the use of intimidation by any of us against one another, members of the NRC staff, or others. It is long established NRC practice and policy that intimidating behavior is a form of misconduct and not tolerated at the NRC. Further, it is inconsistent with the NRC values, which promote cooperation and respect in the workplace. The Inspector General also has the authority to investigate employee misconduct. Therefore, we have not revised any internal safety or personnel policies to address this particular issue. We are confident that, should concerns ever arise that the Chairman or a Commissioner were engaging in inappropriate conduct of any kind, the Commission would take appropriate steps to address those concerns.

The Honorable David Vitter

QUESTION 43. **Does the Commission, when it exercises its emergency response plan, have an Executive team that is supported by Congressional Affairs and Public Affairs personnel?**

ANSWER.

Yes, staff from both the NRC Office of Congressional Affairs and the Office of Public Affairs serve on the NRC incident response organization, led by the Executive Team, when the Headquarters Operations Center is activated. These staff and other trained responders have key roles in communicating information on the event to the public and the Congress. If only a Regional Office Incident Response Center is activated (the typical case for less severe events), the regional Public Affairs staff and headquarters Office of Congressional Affairs support the communications of the event.

The Honorable David Vitter

QUESTION 44. **Are these personnel, as part of their training, tasked to notify specific Congressional Committee staff and the public whenever the agency enters a necessary period of exercising emergency authority?**

ANSWER.

The Commission's procedures require that no later than one day after the Chairman begins exercising emergency authority, he/she shall provide notice to the Committees on Appropriations of the House of Representatives and the Senate, the Committee on Energy and Commerce of the House of Representatives, and the Committee on Environment and Public Works of the Senate. This notice must include an explanation of the circumstances warranting the exercise of the Chairman's emergency authority. After this initial notice, the procedures require the Chairman to provide weekly reports to the aforementioned Congressional Committees and notify them within one day of relinquishing emergency authority. Personnel in the Offices of Congressional Affairs and Public Affairs are knowledgeable about these requirements and are expected to fulfill them should emergency circumstances warrant them doing so.

Notwithstanding the Internal Commission Procedures, it has been the practice of Office Congressional Affairs personnel to notify NRC oversight committees whenever the NRC operations center is activated, regardless of whether the Chairman exercises emergency authority. If the NRC operations center is activated in response to an event at a specific facility, it is also the practice of Office of Congressional Affairs personnel to notify the Congressional delegation(s) for the areas surrounding the facility.

It has been the practice of the Office of Public Affairs to notify the public/media when the NRC headquarters operations center is activated or when a regional office or agency headquarters has entered monitoring mode for an event at the alert or higher level, regardless of whether the Chairman exercises emergency authority. In addition, it has been the practice to regularly update the public/media on the response activities of the NRC.

The Honorable David Vitter

QUESTION 45. **If not, why not?**

ANSWER.

Please see response to Question **44**, above.

The Honorable David Vitter

QUESTION 46. **In its exercises, is the Chairman (or Acting Chairman), present as part of the Executive Team for the duration of the emergency?**

ANSWER.

The Chairman, or an official whom he or she delegates, leads the NRC emergency response organization during event response. Typically, the Chairman performs this leadership function by serving as the Executive Team Director in the Operations Center; however, NRC's approach recognizes the Chairman may be called away (press conferences, White House meetings, etc.) or that long-duration response activities may preclude continuous presence.

The Honorable David Vitter

QUESTION 47: **If the Chairman departs the emergency operations center, who interacts as the Executive exercising the emergency authority?**

ANSWER.

The physical location of the Chairman during an incident response does not alter her authority as Chairman and Head of Agency; she may direct the incident response from any location. When away from the Headquarters Operations Center, the Chairman may, at her discretion, delegate her Executive Team Director duties (including her emergency powers per the Reorganization Plan No. 1 of 1980). Responsibilities are traditionally delegated to another Commissioner, a senior member of the Executive Team (Executive Director for Operations/Deputy Executive Director for Operations), or to the pertinent Regional Administrator, depending upon the level of the response. The Executive Team can, in most cases, remain in contact with the Chairman if she is not in the Operations Center, and would continue to engage her as circumstances surrounding the event response warrant.

The Honorable David Vitter

QUESTION 48. **I'm not at all sure that this Commission understands its role in creating a stultifying atmosphere for the use of nuclear power in this country. While the industry continues to strive to understand how all the rulemakings that are currently underway and coming onto your drawing boards in the near and intermediate future can all be of equal priority in nature and deliver significant safety benefits in effect, you as a group continue to find ways to characterize your best efforts to ameliorate the problem as to better define potential requirements and to develop better cost-estimates of their implementation. The net effect is that you do not accept any responsibility for the impacts of creating requirements of dissimilar safety impact and ascribing the same priority to them. This is not an acceptable practice. Can you simply acknowledge that you do have responsibility to review your new and prospective requirements to weed out and cease working on those that have little safety impact?**

ANSWER.

The NRC utilizes a "Common Prioritization of Rulemaking" (CPR) process for developing rulemaking budget estimates and determining the relative priorities of rulemaking projects during budget formulation. As part of this process, the NRC re-evaluates the priorities of existing and ongoing rulemaking activities on an annual basis. Rulemakings are ranked commensurate with the NRC's mission, as described by the safety and security goals in the NRC's Strategic Plan. Specifically, rulemaking priorities are determined by: (1) how much a rule contributes to the NRC's safety and security goals; (2) whether a rulemaking supports the

organizational excellence objectives outlined in the Strategic Plan (e.g., efficiency and effectiveness); (3) whether the rulemaking is being directed by a governmental organization such as NRC, Congress (e.g., the Energy Policy Act of 2005), or other governmental bodies; and (4) whether a rulemaking is of particular interest to members of the public, non-governmental organizations, the nuclear industry, vendors, and suppliers. Safety and security are weighted more heavily than the other factors in the priority ranking scheme to ensure that those rules with the greatest impact on safety and security are given appropriate priority.

Although the safety significance of specific regulations may vary from plant to plant due to plant-specific design and siting differences, the existing regulatory processes carefully evaluate each regulation to ensure that any increase in regulatory burden is appropriately justified by an increase in safety. As previously discussed, the NRC does have a strong interest in ensuring that the Cumulative Effects of Regulation (CER) are well understood. The NRC has put in place various enhancements to the CER process and is considering further enhancements to ensure regulations are promulgated in a way that ensures licensees remain focused on those items most important to safety and security. The NRC is also working to improve the accuracy of its cost estimating process by conducting case studies of past cost-benefit analyses to identify lessons learned that could be used in the future to improve the NRC's process.

Also, in July 2011, Executive Order 13579 recommended that independent agencies "periodically review existing 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." In response to the Executive Order, the NRC published its final plan for retrospective analysis of existing rules on February 24, 2014 (79 FR 9981). The final plan describes the processes and activities that the NRC uses to determine whether any of its regulations should be modified, streamlined,

expanded, or repealed. It concludes how these processes and activities, when considered in aggregate, meet the intent of Executive Order 13579. These NRC processes and activities include:

(1) efforts to incorporate risk assessments into regulatory decisionmaking;

(2) use of performance-based regulation;

(3) multiple previous and ongoing rulemaking process improvement efforts and initiatives to reduce unnecessary regulatory burden, including the staff's current initiative to address the cumulative effects of regulation;

(4) existing methodology for prioritizing its rulemaking activities;

(5) multiple opportunities for public input and significant outreach efforts to enhance public participation in the regulatory process; and

(6) coordination and communication activities with other Federal agencies, tribes, and states.

The Honorable David Vitter

QUESTION 49. **As noted earlier, NRC staffing levels are at historical highs, but there is much less new nuclear power plant construction than anticipated. Five units have shut down or announced they will do so.**

How does NRC plan to reduce and/or redeploy resources to provide efficient regulation of nuclear power plants while avoiding undue cost burdens on licensees?

ANSWER.

The New Reactors budget was reduced, both in staff (full-time equivalents, or FTE) and contract support dollars, to reflect fact of life 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. The New Reactor resources to support licensing and oversight in FY 2012 was 591 FTE and $55 million. This was reduced in the FY 2013 estimate to 555 FTE and $28 million, which reflects the impact of the sequester reduction. The FY 2014 President's Budget is 548 FTE and $46 million.

Of the 18 applications for combined licenses received, only two applications have been withdrawn. The reviews of five applications were suspended at the request of the applicants who have decided for business reasons to defer completion of these reviews. The staff continues to review eight applications for new combined licenses, as well as numerous applications for amendments to the Vogtle and Summer combined licenses to incorporate design changes which are needed to support construction of these four units. The staff is also in the final stages of completing the design certification for the ESBWR design, is continuing to

review the EPR and US APWR designs, and is preparing to receive a revised application for the APR1400 design at the end of 2014. To complete this work, most staff assigned to work on new reactors remains assigned to new reactor safety and environmental reviews. In addition, some contract work was diverted to in-house staff. 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. Staff were also reassigned to support the Fukushima task force recommendations and the waste confidence directorate.

For the four operating reactors that have been shut down and transitioning to decommissioning, the budget has been reduced to reflect the reduction in resident inspectors and inspection resources. These reductions have been partially offset by the need to support the Watts Bar Unit 2 licensing, the beginning of the transition of the new reactors at Vogtle and Summer from construction to operations, and the Fukushima task force recommendations and mitigating strategies.

The Honorable David Vitter

QUESTION 50. **Does the NRC have a multi-year staffing plan?**

ANSWER:

The agency formulates its staffing levels, full-time equivalents (FTE's) based on planned workload and priorities covering a two-year period (i.e., fiscal years 2014 and 2015), which is aligned with the agency budget formulation process.

Agency senior management meets regularly to discuss changing mission priorities and to strategically focus on fine-tuning available skill sets to meet future mission needs. This information is used to make critical workforce planning decisions and in developing office-specific short- and long-term staffing projections to identify critical skill gaps that could jeopardize the agency's ability to carry out its mission. These projections give each office and the agency as a whole a firm idea of its longer-term staffing needs so that managers are able to plan for shifting resources internally to address workload imbalances or address critical skill gaps through the use of our human capital hiring, retention, knowledge management, and development programs.

Additionally, in execution year, most offices within the NRC develop office-level staffing plans that provide more specific and targeted information, but these plans are not consolidated into an agency level staffing plan.

The Honorable David Vitter

QUESTION 51. **Please provide it to the committee, along with pertinent assumptions about workload.**

ANSWER:

Enclosed is the NRC two-year full-time equivalents (FTE) plan by business and product line for Fiscal Years 2014 and 2015. Pertinent planning assumptions by business line for FY 2015 include:

Business Line: Operating Reactors

- Workload:
  - Continuing licensing activities for 100 power reactors and completing 900 licensing actions (100 of which are Fukushima-related, six power uprates and approximately 15 ongoing reviews of compliance with National Fire Protection Association 805 for the approximately 25 reactors that will be transitioning to a risk-informed, performance-based set of requirements).
  - Continuing Fukushima lessons-learned activities, including seismic and flooding reevaluations, staff closeout reviews and inspections of mitigating strategies, enhanced spent fuel pool instrumentation orders, and completing safety evaluations for the licensee's Phase 1 integrated plans related to the severe accident capable hardened vents order, monitoring licensee implementation, and emergency preparedness activities.
  - Continuing reviews for 11 license renewal applications (19 units at 12 sites) for operating reactors.

- Continuing oversight of plants through the NRC's Reactor Oversight Process to verify that the 100 currently licensed operating nuclear power reactors continue to operate safely and securely.
- Reviewing 18 high-priority rulemakings and three medium-priority rulemaking activities directed by the Commission, including policy development activities related to the NRC regulatory framework after the Fukushima event.
- Conducting research based on lessons-learned from the Fukushima accident, fire safety, digital and electrical systems, materials degradation, reactor safety code development and analysis, radiation protection, probabilistic risk assessment, and evaluation of hazards from natural events.
- Ensuring that the NRC is ready to respond around the clock and able to collect and disseminate event response information consistent with the NRC's responsibilities under the National Response Framework.

- Significant changes from FY 2014 to FY 2015:
  - Increasing licensing activities related to cybersecurity;
  - Fukushima Tier I and II activities, specifically increasing for reviews related to mitigating strategies;
  - Increasing for work related to Generic Issue-191;
  - Reviewing new applications for medical isotope production facilities; and
  - Completing operating reactor decommissioning activities at Kewaunee, Crystal River Unit 3, and San Onofre Units 1 and 2.

Business Line: New Reactors

- Workload:

- Reviewing the nine combined license (COL) applications that remain active (two applicants were issued licenses, six applicants requested that their reviews be suspended, and one application was withdrawn).
- Continuing review of four design certifications (DC) (Babcock & Wilcox mPower, U.S. EPR, U.S. Advanced Pressurized Water Reactor (APWR)), and Korea Hydro and Nuclear Power (KHNP) KHNP/APR-1400 (review will begin in the fourth quarter FY15)).
- Continuing review of one DC renewal (Advanced Boiling Water Reactor), continuing pre-application activities for two projected DC applicants (Westinghouse and Holtec).
- Initiating the review of one new DC (NuScale).
- Supporting construction inspection activities of the reactors under construction (Vogtle Units 3 and 4, Summer Units 2 and 3, and Watts Bar Unit 2).
- Performing 30 vendor inspections to ensure integrity of the supply chain, which would be consistent with the expected increase in the number of suppliers and sites under active construction.

- Significant changes from FY 2014 to FY 2015:
  - Reviewing additional Small Modular Reactor and combined license applications;
  - Decreasing construction inspection activities associated with the oversight development program maintenance; and
  - Increasing the oversight of the startup of Watts Bar Unit 2.

Business Line: Fuel Facilities

- Workload:
  - Licensing conversion/deconversion, enrichment, fuel fabrication and greater than critical mass facilities, including new facilities at MOX.

- Supporting regulatory activities related to agency follow-up of the Fukushima event, including actions from the Fukushima Near-Term Task Force and inspections for fuel cycle facilities conducted under Temporary Instruction 2600/015, "Evaluation of Licensee Strategies for the Prevention and/or Mitigation of Emergencies at Fuel Facilities."
- Coordinating inspection procedures, event coordination, and the inspections for verification of the MOX principal systems, structures, and components.
- Rulemaking in security-related areas, including enhanced security at fuel cycle facilities (CAT I and III), material categorization, the 10 CFR Part 26 Fitness-for-Duty Program, and fingerprinting for safeguards information access.
- Facilitating application of the International Atomic Energy Agency safeguards to fuel cycle facilities, international coordination, and assistance on next generation safeguards designs.

- Significant changes from FY 2014 to FY 2015:
  - Reviewing a new uranium enrichment plant license application from GE-Hitachi for the Paducah Laser Enrichment Facility;
  - Increasing to review a possible amendment to expand operations at International Isotopes; and
  - Progressing with revisions to the Fuel Cycle Oversight Program.

Business Lines: Nuclear Materials Users

- Workload:
  - Completing approximately 2,000 materials licensing reviews (new applications, amendments, renewals, and terminations).

- Completing approximately 900 routine health and safety inspections as well as reciprocity and reactive inspections, and a registration and follow-up inspection program for certain general licensees.
- Conducting four materials waste safety rulemakings, as well as continuing as an interactive liaison with industry and professional societies to develop new codes and consensus standards and to review petitions for rulemaking submitted to the agency.
- Reviewing import/export authorizations of nuclear components and radiological materials and Executive Branch Subsequent Arrangements and Proposed 810 Licenses.
- Controlling and tracking imports and exports of sources, and bilateral and multilateral activities initiated for the exchange of technical information for the safe handling, storage, transport, and disposal of nuclear waste.
- Operating the Integrated Source Management Portfolio track sources and enhancing security of radioactive materials.
- Supporting the National Materials Program, including 10 to 12 Integrated Materials Performance Evaluation Program reviews for Agreement State and NRC programs to ensure that they are adequate to protect public health and safety and compatible with NRC programs.
- Coordinating and funding state participation in NRC training courses (including Agreement State training and travel) and responding to state technical assistance requests.
- Interacting with the Conference of Radiation Control Program Directors, Inc., and the Organization of Agreement States, Inc., and developing and maintaining policies and procedures for the Agreement State program.

- There are no significant changes from FY 2014 to FY 2015.

Business Line: Spent Fuel Storage and Transportation

- Workload:
  - Reviewing approximately 65 radioactive material transportation package design applications and approximately 22 spent nuclear fuel (SNF) storage applications to ensure the safe and secure storage of SNF.
  - Supporting the Renewal of the Prairie Island independent spent fuel storage installation (ISFSI) license.
  - Completing 16 safety inspections of storage and transportation cask vendors, fabricators, and designers and of ISFSI pad construction, dry-run operations, initial loading operations, and routine operations.
  - Evaluating regulatory framework and possible future rulemaking to support and respond to changes in the national high-level waste and spent nuclear fuel management program.

- Significant changes from FY 2014 to FY 2015:
  - Completing the near-term Waste Confidence Rule in FY 2014.
  - Increasing to evaluate potential revisions of regulatory framework for extended dry spent fuel storage and subsequent transportation to support potential updates to the regulatory framework (guidance) and possible future rulemaking.
  - Increasing to analyze data collection and modeling for future alternate strategies for disposal of spent fuel and high-level waste.
  - Decreasing as a result of transitioning the Storage and Transportation Information Management System from development to operations and maintenance.

Business Line: Decommissioning and Low-Level Waste

- Workload:
  - Licensing reviews for decommissioning 14 power and early demonstration reactors, seven research and test reactors, 23 complex materials facilities, and 38 uranium recovery facilities.
  - Licensing for up to 40 military and civilian sites with naturally occurring and accelerator-produced radioactive materials sites and depleted uranium contamination.
  - Reviewing eight to ten environmental and safety licensing applications (hearings included) for uranium recovery facilities, as well as licensing activities associated with seven operating uranium recovery facilities.
  - Overseeing decommissioning and uranium recovery operations, low-level waste program activities and waste-incidental-to reprocessing activities at two U.S. Department of Energy sites.
  - Providing research related assistance on complex licensing cases, such as application of codes for decommissioning reviews and site reviews employing bioremediation as the remediation process chosen for site cleanup at shallow sites with uranium contamination and uranium in situ recovery facilities.

- There are no significant changes from FY 2014 to FY 2015.

Enclosure: As stated

FY 14-15 Staffing Plan

FULL-TIME EQUIVALENTS[1]			
		FY 2014 FTE	FY 2015 FTE
Business Line	Product Line	3,751.9	3,818.8
BL-11 Operating Reactors	PL-1 Event Response	64.8	64.8
BL-11 Operating Reactors	PL-2 Generic HLS (PL)	25.4	20.8
BL-11 Operating Reactors	PL-3 International Activities	18.9	18.8
BL-11 Operating Reactors	PL-4 Licensing	880.83	876.1
BL-11 Operating Reactors	PL-5 Oversight	874.4	849.1
BL-11 Operating Reactors	PL-6 Research	216.1	216
BL-11 Operating Reactors	PL-7 Rulemaking (PL)	60.2	66.7
BL-17 New Reactors	PL-3 International Activities	9.3	10.5
BL-17 New Reactors	PL-4 Licensing	491.2	602.7
BL-17 New Reactors	PL-5 Oversight	215	185.2
BL-17 New Reactors	PL-6 Research	34	32.7
BL-17 New Reactors	PL-7 Rulemaking (PL)	18.4	15.1
BL-38 Fuel Facilities	PL-1 Event Response	4.6	4.3
BL-38 Fuel Facilities	PL-2 Generic HLS (PL)	6.8	6.5
BL-38 Fuel Facilities	PL-3 International Activities	15	13.2
BL-38 Fuel Facilities	PL-4 Licensing	46.7	82
BL-38 Fuel Facilities	PL-5 Oversight	125.2	110
BL-38 Fuel Facilities	PL-6 Research	0.9	0.9
BL-38 Fuel Facilities	PL-7 Rulemaking (PL)	10.1	21
BL-33 Spent Fuel Storage and Transportation	PL-2 Generic HLS (PL)	2.5	0.5
BL-33 Spent Fuel Storage and Transportation	PL-3 International Activities	5.5	4
BL-33 Spent Fuel Storage and Transportation	PL-4 Licensing	78.9	75.2
BL-33 Spent Fuel Storage and Transportation	PL-5 Oversight	24.8	24.4
BL-33 Spent Fuel Storage and Transportation	PL-6 Research	15.4	17.7
BL-33 Spent Fuel Storage and Transportation	PL-7 Rulemaking (PL)	39	41.2
BL-34 Nuclear Materials Users	PL-1 Event Response	6.4	6.4
BL-34 Nuclear Materials Users	PL-2 Generic HLS (PL)	13.6	6.5
BL-34 Nuclear Materials Users	PL-3 International Activities	17.1	17.1
BL-34 Nuclear Materials Users	PL-4 Licensing	107.8	107.6
BL-34 Nuclear Materials Users	PL-5 Oversight	108.8	107
BL-34 Nuclear Materials Users	PL-6 Research	4.7	3.2
BL-34 Nuclear Materials Users	PL-7 Rulemaking (PL)	18.6	18
BL-34 Nuclear Materials Users	PL-8 State, Tribal and Federal Pgms	47.8	49.4
BL-35 Decommissioning and LLW	PL-3 International Activities	6.4	6.2
BL-35 Decommissioning and LLW	PL-4 Licensing	93	91
BL-35 Decommissioning and LLW	PL-5 Oversight	33.2	36.2
BL-35 Decommissioning and LLW	PL-6 Research	3.1	3.1
BL-35 Decommissioning and LLW	PL-7 Rulemaking (PL)	7.5	7.7

The Honorable David Vitter

QUESTION 52. Please compare anticipated future staffing levels to those of the early 2000s, before NRC significantly expanded the number of employees.

ANSWER.

Provided below is a chart, by business line, comparing the number of NRC full-time equivalents enacted for FY 2000 and FY 2014, along with the number requested for FY 2015.

FULL-TIME EQUIVALENTS[1]			
Business Line	**FY 2000 Enacted**	**FY 2014 Enacted**	**FY 2015 Request**
Operating Reactors	1,888.2	2,140.6	2,112.3
New Reactors	0.0	767.9	846.2
Fuel Facilities	141.3	209.3	237.9
Spent Fuel Storage and Transportation	93.7	166.1	163.0
Nuclear Materials Users	385.6	324.8	315.2
Decommissioning and Low-Level Waste	175.6	143.2	144.2
High-Level Waste	72.6	0.0	0.0
Total	**2,757.0**	**3,752.0**	**3,818.8**

[1]Numbers may not add due to rounding.

The Honorable David Vitter

QUESTION 53. **NRC staff recently completed study on pools versus dry cask storage, what were the results of that study?**

ANSWER.

The process for storing irradiated nuclear fuel, in both spent fuel pools (SFPs) and dry casks is well-established and provides adequate protection of public health and safety. The referenced NRC study, titled "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor" is commonly referred to as the Spent Fuel Pool Study. This study focused on characterizing the offsite impacts from a postulated SFP accident at a reference site. The Spent Fuel Pool Study did not explicitly consider dry cask storage.

After issuing the Spent Fuel Pool Study in October 2013, the NRC staff issued a related generic analysis (COMSECY-13-0030). This generic analysis focused on whether further consideration should be given to the issue of having reactor licensees reduce the amount of spent fuel stored in their SFPs by requiring the expedited transfer of some of this spent fuel into dry storage casks. In this analysis, the NRC staff considered the history of NRC oversight of spent fuel storage, SFP operating experience (domestic and international), and past studies of SFP safety, as well as the October 2013 Spent Fuel Pool Study. The NRC staff concluded that the expedited transfer of spent fuel to dry cask storage would provide only a minor or limited safety benefit (i.e., less than safety goal screening criteria utilizing the Commission's safety goal policy statement), and that its expected implementation costs would not be justified. The staff recommended to the Commission that additional studies and further analyses of the expedited

transfer issue not be pursued. The Commission is now considering the staff's recommendations.

The Honorable David Vitter

QUESTION 54. **Did that study find that current methods for managing used fuel protect public health and safety?**

ANSWER.

As previously stated, the NRC staff's view is that the present manner in which spent fuel is stored, both in SFPs and in dry casks, provides adequate protection of public health and safety. The staff's Spent Fuel Pool Study, and the generic analysis in the staff's paper, supports this view. The Commission is now considering the staff's recommendations.

The Honorable David Vitter

QUESTION 55. **What is the NRC's priority for addressing submittals and license amendment requests for plants in decommissioning?**

ANSWER.

The staff has developed a prioritization methodology that applies to all licensee requests for licensing actions, including requests for plants in decommissioning. The methodology considers many factors when establishing the priority of a licensing request, including whether the requested action affects reactor safety; impacts safe plant restart or continued operation; or is the result of Commission, Congressional, or Executive direction. Within this methodology, decommissioning licensing actions, including amendments and exemptions, are considered "routine licensing activities," and are thus given the same treatment as licensing actions requested by non-decommissioning reactors, under the factors described above.

On June 13, 2013, the NRC staff issued a letter to all operating reactor licensees discussing the impact on regulatory and licensing reviews as a result of the earthquake and tsunami at the Fukushima Dai-ichi nuclear power plant. The staff explained that it would continue to assess and redefine priorities while ensuring that the process does not displace ongoing work that has greater safety benefit, work that is necessary for continued safe operation, or other existing high-priority work.

The NRC allows for discretion in the application of the prioritization methodology based on case-specific circumstances. For example, management can assign resources where the availability of certain skill sets factors into the decision of when to perform a review.

The Honorable David Vitter

QUESTION 56. **NRC delays in review decommissioning plants' submittals result in unnecessary depletion of the decommissioning trust funds and potentially unnecessary cost increases to electric customers in regulated markets and a lack of necessary funds in unregulated markets. Decommissioning plants are limited in their ability to make changes to plant configurations in a safe and timely manner and expeditiously reduce staff and costs until the NRC approves license amendment requests and other submittals.**

How do you respond to the concerns that NRC delays in reviewing decommissioning plants' submittals result in unnecessarily high decommissioning costs?

ANSWER.

The staff developed a prioritization methodology that applies to all licensee requests for licensing actions. The methodology considers many factors when establishing the priority of a licensing request, including whether the requested action affects reactor safety; impacts safe plant restart or continued operation; or is the result of Commission, Congressional, or Executive direction. Within this methodology, decommissioning licensing actions, including amendments and exemptions, are considered "routine licensing activities," and are thus given the same treatment as licensing actions requested by other non-decommissioning reactors, and under the factors described above. The NRC staff evaluates the licensee's submittals using the prioritization methodology discussed above and is applying the appropriate resources to the review of decommissioning licensing actions. While licensees may request expedited review of

certain licensing actions that it believes would reduce the cost of decommissioning, the NRC staff must weigh the impact of this request against other licensing actions it has under review, and distribute its resources appropriately.

When looking at the impact of perceived delays in reviewing licensee submittals against the cost of decommissioning, the NRC staff weighs its mission to protect public health and safety, promote the common defense and security, and protect the environment, against increased operating costs associated with processing licensing actions. The NRC has specific regulations in place to provide reasonable assurance that funds will be available for the decommissioning process (see 10 CFR 50.75, "Reporting and Recordkeeping for Decommissioning Planning"). These funds are specifically designated for radiological decontamination of the facility. Funding for areas where the licensee requires NRC action to reduce cost, the most significant of which are in the areas of emergency preparedness and security, are not related to radiological decontamination. Funding for these activities would come from sources other than the decommissioning trust fund.

The Honorable David Vitter

QUESTION 57. **Why have the NRC rule implementation cost estimates been so wrong, with actual costs ranging from three to more than 10 times the NRC estimates?**

ANSWER.

The NRC acknowledges that in some cases there have been large differences between the NRC's estimated costs of rule implementation and actual industry implementation costs. The main reason for such differences is that the NRC does not have access to detailed or aggregate cost information for most of our regulated entities. If regulated entities provide detailed cost information for an NRC regulatory proposal during the proposed rule public comment period, then the NRC could refine its initial cost estimates to account for the detailed cost information. However, the NRC's experience to date is that our external stakeholders rarely provide cost information of sufficient specificity to support refinement of the NRC's cost estimates.

NRC's external stakeholders have indicated that they are unable to provide reasonable comments on NRC's implementation costs estimates during the proposed rule stage because those costs depend upon implementation guidance, which is not available at the time the NRC requests public comment on a proposed regulatory action.

To improve the NRC's cost estimating processes, the agency is now conducting case studies of past cost-benefit analyses to identify lessons learned that could be used to improve the accuracy of future cost-benefit analyses. The results of the case studies to date show that there are often significant divergences between the costs estimated before the regulation is issued

compared to the actual costs incurred by regulated entities after the final rule is published. Typically, these divergences result from different assumptions made by the NRC and the regulated entities regarding the changes from the status quo needed to comply with the new requirement. Other contributors to differences in estimated versus actual costs include differing assumptions on how a licensee will achieve compliance, different timing of compliance, variability among plant sites, and lack of industry cost data. Furthermore, the NRC has been advised that the regulated entities consider some types of cost data to be proprietary information, which they wish to withhold from public disclosure.

The NRC is taking several actions to improve the accuracy of future cost estimates. First, the NRC now publishes draft implementation guidance concurrent with the publication of proposed rules and final implementation guidance concurrent with final rules. Developing implementation guidance concurrent with each rule will help ensure that the NRC and industry have a common understanding of the effort required for a licensee to comply with the new requirement, and should also aid with developing cost estimates based on the expected method the licensee will use to achieve compliance with the proposed regulatory action. Second, the NRC is continuing its case studies of past NRC cost-benefit analyses to identify additional lessons learned. The staff is working with nuclear power industry stakeholders to explore possible ways in which these stakeholders can provide the NRC with more detailed information on implementation costs (cost averages, ranges, etc.) without disclosing proprietary information. The NRC's cost-benefit improvement activities are described in "Plan for Updating the U.S. Nuclear Regulatory Commission's Cost-Benefit Guidance" (SECY-14-0002).

The Honorable David Vitter

QUESTION 58. **What training and oversight do NRC staff receive pertaining to the performance of regulatory analyses (cost-benefit analyses)?**

ANSWER.

The NRC imposes experience, skill, and education requirements on staff performing regulatory analyses consistent with the GAO series GG-0110 cost analyst/economist position descriptions. The NRC cost analysts are knowledgeable and experienced in topics relevant to cost-benefit analyses involving the nuclear power cycle and the direct and indirect economic impacts upon those segments of society affected by nuclear reactor technology, nuclear facility design, reactor systems, and engineering safety features. They are trained in economics and cost-benefit methodology and can apply this knowledge and techniques to a wide array of cost or benefit estimates including cost of delay, production cost differentials, financial costs, operation and maintenance costs, capital costs, radiological exposure cost, and socioeconomic and environmental impacts. All NRC cost analysts have (1) knowledge of nuclear reactor concepts, component designs, and fundamental operating characteristics of nuclear reactors; (2) basic knowledge of, or experience in reactor operations; and (3) basic knowledge of, or experience in, analysis of reactor safety systems.

NRC cost analysts have education that is comparable to undergraduate level training (i.e., Bachelor's Degree in Business Administration, Economics, Accounting, or Finance), plus experience in applying this knowledge to the public health and safety, environmental, and antitrust impacts of nuclear power plants and other nuclear facilities and licenses. Some NRC cost analysts also maintain certifications as Contract Officer Representatives, registered

Professional Engineers, and/or maintain active member status in professional societies (e.g., Society for Benefit-Cost Analysts).

Draft NRC cost-benefit analyses receive independent reviews before they are finalized by the staff or presented to the Commission for approval, by (1) other knowledgeable NRC cost analysts, (2) NRC technical staff who identified the safety issues that the rule is addressing, and (3) NRC project management staff who are responsible for coordinating implementation of the rule. Following these reviews, the draft cost-benefit analyses are reviewed by several NRC managers who are responsible for the technical, policy, and legal staff involved with the effort. Furthermore, draft versions of NRC regulatory analyses for rulemakings are released for public comment at the proposed rule stage. All comments received are addressed as part of the final rulemaking package.

The Honorable David Vitter

QUESTION 59. **What corrective actions have the NRC taken in response to these flawed regulatory analyses?**

ANSWER.

See discussion in response to Question 58.

The Honorable David Vitter

QUESTION 60. **Certainly you all subscribe to the principle, "Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition." And certainly you all agree that NRC actions must, "lend stability to the nuclear operational and planning processes."**

Do you agree?

ANSWER.

Yes, the NRC agrees that established regulations should be perceived to be reliable and not *unjustifiably* in a state of transition (emphasis added). The NRC also agrees that NRC actions must lend stability to the nuclear operational and planning processes. However, when events or circumstances reveal a potential lack of adequate protection of public health and safety, the NRC must take appropriate and *justified* regulatory action with full consideration of all relevant factors. These factors include the magnitude of the potential threat to public health and safety, societal costs and benefits, and regulatory stability and predictability for both public and nuclear industry stakeholders. Such actions, to the extent possible, will be designed to minimize adverse impacts on licensee operational and planning processes.

The Honorable David Vitter

QUESTION 61. **These are directly from your own Principles of Good Regulation, and if you disagree you either are disavowing these and/or should be telling us about a major activity to overhaul them and why.**

ANSWER.

Please see the response to Question 60, above.

The Honorable David Vitter

QUESTION 62. **Does the Commission still hold that the risks associated with nuclear plants are sharply reduced when they have permanently shut-down?**

ANSWER.

While we believe that U.S. plants are safe and manage risks effectively during their operating lives, it is accurate that the overall risks associated with nuclear plants are reduced when they permanently shut down. During the first year after a nuclear power plant is permanently shut down, the licensee prepares the plant for safe decommissioning. The actions taken by the licensee include the modification of systems, shipment of radioactive waste, emptying of tanks, draining of systems, and electrical isolation of components. All nuclear fuel is removed from the reactor vessel and placed in the spent fuel pool. Therefore, for a permanently shut down nuclear power plant, the decay heat and radioactivity of the spent fuel significantly decreases during the first year. Also, the potential for a release of water containing radioactivity is significantly reduced and the potential for a reactor accident with large consequences is eliminated, thereby reducing the overall risk in comparison to an operating reactor.

In addition, consistent with agency procedures, the NRC typically maintains a resident inspector onsite during part of the first year after permanent shutdown. The resident inspector oversees the plant transition from operation to permanent shutdown, in order to verify that the licensee complies with its license, technical specifications, and procedures. As during plant operations, the resident inspection staff is supplemented with special inspection expertise as needed, which includes security, emergency response, health physics, environmental monitoring, and engineering. NRC inspections continue throughout decommissioning until the licensee

demonstrates that the site meets the license termination requirements. The level of decommissioning inspections will be commensurate with the licensee's planned decommissioning activities.

The Honorable David Vitter

QUESTION 63. **Have the permanently shut-down plants that have undergone decommissioning done so to the Commission's satisfaction?**

ANSWER.

Yes, all 11 NRC licensed nuclear power plants fully decommissioned to date have met the NRC's unrestricted release requirements for site release. Each has terminated its NRC operating reactor license and been able to release its reactor plant footprint for unrestricted use. Several of these sites retain their spent nuclear fuel in dry cask storage, and the storage facility remains under NRC licensing and oversight. The 11 plants that have completed decommissioning used the reactor decommissioning strategy of DECON (prompt or active dismantlement) or SAFSTOR (delayed dismantlement) followed by DECON.

Each of these nuclear power plants was decommissioned satisfactorily in accordance with the NRC's regulations. Experience gained from these decommissioning projects has been well documented by both the NRC and the nuclear industry. Lessons learned from past nuclear power reactor decommissioning projects have been captured in industry reports and in NRC guidance and regulations.

The Honorable David Vitter

QUESTION 64. **What policy change did the Commission debate in open forum that allowed the staff to consider changes to the process, like devoting NRC resources to establishing a Citizens Advisory Board, last week at a public meeting in California?**

ANSWER.

No policy changes have been made concerning a proposed request to make establishing a Citizens Advisory Boards (CABs) an NRC requirement. On September 26, 2013, the NRC held a public meeting to discuss the reactor decommissioning process near the San Onofre Nuclear Generating Station in Carlsbad, California. At the meeting, the NRC received a question from the Coalition to Decommission San Onofre (Coalition) regarding NRC willingness to recognize the Coalition and grant them official status to participate in the inspection process. A second question was raised to see if the public would have the opportunity as part of the decommissioning process to review and comment on significant decommissioning plans, including planned expenditures from the decommissioning fund. After due consideration, the NRC determined that the public participation sought in these requests would go beyond what is provided for in current NRC regulations and policy.

For the NRC to recognize the Coalition and grant them official status would be a policy change that would likely require the use of NRC resources, and depending on the specific roles involved in conferring official status, may require statutory amendments. However, as discussed in a follow up letter to the Coalition, dated November 25, 2013, the NRC does not officially recognize or endorse any special interest group, public or private organizations, coalitions, or individuals.

The NRC was created by the Congress to be an independent regulator charged with ensuring public health and safety and protecting the environment. As an independent regulator, the NRC ensures that all members of the public are given a fair and equal opportunity to comment on a licensee's Post-Shutdown Decommissioning Activities Report (PSDAR), decommissioning strategies, and License Termination Plan.

The NRC recognizes the need and desire for community involvement in the decommissioning of a nuclear power plant. Since decommissioning is a complex project, the NRC believes that the licensee should engage the local community about its decommissioning plans. For many years the NRC has recommended that licensees involved in decommissioning activities form a community committee to obtain local citizen views on the decommissioning process and spent fuel storage issues. It has been the NRC's experience that those licensees who actively engage the community are likely to make more informed decisions and achieve an outcome that is more likely to be mutually satisfactory to the licensee and the community.

As discussed at the September public meeting held in Carlsbad, NRC regulations offer the public opportunities to review and provide comments on licensee documents during the decommissioning process. Under these regulations, the NRC is required to publish a notice of the receipt of the licensee's PSDAR, make the PSDAR available for public comment, schedule a meeting in the vicinity of the location of the licensed facility to discuss the PSDAR within 60 days of receipt, and publish a notice of the meeting in the *Federal Register* and another forum readily accessible to individuals in the vicinity of the site. Another opportunity for public involvement is when the licensee's License Termination Plan is submitted for NRC approval.

The Honorable David Vitter

QUESTION 65. **What safety risk issues drive such a change?**

ANSWER.

At this time there are no plans for a policy change that would devote NRC resources to establishing Citizen Advisory Boards or Panels (CABs/CAPs).

The Honorable David Vitter

QUESTION 66. **Is the staff and the Commission promoting stability by introducing new concepts on the fly?**

ANSWER.

The concept of a Citizen Advisory Board or Panel (CAB/CAP) is not new nor is there an NRC requirement to establish one. Establishing such boards or panels has been recognized as a good practice by the nuclear power industry and is encouraged by the NRC. Experience gained from decommissioning projects has been well documented by both the nuclear industry and the NRC. In 2005, the Electric Power Research Institute (EPRI) published "Maine Yankee Decommissioning – Experience Report – Detailed Experience 1997 – 2004". In this lessons learned report, the industry recognized that engaging the local community and officially forming a CAB/CAP is a good practice. Specifically, the EPRI report states that "the Maine Yankee Community Advisory Panel (CAP) was established in 1997 to enhance opportunities for public involvement in the decommissioning process of Maine Yankee. The CAP represents the local community. By thoroughly reviewing the decommissioning process, the CAP was in a position to advise Maine Yankee on key issues of concern to the local community." Since the decommissioning of Maine Yankee, licensees have employed a CAB or CAP at many other sites, including Connecticut Yankee, Big Rock Point, and Millstone.

The Honorable David Vitter

QUESTION 67. **When did the Commission and staff consider and take public views on the concept of a "de Facto" license amendment?**

ANSWER.

The concept of a "'de facto' license amendment" arises from Federal court and Commission case law (rather than any specific Commission guidance or regulation), and is rooted in the question whether a challenged NRC authorization constitutes a license amendment, and therefore necessitates an associated hearing opportunity within the meaning of Section 189a of the Atomic Energy Act. Whether a particular agency action constitutes a "'de facto' license amendment" is a highly fact-specific question that arises in litigation; as such, the NRC has not sought public comments on the concept. The seminal Commission case on the topic is *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant), CLI-96-13, 44 NRC 315 (1996).

The Honorable David Vitter

QUESTION 68. **Where in the Commission's guidance is the term, "de Facto license amendment," located?**

ANSWER.

Please see the response to Question 67, above.

The Honorable David Vitter

QUESTION 69. **What imminent and urgent safety issue was present in this case that you to intervene with an Order?**

ANSWER.

None. The referenced decision, in this case involving the San Onofre Nuclear Generating Station, was issued in response to a petition to intervene and request for hearing, as well as a request for stay, filed by a third party, Friends of the Earth. In its Order, the Commission: (1) referred an asserted regulatory violation to the Executive Director for Operations for appropriate action; (2) referred a portion of the petition to the Atomic Safety and Licensing Board Panel (Panel) for consideration whether the Confirmatory Action Letter issued by the agency to the licensee "constitutes a *de facto* license amendment that would be subject to a hearing opportunity under [Atomic Energy Act] Section 189a, and, if so . . . whether the petition meets the standing and contention admissibility requirements of 10 C.F.R. § 2.309"; and (3) denied the petitioner's discretionary hearing and stay requests. This Order constituted a routine exercise of Commission adjudicatory decision-making. In particular, referral of the "adjudicatory" portion of the hearing petition to the Panel was consistent with past adjudications of this type. Licensing boards historically have resolved disputes about whether a Staff action constitutes a "de facto" license amendment within the meaning of Section 189a. These cases involve questions of fact, which are generally decided by the boards. *See, e.g.*, *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-89-28, 30 NRC 271, 275-78 (1989), *aff'd*, ALAB-940, 32 NRC 225 (1990).

The Honorable David Vitter

QUESTION 70. **When did the Commission meet, and develop internal guidance with public comment on when it would intervene in any future Confirmatory Action Letter?**

ANSWER.

The Commission has not met on this topic, nor has it developed guidance with respect to this issue. As discussed with respect to Questions 73 and 74, the question whether an NRC action (such as issuance of a Confirmatory Action letter) constitutes a "de facto" amendment to a license is decided on a case-by-case basis when it arises in the context of an adjudicatory challenge. Thus, the Commission exercised its routine adjudicatory duties when it addressed the Confirmatory Action Letter. There was no separate determination to intervene in the Confirmatory Action Letter.

The Honorable David Vitter

QUESTION 71. **Do you recognize at all the Commission's stated purposes of this CAL process were rendered meaningless in this case by the order you issued?**

ANSWER.

The vitality of the CAL was not affected by the Commission's November 2012 order. The NRC staff issued the CAL on March 27, 2012 to confirm the actions that the licensee, Southern California Edison Company, committed to take prior to returning SONGS Units 2 and 3 to power operation. On June 7, 2013, Edison informed the Staff of its determination not to seek restart of Units 2 and 3. Following that notification, and after the licensee further notified the Staff that it had permanently defueled both units, the Staff closed the CAL in August 2013. Until its closure, the CAL remained in effect, irrespective of—and independent of—the ongoing adjudication. In view of Edison's decision to shutter the plant, no party pursued appeals in the adjudication; instead, the NRC staff sought vacatur of the Licensing Board's decision in the case, LBP-13-7. Consistent with prior practice, the Commission subsequently vacated this Board decision without giving any opinion on its validity.

The Honorable David Vitter

QUESTION 72. **Do you recognize that by choosing to insert itself into this process, the Commission negated the regulatory stability of the CAL process by taking an "ad hoc" action in this case?**

ANSWER.

In its decision of May 13, 2013, the Licensing Board in the SONGS matter concluded that, in this instance, the "CAL process" constituted a "de facto" license amendment proceeding that is subject to a hearing opportunity. On the day appeals of LBP-13-7 were due to be filed with the Commission, the licensee informed the NRC Staff of its determination to retire SONGS Units 2 and 3. The NRC Staff thereafter sought to vacate the Board's decision in view of the licensee's decision to permanently retire the units. The issues decided by the Board in this case were mooted by the shutdown decision, leaving no live controversy between the litigants. Although an unreviewed licensing board decision has no precedential effect, the Commission vacated the Board decision in a December 2013 decision, which has the effect of rendering the decision legally void. By vacating the Board decision, the Commission removed the potential instability that might have been caused by an unreviewed Board decision.

The Honorable David Vitter

QUESTION 73. **What does a Notice of Nonconformance against a vendor mean, and what was the NRC's finding in this case?**

ANSWER.

The NRC Enforcement Policy (revised July 9, 2013) supports the NRC's mission to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment. Adequate protection is presumptively assured by compliance with NRC requirements. Compliance with NRC requirements, including regulations, technical specifications, license conditions, and Orders, provides reasonable assurance to the NRC and the public that safety and security are being maintained. The application of the Policy ensures that associated enforcement actions properly reflect the safety or security significance of such violations.

The Enforcement Policy applies to all NRC licensees and applicants, to various categories of non-licensees, and to individual employees of licensed and non-licensed entities involved in NRC-regulated activities. These include, but are not limited to, the vendors supplying safety-related components to NRC licensees.

Within the NRC Enforcement Policy, the Notice of Nonconformance is defined as follows:

> Notice of Nonconformance (NON) is a written notice describing the failure of a licensee's contractor to meet commitments that have not been made legally binding requirements by the NRC (e.g., a commitment made in a procurement contract with a licensee or applicant as required by 10 CFR Part 50, Appendix B). (If the contractor deliberately fails to meet the terms of a procurement contract, the NRC may issue a violation under

the Deliberate Misconduct Rule in 10 CFR 50.5.) NONs request that non-licensees provide written explanations or statements describing corrective steps (taken or planned), the results achieved, the dates when corrective actions will be completed, and measures taken to preclude recurrence.

A nonconformance was issued in the September 20, 2013, inspection report of Mitsubishi Heavy Industries, Ltd (MHI). Based on the results of a U.S. Nuclear Regulatory Commission (NRC) inspection of MHI conducted at the Mitsubishi Nuclear Energy Systems offices in Arlington, Virginia, from August 5 through August 9, 2013, the NRC determined that certain activities were not conducted in accordance with NRC requirements in Appendix B to Title 10 of the Code of Federal Regulations (10 CFR) Part 50 that were contractually imposed upon MHI by its customers.

Criterion III of Appendix B to 10 CFR Part 50 states, in part, that, "measures shall be established to assure that applicable regulatory requirements and the design basis...are correctly translated into specifications, drawings, procedures, and instructions." It also states, in part, that, "measures shall be established for the identification and control of design interfaces and for coordination among participating design organizations. These measures shall include the establishment of procedures among participating design organizations for the review, approval, release, distribution, and revision of documents involving design interfaces."

Contrary to the Appendix B criteria described above, during the design of replacement steam generators for Southern California Edison from approximately 2004 to 2008, MHI did not establish measures for control of design interfaces between the MHI Steam Generator Design

Section and the MHI Takasago Research and Development Center related to the thermal hydraulic and vibration analyses used for aspects of the San Onofre Nuclear Generating Station, Unit 2 and Unit 3 replacement steam generator design. Specifically, the output of the FIT-III thermal-hydraulic code and input to the flow induced vibration analysis software (FIVATS) vibration code were not verified to be in accordance with MHI design requirements. MHI failed to convert the wide gap flow velocity output results from the FIT-III analysis to narrow gap flow velocities needed as input for the FIVATS vibration analysis code. The details are described in the NRC inspection report of MHI.

The Honorable David Vitter

QUESTION 74. **Was un-redacted information provided to the NRC from MHI, the problem vendor, important to your investigation that found that MHI's computer modeling was faulty?**

ANSWER.

As part of the U.S. Nuclear Regulatory Commission (NRC) inspection of Mitsubishi Heavy Industries, Ltd (MHI) conducted at the Mitsubishi Nuclear Energy Systems offices in Arlington, Virginia from August 5 through August 9, 2013, the information important to the inspection and related processes was made available to the inspection team. The MHI documentation provided for NRC review was not redacted. MHI also made available key employees from Japan to answer questions posed from the NRC staff. The inspection team was able to discuss certain activities related to the MHI root cause analysis and corrective actions to have reasonable assurance that those quality assurance activities were conducted in accordance with NRC requirements contractually imposed upon MHI by its customers.

The Honorable David Vitter

QUESTION 75. **Has the NRC conducted an inventory of the work MHI has performed within the US fleet?**

ANSWER.

The NRC reviewed MHI activities related to projects and equipment supplied to U.S. Nuclear Power Plants. MHI components supplied to US plants included the following:

Plant	Equipment	Delivery
Surry - 1	Reactor vessel head (RVH)	2003
North Anna	Control rod drive mechanism (CRDM)	2004
Kewaunee	RVH, CRDM	2004
Point Beach - 1	RVH, CRDM	2005
Point Beach - 2	RVH, CRDM	2005
Farley - 1	RVH, CRDM	2004
Farley - 2	RVH, CRDM	2005
Millstone - 2	RVH	2005
Fort Calhoun	Replacement steam generator (RSG)	2006
Fort Calhoun	RVH	2006
Fort Calhoun	Replacement pressurizer (RPZ)	2006
HB Robinson - 2	RVH, CRDM	2005

Plant	Equipment	Delivery
Prairie Island - 1	RVH, CRDM	2006
Prairie Island - 2	RVH, CRDM	2005
South Texas - 1	RVH, CRDM	2009
South Texas - 2	RVH, CRDM	2010
San Onofre - 2	RSG, RVH	2008
San Onofre - 3	RSG, RVH	2010
Potential new plant construction: Comanche Peak - 3, 4	United States Advanced Pressurized-Water Reactor (US-APWR)	MHI Design Control Document Original Submittal: 12/31/2007

As noted in response to Question 74, the NRC vendor inspection of Mitsubishi Heavy Industries, Ltd (MHI) (in August 2013) determined that sufficient corrective action was taken by MHI to preclude the design interface control issues from being introduced into future U.S. design and fabrication activities. The final vendor inspection report contained one notice of nonconformance related to inadequate design interface control between different design sections within the MHI organization.

The Honorable David Vitter

QUESTION 76. **Has the NRC reviewed MHI's role in other projects, whether it is steam generator components or another role they may have played at other plants? If not, when will you be conducting that review?**

ANSWER.

In accordance with the requirements for the reporting of defects mandated by 10 CFR Part 21, MHI issued a Part 21 report dated October 5, 2012, indicating that Fort Calhoun Nuclear Generating Station was the only other US licensee that had similar replacement steam generators (RSGs) that could be susceptible to tube wear. In this report, MHI concluded that due to a higher natural frequency, Fort Calhoun is not affected by wear in steam generator tubes. The Fort Calhoun RSGs have operated for more than three fuel cycles with no evidence of U-bend tube degradation. Other steam generators designed by MHI (operating internationally) are of a different design and have a variety of tube sizes, tube pitches, and operating conditions. These steam generators have experienced power operation without significant tube wear.

The Honorable David Vitter

QUESTION 77. **Has the NRC issued any alerts to other plants regarding MHI's problematic computer modeling?**

ANSWER.

The NRC provides specific reporting requirements to any licensee, applicant, contractor, or subcontractor that relate to a licensee's or applicant's activities through 10 CFR 21 "Reporting of Defects and Noncompliance," 10 CFR 50.72 "Immediate notification requirements for operating nuclear power reactors" and 10 CFR 50.73 "Licensee event report system." Additionally, NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," contains guidelines that the NRC staff considers acceptable for use in meeting the requirements of 10 CFR 50.72 and 50.73. The associated reports are issued via the NRC website which provides a platform for maximum communication of events, reports associated with Power Reactor status, Event Notifications, Part 21 reports, Preliminary Notification Reports and Licensee Event Reports.

The regulations under 10 CFR Part 21, "Reporting of Defects and Noncompliance," in part, implement Section 206 of the Energy Reorganization Act and specify the conditions under which information must be submitted when a licensed facility, activity, or basic component fails to comply with the Atomic Energy Act of 1954, as amended, or NRC regulations. Specifically, Part 21 provides (a) that the facility, activity or basic component supplied to such facility or activity fails to comply with the Atomic Energy Act of 1954, as amended, or any applicable rule, regulation, order, or license of the Commission relating to substantial safety hazards, or (b) that the facility, activity, or basic component supplied to such facility or activity contains defects, which could create a substantial safety hazard, to immediately notify the Commission of such

failure to comply or such defect, unless he has actual knowledge that the Commission has been adequately informed of such defect or failure to comply.

Part 21 reports associated with Mitsubishi Nuclear Energy System specific to Steam Generator Tubes at San Onofre Nuclear Generating Station were reported as follows:

Log No	Notifier	Description	Report Date	Event No./ Accession No.
2012-18-03	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Wear Adjacent to Retainer Bars (San Onofre 3)	10/05/2012	ML12283A243
2012-18-02	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Wear Adjacent to Retainer Bars (San Onofre 3)	09/07/2012	ML12255A054
2012-18-01	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Wear Adjacent to Retainer Bars (San Onofre 3)	06/04/2012	ML12157A311
2012-18-00	Mitsubishi Nuclear Energy Systems	Steam Generator Tube Leak During First Cycle After Steam Generator Replacement (San Onofre 3)	04/19/2012	ML121210672

Each of these reports was posted on the NRC website. In addition to these reporting requirements, the NRC also performs reactive inspections to follow up on significant industry events. Management Directive 8.3, "NRC Incident Investigation Program," discusses the process for performing reactive inspections. The NRC takes into account both deterministic and quantitative (risk) criteria when deciding whether to perform a reactive inspection, and what level of inspection is warranted by an event. In the case of San Onofre, the NRC sent an Augmented Inspection Team to the site to follow-up on the steam generator issue. The team report from July 18, 2012 makes several references to the steam generator modeling process used at San Onofre. The report is publicly available.

The Honorable David Vitter

QUESTION 78. **Does the NRC routinely disseminate information on problem vendors like MHI to the nuclear industry?**

ANSWER.

The NRC publishes vendor inspection reports on the public NRC website and provides more than 30 vendor inspection reports per year. Additionally, in order to disseminate information on vendor performance, the NRC issues generic communications (e.g., Information Notices) or makes direct contact with licensees when warranted.

In general, vendor inspection reports communicate and evaluate aspects of the vendor's regulatory compliance with the provisions of Title 10 of the Code of Federal Regulations (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." These issues are documented in findings written in vendor inspection reports available on the NRC public website.

The Honorable David Vitter

QUESTION 79. **In this or any other case where there is problem vendor like MHI, what is the NRC's responsibility in protecting other licensees and the customers they serve?**

ANSWER.

The NRC is statutorily mandated under Section 103 of the Atomic Energy Act of 1954, as amended, to issue licenses only to persons "who are equipped to observe and who agree to observe such safety standards to protect health and to minimize danger to life or property as the Commission may, by rule, establish; and who agree to make available to the Commission such technical information and data concerning activities under such licenses as the Commission may determine necessary to promote the common defense and security and to protect the health and safety of the public." Additionally, Section 206 of the Energy Reorganization Act of 1974 includes requirements for reporting of defects. This section requires those owning, operating, or supplying the components of any facility licensed under the Atomic Energy Act to notify the NRC if they obtain information that any facility or component does not comply with the Atomic Energy Act or the NRC's regulations relating to a substantial safety hazard or if a component or has a defect that could create a substantial safety hazard. As noted in the previous answer, the NRC has numerous methods it uses to disseminate this information to licensees.

When warranted, the NRC communicates information to a wide stakeholder base through a combination of generic communications (see table below), regulatory requirements, licensing,

safety oversight including inspection, assessment of performance and enforcement, operational experience evaluation, and regulatory support activities.

Generic Communication	Description
Bulletins	(1) Request licensee actions and/or information to address significant issues regarding matters of safety, security, safeguards, or environmental significance that have great urgency, and (2) require a written response.
Generic Letters	(1) Request licensee actions and/or information to address issues regarding emergent or routine matters of safety, security, safeguards, or environmental significance, and (2) require a written response.
Information Notices	Communicate operating or analytical experience to the nuclear industry. Information notices may also communicate the results of recently completed research. The industry is expected to review the information for applicability and consider appropriate actions to avoid similar problems.

Regulatory Issue Summaries	(1) Communicate and clarify NRC technical or policy positions on regulatory matters that have not been communicated to or are not broadly understood by the nuclear industry, (2) inform the nuclear industry of opportunities for regulatory relief, (3) communicate previous NRC endorsement of industry guidance on technical or regulatory matters, (4) provide guidance to applicants and licensees on the scope and detail of information that should be provided in licensing applications to facilitate NRC review, and (5) request the voluntary participation of the nuclear industry in NRC-sponsored pilot programs or the voluntary submittal of information which will assist the NRC in the performance of its functions.

The Honorable Jeff Sessions

QUESTION 1. **Status of nuclear power:**

a. Please describe the factors that, in your view, may be contributing to a decline in nuclear power as a share of overall U.S. electricity generation.

b. Please describe the factors that, in your view, may have contributed to the shutdown of nuclear units announced since 2012.

ANSWER.

a) The NRC is a safety regulator, and, as such, does not analyze the factors that may be contributing to a decline in nuclear power as a share of overall U.S electricity generation. The NRC's mission is to ensure the safety of nuclear power plants, independent of the share of electricity generation that nuclear power contributes. Through interactions with other agencies and the industry, however, I am aware of several factors that may be affecting the share of nuclear power generated in the U.S., including the price of other forms of energy, decreased demands, regional differences in the economics of power generation, and the costs associated with building a new nuclear power plant.

b) The reasons for shutdowns since 2012 that have been provided by NRC licensees in official notifications of cessation of operation have included the cost of repairs, the economics of power generation in the region of one plant, and uncertainty of the future of one plant, based on regulatory hurdles and political opposition.

The Honorable Jeff Sessions

QUESTION 2. **There are concerns about the potential for erosion of the Commission's longstanding regulations and policies pertaining to the Backfit Rule.**

a. Please describe your understanding of the Backfit Rule.

ANSWER.

The NRC's Backfit Rule (10 CFR 50.109) for nuclear power plants ensures that the NRC goes through a structured process whenever it seeks to impose new or changed requirements on nuclear power plant licensees. In general, if the NRC seeks to impose a new or changed requirement (the backfit) on the design, construction, organization or procedures governing the operation of a nuclear power plant, then the NRC must show the backfit constitutes a substantial increase in public health and safety or common defense and security, and that the substantial increase is justified by the cost of the backfit. There are three exceptions to this general requirement: (i) the backfit is needed to comply with an NRC requirement in effect at the time of the NRC's licensing approval of the facility, (ii) the backfit is needed to ensure adequate protection to public health and safety; and (iii) the backfit is needed to re-define the level of protection that is considered to be adequate. The NRC backfit analyses, which include cost-benefit analyses, are consistent with OMB guidance and in accordance with Executive Order 13563, "Improving Regulation and Regulatory Reviews," which states that to the extent permitted by law, each agency shall "propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs."

NRC regulations analogous to the Backfit Rule apply to new nuclear power plants such as the *Vogtle* and *Summer* reactors in Georgia and South Carolina, and new power plant designs

approved in design certification rules. The NRC refers to these backfit-like regulations as the "issue finality provisions" of 10 CFR Part 52.

b. Under what circumstances, if any, has the NRC 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.

The Commission has long held the position that qualitative factors may be considered in backfit analyses. This is consistent with the NRC's current guidance on cost-benefit and regulatory analysis regarding consideration of both quantitative and qualitative costs and benefits. The NRC's position on consideration of quantitative and qualitative costs and benefits is consistent with the Federal government's guidance on cost-benefit analyses, including previous executive orders and Office of Management and Budget (OMB) guidance. Thus, an NRC determination that the addition of qualitative benefits to quantitative benefits tips the overall cost-benefit analysis in favor of adoption of a final rule that is not justified on the basis of quantitative benefits alone, does not necessarily undermine the regulatory stability and predictability policies underlying the Backfit Rule. However, we are conscious that qualitative factors must be applied with great care.

The monetary costs of implementing regulations that necessitate facility changes at nuclear power plants are easier to quantify than are the benefits of the regulation. Cost estimating is a well-understood activity and is one of the first steps taken when undertaking any planned facility change. Benefits, however, are usually quantified in terms of averted dose to the public

because the required facility changes reduce the likelihood of a future accident. But there are many other types of potential benefits from safety regulations at nuclear power plants that are not easily quantified. Examples of such potential benefits in backfit analyses are:

- improvements to NRC's regulatory efficiency
- improvements to knowledge resulting from reduction of technical uncertainty on a matter of public health and safety or common defense and security
- increased public confidence in the safety of nuclear power

The NRC has compiled the attached list (Table 1) of power reactor regulatory actions (rulemakings, regulatory guides, generic letters, etc.) taken in the last 16 years in which the consideration of qualitative factors as benefits justified a decision that may not have been cost-justified by quantifiable factors alone. Note that of the 15 examples listed -- eight were not backfits (as defined by the Backfit rule). Of the seven examples that were backfits, five cases required the performance of a formal backfit analysis while the remaining two examples did not require a formal backfit analysis because they were actions taken to ensure adequate protection of the public health and safety

c. Would you agree that allowing a qualitative analysis to override a quantitative analysis, which found that a proposed rule's costs outweighed its benefits, would undermine the regulatory reliability provided by the Backfit Rule?

ANSWER.

Yes, which is the reason that the use of qualitative analyses must be applied carefully and only in those circumstances for which such analyses are appropriate.

TABLE 1 – LIST OF POWER REACTOR REGULATORY ACTIONS WHERE QUALITATIVE FACTORS

JUSTIFIED A DECISION THAT MAY NOT HAVE BEEN QUANTITATIVELY COST-JUSTIFIED

Rule	Federal Register Citation	Backfit Determination	Quantitative Justification[1,2,3] (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Requirements for Maintenance of Inspections, Tests, Analyses, and Acceptance Criteria *(10 CFR 52.99)*	77 FR 51880 (August 28, 2012)	Not a Backfit	($2.16) to ($1.98)	Regulatory efficiency; improvements in knowledge; general public	77 FR at 51890-91 *(summarizing regulatory analysis)* ML120100062 *(full regulatory analysis)*
Enhancements to Emergency Preparedness *(10 CFR 50.47)*	76 FR 72560 (November 23, 2011)	Not a backfit (portion); Cost-justified substantial safety enhancement (portion)	($75.9) to ($59.8)	Increased and consistent EP measures will decrease risk of exposure to public; increase accident mitigation if beyond operator actions;	ML112971541 *(backfit analysis and regulatory analysis)*
Enhanced Weapons, Firearms, Background Checks, and Security Event Notifications *(10 CFR Part 73)*	76 FR 6200 (February 3, 2011)	Not a backfit (portion); Adequate Protection (portion)	($70.2) to ($47.4)	Provide safety and security-related benefits that would offset the cost; enhanced regulatory efficiency; increased defense capabilities	76 FR at 6231 *(backfit analysis)* 76 FR at 6226 – 6231 *(summarizing regulatory analysis)* ML061380803; ML061440013 *(appendices from October 2006 proposed rule)*
Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock *(10 CFR 50.61)*	75 FR 13 (January 4, 2010)	Not a backfit	($57.3) to ($49.7)	Regulatory efficiency; Improvements in knowledge	ML092710544 *(regulatory analysis)*

[1] The range of net benefits result from using 3% and 7% net present values to be consistent with NUREG/BR-0058.
[2] Unless started otherwise, benefits were not quantified within the quantitative justification.
[3] The sign convention is favorable consequences are positive; adverse consequences are negative.

Rule	Federal Register Citation	Backfit Determination	Quantitative Justification[1,2,3] (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses *(10 CFR Part 51) (proposed rule)*	74 FR 38117 (July 31, 2009)	Not a backfit	($2.64) to ($2.29)	Improvements in knowledge; regulatory efficiency	ML083460087 *(regulatory analysis)* *NOTE: RA for final affirmed rule is ML110760321*
Aircraft Impact Assessment Rule *(10 CFR 50.150)*	74 FR 28112 (June 12, 2009)	Not a backfit (portion); Administrative Exemption (portion)	($6.0) to ($4.9)	Reduces risk to public and occupational health and offsite and onsite property; improvements in knowledge; safeguards and security considerations	*c.f.* 74 FR at 28144-28145 *(backfit analysis)* 74 FR at 28142 *(regulatory analysis)*
Power Reactor Security Requirements *(10 CFR Part 73 and 10 CFR 50.54)*	74 FR 13926 (March 27, 2009)	Not a backfit (portion); Cost-justified substantial safety enhancement (portion)	($857.3) to ($590.2)	Safeguards and security; regulatory efficiency; reduces risk to public and occupational health and offsite and onsite property	ML083390372 *(backfit analysis and regulatory analysis)* ML081680090 *(appendices)*
Fitness for Duty Programs *(10 CFR Part 26)*	73 FR 16966 (March 31, 2008)	Cost-justified substantial safety enhancement	($694) to ($445)	Reduced risk to public and occupational health and offsite and onsite property; regulatory efficiency; public perception; workplace productivity and efficiency	73 FR at 17172 *(portion of backfit analysis)* ML080580135 *(backfit analysis and regulatory analysis)*
Licenses, Certifications and Approvals for Nuclear Power Plants *(10 CFR Part 52)*	72 FR 49352 (August 28, 2007)	Not a backfit	($19.3) to $10.2 *benefits quantified*	Regulatory efficiency	ML071490350 *(regulatory analysis)*

Rule	Federal Register Citation	Backfit Determination	Quantitative Justification[1,2,3] (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Safeguards Information Protection Requirements *(10 CFR Part 73)*	73 FR 63546 (October 24, 2008)	Not a Backfit (portion); Adequate Protection (portion)	($18.8) to ($15.8)	Positive effect on public and occupational health; increased protection of onsite and offsite property; increased protection of common defense and security of the nation	ML072190656 *(regulatory analysis)*

Regulatory Action	Citation	Backfit Determination	Quantitative Justification (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Severe Accident Capable Reliable Hardened Containment Vents *Order EA-13-109*	ML13143A321	Cost-justified substantial safety enhancement	($938) to ($2,027) *benefits quantified*	Providing defense in depth; addressing significant uncertainties; supporting severe accident management and response; improving hydrogen control; addressing external events; addressing multi-unit events; considering independence of barriers improving emergency planning; considering consistency between reactor technologies; considering severe accident policy statement; addressing international experience and practices	SECY-12-0157 ML12326A675
Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations *Generic Letter 2006-XX (issuance of Generic Letter denied by Commission)*	ML061950031 *(SECY)* ML063490261 *(Commission Denial)*	Not a backfit	($52.8) to ($67.4) *benefits quantified*	Improvements in knowledge; regulatory efficiency	ML061950031

Regulatory Action	Citation	Backfit Determination	Quantitative Justification (in millions)	Qualitative Justification	Location of Backfit/Regulatory Analysis
Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors *Generic Letter 2004-02*	ML042360586	Compliance	Four scenarios provided where some had negative benefits and some had positive *benefits quantified*	Regulatory efficiency; improve understanding of ECCS and CSS recirculation at PWR facilities; improve public health and safety; increase public confidence	ML042260449
Training and Qualification of Security Personnel at Nuclear Power Reactor Facilities *Regulatory Guide 5.75*	ML091690037	Not a backfit (portion); Cost-justified substantial safety enhancement (portion)	($857.3) to ($590.2)	Safeguards and security; regulatory efficiency; reduces risk to public and occupational health and offsite and onsite property	76 FR 13968 (March 27, 2009) *Relied on Power Reactor Security Rule regulatory analysis*
Guidance for the Assessment of Beyond-Design-Basis Aircraft Impacts *Regulatory Guide 1.217*	ML092900004	Not a backfit	($6.0) to ($4.9)	Reduces risk to public and occupational health and offsite and onsite property; improvements in knowledge; safeguards and security considerations	ML112101610 *(referencing 10 CFR 50.150)* 74 FR 28112, 28136 (June 12, 2009) *Relied on Aircraft Impact Assessment Rule regulatory analysis*

THE HONORABLE JEFF SESSIONS

QUESTION 3. **At our hearing, questions were raised about votes by the Commission related to a "two-person" provision in the context of material control and accounting regulations. My understanding is that the Commission directed the staff to engage in a backfit analysis. Please describe your understanding of this issue and your vote. Also, please describe the steps that the Commission directed the NRC staff to take in this regard.**

ANSWER.

I want to assure the Senator that, for over 30 years, NRC's physical security regulations have contained, and licensees have been implementing, a two-person provision for access to Category I quantities of special nuclear material. In addition, the regulations have "checks and balances" to control the rate of human errors associated with material control and accounting (MC&A) for these quantities of special nuclear material.

NRC regulations place special nuclear material into one of three categories, based on its type (plutonium or uranium) and quantity. Category 1 special nuclear material would consist of either plutonium or uranium-233 greater than 2 kilograms, or highly enriched uranium (>20% isotope uranium-235) greater than 5 kilograms. This is the category of special nuclear material considered of greatest risk to theft and diversion; consequently, it has the most stringent security and MC&A requirements.

On November 6, 2012, the NRC staff transmitted to the Commission for review a *Federal Register* notice, proposing revisions to the MC&A regulations governing NRC fuel cycle

licensees. One aspect of this proposed rulemaking was to expand the two-person provision to certain additional activities involving special nuclear material.

In accordance with the standard rulemaking process, the staff concurrently developed a draft regulatory analysis. The staff's draft analysis included estimates of the costs to both industry and the NRC from broadening this requirement, assuming the rulemaking was approved and the proposed measures were implemented. When considering such changes, the staff is also obligated under current NRC regulations either to conduct a "backfit" analysis or to demonstrate that one or more exceptions to the backfit rule apply.

As previously stated, a two-person requirement for access to Category I quantities of special nuclear material has been in NRC regulations for decades. A decision whether to extend this requirement to access to lesser-risk materials has cost implications for both the licensee and the NRC. The Commission generally requires that the public be invited to comment on whether adding such new requirements would provide a substantial enough increase in public health and safety or common defense and security to warrant the cost of the backfit. In this case the Commission was unanimous in its conclusion that the requisite backfit analysis had not been conducted. Consequently, the Commission directed the staff to "conduct a backfit analysis on the proposed two-person rule provision and include the results in the rulemaking package."

However, there were many aspects of the revision of the MC&A regulations that were, relatively easily implemented, and anticipated to make licensees' MC&A programs more efficient and effective in protecting special nuclear material. Because addressing the backfit issues would have further delayed issuance of these proposed changes to the regulations on MC&A, which had been in development for several years, the Commission was unanimous in its decision to

provide the staff an alternate path of removing the two-person provision from this particular rulemaking package and considering the issue in a future rulemaking effort.

The staff chose the alternate path. As a result, the *Federal Register* notice for this proposed rule, published Friday, November 8, 2013, states that "[i]n a future rulemaking, the NRC will consider a two-person rule to verify the accuracy of MC&A information within a fuel cycle facility. Interested stakeholders will then have the opportunity to comment regarding a two-person rule." *10 CFR Parts 40, 70, 72, 74, and 150: Amendments to Material Control and Accounting Regulations*, 78 Fed. Reg. 67224, 67226 (Friday, November 8, 2013).

The Honorable Jeff Sessions

QUESTION 4. **In your opinion, is the Nuclear Regulatory Commission currently functioning in an independent, impartial, collegial, and professional manner, and in accordance with the obligations of the Commission under law?**

ANSWER.

Yes, I believe the Commission is functioning in an independent, impartial, collegial, and professional manner and in accordance with the Commission's legal obligations.

The Honorable John Boozman

QUESTION 1. **Last year, I joined members of the Senate Subcommittee on Clean Air and Nuclear Safety, in urging you to "comply expeditiously with the writ of mandamus issued by the U.S. Court of Appeals for the D.C. Circuit in the case styled *In re Aiken County,* No. 11-1271." As acknowledged in a letter from NRC's Chief Financial Officer, the D.C. Circuit has "directed the Nuclear Regulatory Commission to *promptly* continue with the licensing process" associated with Yucca Mountain. The court found that NRC was "simply defying a law enacted by Congress, and doing so without any legal basis. " Please provide a detailed explanation of the Commission's plan and schedule to comply with the ruling of the D.C. Circuit, including a thorough explanation of the NRC's plan to complete individual Safety Evaluation Reports (SERs) for the Yucca Mountain license application.**

ANSWER.

On November 18, 2013, the Commission approved a Memorandum and Order, which set a course of action for the Yucca Mountain licensing process that is consistent with the Appeals Court decision and with the resources available. The Commission directed the staff to complete and issue the Safety Evaluation Report (SER) associated with the construction authorization application. Each volume of the SER will be issued upon its completion. The Commission directed the staff to provide monthly progress reports to the Commission on the status of the activities the Memorandum and Order directed the staff to take. NRC staff has estimated that the SER can be completed no later than January 2015, assuming no unforeseen technical or

process issues. The Commission has been providing Congress with monthly reports on its progress since October 2013; and the December 2013 report included the staff's project plan.[4]

[4] Commissioner Apostolaskis did not participate in the Memorandum and Order and direction to staff that the Commission issued on November 18, 2013. He also has not participated in deliberations on the monthly reports describing such direction and the status of the activities the Commission directed the staff to take.

The Honorable John Boozman

QUESTION 2. **Commissioner Magwood, would you further elaborate the discussion that we heard during the hearing on the necessity of the so-called "two-person rule." Please explain why it is or isn't cost-beneficial. What types of facilities are covered by the two-person rule? And, at an unclassified level, please explain the types of security that apply to those facilities.**

ANSWER.

The purpose of NRC licensees' material control and accounting (MC&A) programs is to deter, detect, and investigate unauthorized diversion or misuse of special nuclear material. For over 30 years, the NRC's physical security regulations have contained, and licensees have been implementing, a two-person provision for access to Category I quantities of special nuclear material. In addition, the regulations have "checks and balances" to control the rate of human errors associated with MC&A for these quantities of special nuclear material.

NRC regulations place special nuclear material into one of three categories, based on its type (plutonium or uranium) and quantity. Category I special nuclear material would consist of either greater than two kilograms of plutonium or uranium-233, or of greater than five kilograms of highly enriched uranium (>20% isotope uranium-235). This is the category of special nuclear material considered of greatest risk to theft and diversion; consequently, it has the most stringent security and MC&A requirements. The MC&A regulations for NRC licensees using and storing Category I quantities of special nuclear material are in 10 Code of Federal Regulations (10 CFR) Part 74. Examples of MC&A regulations for these licensees are process monitoring, item monitoring, alarm resolution, quality assurance, and accounting. The NRC

currently has two licensees that use, store and transport Category I quantities of special nuclear material: B&W Nuclear Operations in Lynchburg, Virginia, and Nuclear Fuel Services, Inc., in Erwin, Tennessee.

On November 6, 2012, the NRC staff transmitted to the Commission for review a *Federal Register* notice, proposing revisions to the MC&A regulations governing NRC fuel cycle licensees. One aspect of this proposed rulemaking was to expand the two-person provision to certain additional activities involving special nuclear material of lesser quantities and lower risk.

In accordance with the standard rulemaking process, the staff concurrently developed a draft regulatory analysis. The staff's draft analysis included estimates of the costs to both industry and the NRC from broadening this requirement, assuming the rulemaking was approved and the proposed measures were implemented. When considering such changes, the staff is also obligated under current NRC regulations either to conduct a "backfit" analysis or to demonstrate that one or more exceptions to the backfit rule apply.[5]

As previously stated, a two-person requirement for access to Category I quantities of special nuclear material has been in NRC regulations for decades. A decision on whether to extend this requirement to access to lesser-risk materials has cost implications for both the licensee and the NRC. The Commission generally requires that the public be invited to comment on

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[5] The purpose of a backfit analysis is to determine whether a requirement is a "[m]odification of, or addition to, systems, structures, or components of a facility; or to the procedures or organization required to 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 previous NRC staff position," 10 CFR 70.76, "Domestic Licensing of Special Nuclear Material."

whether such new requirements would provide a substantial enough increase in public health and safety or common defense and security to warrant the cost of the backfit. Consequently, the Commission directed the staff to "conduct a backfit analysis on the proposed two-person rule provision and include the results in the rulemaking package."

However, there were many aspects of the revision of the MC&A regulations that were non-controversial, relatively easily implemented, and anticipated to make licensees' MC&A programs more efficient and effective in protecting special nuclear material. Because addressing the backfit issues would have further delayed issuance of these proposed changes to the regulations on MC&A, which had been in development for several years, the Commission provided the staff an alternate path of removing the two-person provision from this particular rulemaking package and considering the issue in a future rulemaking effort.

The staff chose the alternate path. As a result, the *Federal Register* notice for this proposed rule, published Friday, November 8, 2013, states that "[i]n a future rulemaking, the NRC will consider a two-person rule to verify the accuracy of MC&A information within a fuel cycle facility. Interested stakeholders will then have the opportunity to comment regarding a two-person rule." *10 CFR Parts 40, 70, 72, 74, and 150: Amendments to Material Control and Accounting Regulations*, 78 Fed. Reg. 67224, 67226 (Friday, November 8, 2013).

In response to your question about security, NRC regulations for security and MC&A of special nuclear material follow a graded approach; that is, the most stringent requirements are applied to material of greatest attractiveness to a potential adversary. In general, licensees using and storing Category I quantities of special nuclear material are required to demonstrate the ability to protect against the NRC's Design Basis Threat. Examples of measures required for these licensees include an armed, well-trained protective force; defense-in-depth via implementation

of physical barriers, access control and intrusion detection and assessment systems; continual communications; and maintenance of up-to-date security plans and procedures. The security regulations for NRC licensees using and storing Category I quantities of special nuclear material are in 10 CFR Part 73.

The Honorable John Boozman

QUESTION 3. **Commissioner Magwood, would you elaborate on the role that cost-benefit analysis plays in the review of new regulations and requirements? My understanding is that if a rule or regulation is needed to provide adequate protection of safety, the cost-benefit analysis is irrelevant, but that such analysis plays a critical role for minor safety enhancements.**

ANSWER.

The NRC uses cost-benefit analyses to help understand the overall benefits and costs of NRC regulations and requirements. When considering a change in requirements through rulemaking, NRC conducts regulatory analyses to evaluate if the requirements, guidance or staff positions being considered would result in a change in licensee resources. If there is a change in licensee resources, the regulatory analysis will evaluate societal costs and benefits of the proposed action. The NRC prepares cost-benefit analyses for most proposed NRC regulations and makes them available to the public as part of the public comment process. This practice allows our stakeholders to provide comments on the proposed rule or regulation as well as any associated cost-benefit analysis. The NRC considers the public comments to determine if the proposed rule or regulation should be revised before adoption, or whether the NRC should not adopt a final rule or regulation.

Where a proposed rule or regulation is necessary for adequate protection, the cost-benefit analysis in support of a regulatory analysis can be used when selecting among several alternative regulatory approaches for achieving adequate protection or compliance. In the case of a proposed rule or regulation whose purpose extends beyond the agency's "adequate

protection" statutory mandate, a "backfitting analysis" is undertaken to help determine if the proposed rule or regulation should be adopted and to determine whether the proposed rule provides a substantial enough increase in public health and safety or common defense and security to warrant the cost of the backfit. The backfit rules help ensure that requirements that go beyond adequate protection provide a substantial increase in the overall protection of public health and safety and that the direct and indirect costs of implementation are justified in view of this substantial increase in protection.

The Honorable John Boozman

QUESTION 4. Recently, NRC staff released a report to the Commission titled "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark 1 Boiling Water Reactor." The cover memo from this report states that "this study shows the likelihood of a radiological release from the spent fuel after the analyzed severe earthquake at the reference plant to be very low (about 1 time in 10 million years or lower). NRC staff have also informed the Commission that "the costs of expedited transfer of spent fuel to dry cask storage outweigh the benefits," that "additional studies are not needed," and that "no further regulatory action is recommended for the resolution of this issue and this Tier 3 item should be closed." (see "Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel.") Despite the extremely small risk of a radiological release from spent fuel pools due a seismic event, the Commission continues to expend limited resources and attention on this issue. In recent weeks, the Commission held a briefing on this issue. Chairman Macfarlane, as an individual commissioner, what is your rationale for continued prioritization of the spent fuel pool issue mentioned above, and do you have a reason to doubt the staff recommendations? It seems as if the Commission's focus on this issue may be an attempt to create

headlines and cause public doubt about the safety of emissions-free nuclear power. Do you agree?

ANSWER.

No. I do not agree that the Commission is attempting to make headlines or cause public doubt.

In October 2011, the NRC staff identified consideration of expedited transfer of spent fuel as an additional issue with a clear nexus to the Fukushima Daiichi event that may warrant regulatory action. This issue was specifically prioritized as a lower-priority Tier 3 item to resolve among other important Fukushima Near-Term Task Force recommendations, and required further staff study to support a regulatory action. The staff completed its consequence study in October 2013, and provided the Commission its detailed regulatory analysis and recommendation in November 2013.

This important policy matter is currently before the Commission for consideration. As it's still under consideration, it would not be appropriate to comment further, out of respect for our process.

The Honorable John Boozman

QUESTION 5. **Commissioner Magwood, in recent years, a number of questions have been raised regarding the decision-making role of the NRC Chairman vs. the decision-making role of the entire Commission. The scope of the Chairman's authority to make an emergency declaration and the Chairman's responsibility to promptly notify others of such a decision are just two small examples of situations where the role and responsibility of the NRC Chairman has been called into question. Other examples include unilateral efforts by a previous chairman to supplant the Commission's will on policy and budget issues. The Energy Reorganization Act of 1974 states that "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 and responsibilities, and shall have one vote." Unilateral decisions by a previous chairman to disregard this requirement on a number of matters have created a dangerous precedent, setting up the Chairman as a sort of "super-Commissioner" on matters of policy and budget. Do you think it is important for Congress to reinforce provisions of law that ensure an equal role for all Commissioners in all non-emergency matters?**

ANSWER.

Currently, Section 1 of the 1980 Reorganization Plan provides that "[t]he Commission may determine by majority vote, in an area of doubt, whether any matter, action, question or area of

inquiry pertains to one of [its] functions" including the function of policy formulation. The authority of the majority of the Commission to determine what actions and issues are within its purview is crucial to ensuring that each Commissioner has an equal voice in Commission actions. In recent years, the scope of this authority has been challenged and some aspects of the record can be interpreted to reach differing conclusions regarding Congress's intent. Therefore, it may be useful to clarify Congress's views of the scope of this authority and the ability of a majority of the Commission to determine whether a particular action or matter is within its authority.

Senator BOXER. Thank you.
Commissioner Ostendorff.

STATEMENT OF HON. WILLIAM C. OSTENDORFF, COMMISSIONER, U.S. NUCLEAR REGULATORY COMMISSION

Mr. OSTENDORFF. Chairman Boxer, Ranking Member Vitter, Chairman Carper, Ranking Member Sessions, thank you for the chance to be before you today.

After receiving the Fukushima near-term task force recommendations back in July 2011, it was clear to myself and my colleagues at the table that those recommendations needed to be prioritized to focus on those safety significant action items, the so-called Tier 1 activities. I personally believe that great strives have been made in implementing Tier 1 activities.

Chairman Macfarlane has, in depth, in her written and oral testimony, covered these issues. I think a lot of progress has been made, and I agree with my fellow colleagues that we have gotten it, from our perspective, about right.

I acknowledge there have been a lot of things done. There have been things added to the plate since the original near-term task force report, a lot of discussion about what we should do, what we should not do. I would say that the Commission decision process has been very thoughtful and deliberate in these areas. A great deal of work has been done.

I appreciate this committee's oversight role and look forward to your questions. Thank you.

[Mr. Ostendorff's responses to questions for the record follow:]

Committee on Environment and Public Works
January 30, 2014
Follow-up Questions for Written Submission

Questions for Commissioner Ostendorff
The Honorable John Boozman

QUESTION 1.

Last year, I joined members of the Senate Subcommittee on Clean Air and Nuclear Safety, in urging you to "comply expeditiously with the writ of mandamus issued by the U.S. Court of Appeals for the D.C. Circuit in the case styled *In re Aiken County,* No. 11-1271." As acknowledged in a letter from NRC's Chief Financial Officer, the D.C. Circuit has "directed the Nuclear Regulatory Commission to *promptly* continue with the licensing process" associated with Yucca Mountain. The court found that NRC was "simply defying a law enacted by Congress, and ... doing so without any legal basis." Commissioner Ostendorff, as an individual commissioner, do you believe the Commission should express the need for FY2015 funding for the Yucca Mountain license review to the White House and/or the Office of Management and Budget? Please explain.

ANSWER

As part of the FY 2015 OMB Passback Appeal, I voted to seek additional funds for the Yucca Mountain licensing review; however, a majority of the Commission chose not to seek additional funds. I continue to believe that the NRC should seek funds to comply with the Nuclear Waste Policy Act and complete the licensing process for the Yucca Mountain high level waste repository. The NRC is currently expending previously appropriated resources to complete and issue the remaining safety review documents, but additional funds will be required to complete the licensing process.

Committee on Environment and Public Works
January 30, 2014
Follow-up Questions for Written Submission

Questions for Commissioner Ostendorff
The Honorable Thomas R. Carper

QUESTION 1.

In response to the Fukushima event, the Commission continues to pursue a long list of lessons learned from the accident. The NRC has several deadlines to meet in the next couple of years to meet the timeline established in March 2012. Are there any issues that have been much more difficult to address than expected? If so, what have they been? Are there issues that have been become a lesser concern since the Task Force issued their recommendations? Are there any issues that have become a greater concern and we need to pay greater attention?

ANSWER.

The NRC has continued to make progress implementing the lessons learned from Fukushima on or ahead of established schedules. Although some of the recommendations may have been more challenging than expected, the NRC has effectively adapted. Over the past three years, as the NRC's efforts have transitioned from lessons learned evaluation to regulatory requirement development, and now to implementation, it was reasonable to assume that issues would arise, which would be more difficult to address than originally planned. For example, during development of the licensees' plans for compliance with the Mitigating Strategies Order, more generic issues were identified for which the NRC needed to expend greater technical resources than originally budgeted. Upon expending these additional resources, the NRC resolved all of the generic issues. Likewise, as the NRC has progressed with requiring nuclear power plants to conduct updated seismic reevaluations using present-day scientific methods, we learned that even some methods developed within the past decade could benefit from further updating. As such, the NRC allocated the necessary staff resources to update appropriate portions of the methods on an aggressive schedule. While this resulted in minor delays to some interim milestones, corresponding changes to expedite certain seismic safety enhancements at the plants by 2016 will ultimately result in plants' being better protected against

Committee on Environment and Public Works
January 30, 2014
Follow-up Questions for Written Submission

Questions for Commissioner Ostendorff
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earthquakes by an earlier date. Finally, some recommendations have progressed more smoothly than originally anticipated. For example, the NRC has been successful in completing ahead of schedule many milestones associated with the recommendation regarding communications capabilities needed to respond effectively to a Fukushima-like event, including issuing NRC staff assessments to nuclear power plants earlier this year. This recommendation has progressed without any major challenges, thus allowing the nuclear industry and NRC staff to achieve milestones efficiently and effectively. Based on the NRC staff's last assessment, the six-month update to the Commission on lessons-learned activities issued at the end of March 2014, the initial prioritization of the recommendations remains valid. We continue to implement the lessons learned in the most effective and efficient manner, consistent with established goals.

QUESTION 2.

In March 2012, the NRC issued three orders requiring licensees to inspect their equipment and evaluate their seismic and flooding vulnerabilities. I understand that they all submitted their evaluations to the NRC in November 2012. Generally, what were their findings and has the NRC found the responses acceptable? When should we expect to see the NRC's safety assessments of each of the licensee's walkdown reports?

ANSWER.

In March 2012, the NRC issued Requests for Information that asked for licensees to inspect (i.e. "walk down") their equipment and evaluate their seismic and flooding vulnerabilities. (These requests were issued on the same day as the three orders related to mitigating strategies, spent fuel pool instrumentation, and hardened vents.) In November 2012, the licensees submitted their walkdown reports for both seismic and flooding vulnerabilities. No immediate safety concerns were found. However, some licensees identified conditions for which the flooding or

seismic protection for a subset of components at their facilities was degraded in comparison to the facilities' licensing bases. These conditions were entered into the licensees' corrective action programs and are being resolved. The NRC staff has conducted inspections at each of the sites to ensure that they remain protected against hazards. The NRC has begun to issue the staff's assessments of the licensees' walkdown reports. We anticipate that the staff will complete its reviews and issue the remaining assessments by June 30, 2014.

The flooding and seismic reevaluations are on a different schedule. For flooding, the plants are divided into three groups prioritized based on the following criteria: (1) the anticipated need for a site to perform an integrated assessment; (2) the speed at which the reevaluation can be performed; and (3) the efficiency and effectiveness of how staff and industry resources can be applied to performing the evaluations for each site. The first two groups' reevaluations were submitted on March 12, 2013, and March 12, 2014, respectively. The third is due March 12, 2015. The staff is reviewing the first two groups' reevaluations and expects to issue most safety assessments for the plants in the first group by June 30, 2014. The seismic reevaluations were submitted by March 30, 2014, for plants in the central eastern United States, and are due March 30, 2015, for plants in the western United States. The NRC has begun the process of reviewing the seismic reevaluation reports that were submitted at the end of March.

Committee on Environment and Public Works
January 30, 2014
Follow-up Questions for Written Submission

Questions for Commissioner Ostendorff
The Honorable Jeff Sessions

QUESTION 2a.

There is renewed public interest in the NRC's process for decommissioning nuclear plants once they are shut down. My understanding is that the NRC imposes financial assurance requirements to ensure that funds are available to fully and properly decommission each plant.

> **a. Of the 104 licensed nuclear power reactors in the United States, how many meet the applicable financial assurance requirements?**

ANSWER.

In 1988, the NRC established requirements to assure that decommissioning of all licensed facilities will be accomplished in a safe and timely manner and that adequate licensee funds will be available for this purpose. The NRC requires licensees to biennially submit a decommissioning funding status (DFS) report to obtain the information necessary to monitor the status of decommissioning funds. The last set of DFS reports from all operating reactors was submitted by March 31, 2013, and reflected information as of December 31, 2012. The NRC staff reviewed the information in the 2013 DFS reports for all 104 operating nuclear power reactors, and found that all licensees are providing reasonable assurance for decommissioning funding to NRC decommissioning and radiological decontamination requirements. The next set of DFS reports for all operating reactors is due on March 31, 2015, and will reflect information as of December 31, 2014.

Committee on Environment and Public Works
January 30, 2014
Follow-up Questions for Written Submission

Questions for Commissioner Ostendorff
The Honorable Jeff Sessions

QUESTION 2b.

I understand that licensees have some discretion to determine what is more appropriate in their situation: immediate dismantling or using the "SAFSTOR" process where the unit is allowed to sit idle for many years before being dismantled. Are both options deemed acceptable for purposes of NRC regulations? What factors help determine how a licensee proceeds with decommissioning?

ANSWER.

Under performance-based decommissioning regulations, a nuclear power plant licensee has discretion to determine whether immediate dismantlement (DECON), deferred dismantlement (SAFSTOR), or a combination of the two is appropriate for its situation. While DECON, SAFSTOR, or a combination is considered acceptable for purposes of NRC regulation, decommissioning must, by regulation, be completed safely within 60 years of permanent cessation of operations.

The decommissioning strategy chosen by a licensee depends on a range of factors explained below.

Factors Weighing in Favor of DECON:

- Near-Term Need for Reuse of the Site—the land that the decommissioning reactor sits on may be valuable for other uses. The sites often offer road, rail and/or waterway access, provide cooling water, or afford a connection to the high-voltage electrical grid. Because of the location and infrastructure, some utilities have either added to or replaced the nuclear plant with new electrical generating facilities.
- Financial Risk—the costs, access to low-level radioactive waste disposal facilities, and regulatory requirements of immediate dismantlement are more certain.
- Knowledge Management—knowledgeable plant personnel, site infrastructure from operations, and site records are readily available.

Committee on Environment and Public Works
January 30, 2014
Follow-up Questions for Written Submission

Questions for Commissioner Ostendorff
The Honorable Jeff Sessions

Factors Weighing in Favor of SAFSTOR:

- Enhanced safety—deferring dismantlement can allow radioactive decay to reduce the hazard of the components that need to be removed and the risk to workers and the public. For example, waiting 50 years after permanent cessation of operations allows radioactive decay to occur, which reduces radiation dose rates by 98 percent, in turn reducing radiation doses to workers to one to two percent of the potential dose from immediate dismantling. SAFSTOR also results in a 90-percent reduction in radioactive waste volume and can result in reduced costs to decommission the plant;
- Economics—deferring dismantlement can allow the decommissioning fund to accumulate additional funds after shutdown.
- Practicality—if there are multiple units on the site, waiting to commence site-wide decommissioning until all plants are permanently shut down enables the licensee to focus on the safe operation of the operating plant and potentially achieve efficiencies in the decommissioning process.

Sites in active or deferred dismantlement continue to have licensing oversight from the NRC. The decommissioning licensees are required to perform environmental monitoring and provide security, and will continue to be inspected by the NRC.

Senator BOXER. Thank you. So now each of us will get 10 minutes of questions.

Madam Chairman, I have sent the NRC five letters requesting documents that relate to the flawed steam generators at San Onofre. Just 2 days ago you told me in writing that NRC didn't provide me with everything I requested, and you admitted that, because of constitutional concerns.

I have here the Comprehensive Congressional Research Service Manual on Congressional Oversight. I have confirmed there are two constitutionally based privileges that allow an agency to withhold documents from Congress. One is an assertion of executive privilege and the other is the exercise of the Fifth Amendment right not to incriminate one's self. So which one of these are you asserting as you do not give me my documents that I have asked for?

Ms. MACFARLANE. Madam Chairman, thank you for the opportunity to answer your questions here. We certainly want to have a good relationship with the oversight committee——

Senator BOXER. No, no. I don't have time. I like you; I have a good relationship with you. What are you asserting? I need these documents. Is it——

Ms. MACFARLANE. We have been trying——

Senator BOXER [continuing]. Right not to incriminate yourself or is it executive privilege? Those are the two that are allowed.

Ms. MACFARLANE. We have been working with your staff, with the committee staff to provide documents. In fact, we just provided another tranche of documents yesterday and the day before to the staff that was responsive to your request.

Senator BOXER. So you will give me all of the documents I have requested?

Ms. MACFARLANE. If we have not been responsive to your request, as you go through the documents that we just provided, we of course would like to continue to work with the committee to see how we can accommodate your request.

Senator BOXER. No, no, I don't want you to work with the committee. You have promised the ranking member and myself that whenever we ask for documents, you get them to us. You have also committed that to everyone else. So I am just saying to you if we do not have the documents that we request rightfully and legally, you better assert why you are withholding them. Either it is incrimination or it is executive privilege. And you have talked about separation of powers. We will share with your legal people. We also heard other things from your counsel that deal with other reasons which just don't make any sense, so we will continue to work with you.

We have had eight oversight hearings. I am glad that my colleagues want more, because I want more as well; and that leads to an issue of your travel, all of your travel. Now, we all travel on business because sometimes it is extremely important to do so. But I have looked over how many trips each of you have taken in your time. Commissioner Svinicki, 17 international trips to 23 countries; Commissioner Magwood, 127 days on international travel since 2010.

And I know that Chairman Macfarlane has requested that all five commissioners be in town at least 1 week each month in order to ensure that the Commission can meet to conduct its business and be available to testify before Congress. So I am asking if each of you would agree to her request, starting with Ms. Svinicki.

Ms. SVINICKI. Yes, I think we work very collegially on scheduling matters and I——

Senator BOXER. I am asking if you agree with her request, that you be in town 1 week a month, all of you together.

Ms. SVINICKI. Yes. I don't think there is any month where I haven't been in town 1 week.

Mr. APOSTOLAKIS. Yes.

Senator BOXER. Thank you.

Mr. MAGWOOD. Yes.

Mr. OSTENDORFF. Yes.

Senator BOXER. That is good, because it will make it easier on us, because some of my colleagues are complaining that we don't have enough oversight. We are going to do more oversight.

Now, the NRC travel records I received are marked "non-public," which is mystifying to me since there is no good reason to keep that information secret. The taxpayers are paying for it. Now, when we travel, we get heat sometimes. We have to show where we go and what it costs, et cetera. Some of you publicly disclose some of your travel and your meetings, but most of you don't. So, yes or no, will each of you commit to this committee to making all of your travel and meetings publicly available going forward?

Ms. SVINICKI. I already do make my schedule publicly available and my travel publicly available.

Senator BOXER. OK. Yes. Will you do that?

Ms. SVINICKI. Yes.

Mr. APOSTOLAKIS. I think I am already doing it.

Senator BOXER. You will do it.

Mr. MAGWOOD. Yes, I currently do that.

Mr. OSTENDORFF. I currently make my meetings public.

Senator BOXER. OK. Well, my understanding is, Commissioner Magwood, you haven't in the past. So we look forward to seeing that in the future.

I am going to be introducing legislation that will ensure that the Commission and staff are more open about their travel.

Chairman Macfarlane, I think we all agree NRC must be independent, it is essential, and I am concerned that your independence may have been compromised as you considered a request by SoCal Edison to restart the San Onofre nuclear reactor. That reactor shut down in early 2012 when its steam generators were found to be in very bad shape. The NRC properly requested considerable amount of technical information from the licensee in order to inform its decision on whether the reactor was safe. You were right to do that. But documents I have received—at least I have received some—indicate the NRC staff was preparing a document declaring that the restart of the reactor was safe months before it received all of the responses to the technical questions. So how can we have confidence in NRC's independence when it was preparing to grant industry's request months before it received the necessary safety related information?

Ms. MACFARLANE. During the investigation of the steam generator failure at the San Onofre Nuclear Generating Station, there were many concurrent issues that were working at the Nuclear Regulatory Commission. It was a very complicated proceeding and there was an active investigation——

Senator BOXER. Well, I am just asking a specific question. Documents show that you were ready to allow that plant to startup before all the technical studies were done and you had something drafted. I mean, I am just concerned. And I guess what I am getting at, you closed that reactor down, it is gone, thank God, because of the problem. Well, the company actually did it, you didn't. But the bottom line is what I want to make sure of, in the future, if there is an investigation going on, you shouldn't reopen. So I guess my question is do you think it is right to reopen a facility while an investigation is still going on? You don't really know what the problem is.

Ms. MACFARLANE. It depends on the particular situation. Unfortunately, I can't give you a specific answer because it depends on the particular situation, and in some situations our regulations allow for a plant to restart while an investigation continues.

Senator BOXER. OK. Fair enough. So I am going to just continue to work on this in my investigation.

Chairman Macfarlane, are these statements accurate? One, NRC's former senior resident inspector for Diablo Canyon filed a formal dissent, saying that Diablo was operating outside the seismic requirements of its license. Is that accurate?

Ms. MACFARLANE. I believe that the senior resident, in years past, did file nonconcurrence.

Senator BOXER. You believe that is correct, then.

Ms. MACFARLANE. I believe that is correct.

Senator BOXER. Second, he also said that PG&E's own analysis showed that the newly discovered faults could cause ground shaking that was 70 percent stronger than the NRC license allows. Is that correct?

Ms. MACFARLANE. I would have to look, I am not——

Senator BOXER. Would you get back to me on that and let me know?

Ms. MACFARLANE. Yes. I can take that for the record.

Senator BOXER. OK. I have a number of other questions I want to ask about that for the record, so I will ask all those.

Madam Chairman, recently the NRC voted to delay a recommendation by its own staff that two people be present whenever highly enriched uranium or plutonium were being handled in order to protect against an insider threat. The Department of Energy has had a rule like that in place for decades, and in 2011 the Department of Homeland Security warned that violent extremists have obtained insider positions at utilities and that "insiders and their actions pose a significant threat to the infrastructure and information systems of U.S. facilities."

So I would like you to answer do you support the quick adoption of the two-person security rule that your own staff recommended?

Ms. MACFARLANE. The Commission decided not to go forward with that at this time.

Senator BOXER. Why?

Ms. MACFARLANE. It was a Commission decision.

Senator BOXER. Why? What was the vote?

Ms. MACFARLANE. I am not sure. I don't recall what the vote was.

Senator BOXER. Does anyone recall what the vote was not to go forward with this? None of you remember? Yes, sir.

Mr. OSTENDORFF. Madam Chair, the specific issue was that the staff had not completed a cost-benefit analysis to assess whether or not the two-person rule was appropriate.

Senator BOXER. Well, could I just say——

Senator SANDERS. We don't have an answer to what the vote was. Could you tell me what the vote was?

Mr. OSTENDORFF. I don't recall what the vote was. I voted——

Senator SANDERS. Does anybody? Five people is not a lot of people. What was the vote, 3 to 2, 4 to 1?

Mr. OSTENDORFF. I voted against the rule because of the two-person piece.

Mr. SANDERS. OK.

Senator BOXER. How did you vote on it?

Mr. MAGWOOD. As I recall, I voted against it.

Senator BOXER. How did you vote on it?

Mr. APOSTOLAKIS. I can't remember.

Senator BOXER. How did you vote?

Ms. SVINICKI. I believe I voted against it.

Senator BOXER. How did you vote?

Ms. MACFARLANE. I don't recall right now either.

Senator BOXER. I am completely flummoxed. This is a big and important issue, and this business of a cost-benefit analysis when you are dealing with a potential terror attack and a takeover of a nuclear plant? You have got to be kidding.

Now, let me say, you have never done a cost-benefit analysis for these sorts of materials tracking in the past, and you found the costs were minimal, less than a million a year; and I would say the benefit of preventing someone from stealing nuclear weapons materials is pretty much priceless. And I would suggest if you don't move and reverse yourselves on this, there will be legislation.

I thank you and I turn to my colleague.

Senator VITTER. You know, I think oftentimes in Government, and in Washington in particular, we become very process-oriented and lose the forest for the trees. So I am just going to suggest a question, not to be answered here, but suggest a question for all of us to think about. Senator Sessions went through the rash of shutdowns very recently: Kewaunee in Wisconsin; Vermont Yankee; Crystal River Unit 3 in Florida; SONG 2 and 3 in California. Duke Energy announced it wouldn't move forward with Levy County, Florida. TVA announced that it would scale back work at Bellefonte.

Now, if any of us as individuals think most or all of those sites were unsafe or not safe enough, well, that is a good result. But if we think, as I do, that most, probably all of those sites were safe, were safe enough, that is a fundamental failure on the part of all of us; NRC, Congress, the whole establishment. So I just want to try to have us focus on the forest, and not lose sight of it.

Let me ask some specific questions about Yucca Mountain. First of all, Madam Chair, at your confirmation hearing you stated very

clearly, "To be effective, a regulatory body must be independent from economic, policy, and political interest." However, in the majority opinion on Yucca Mountain, Judge Cavanaugh stated that, "The Commission's political prognostication may or may not ultimately prove to be correct. Regardless, an agency may not rely on political guesswork about future congressional appropriations as a basis for violating existing legal mandates." And he didn't consider it a close call.

Why did it take you a court decision to move forward with that legal mandate? Why was not that political prognostication and political guesswork about congressional appropriations not being independent from political interest and considerations?

Ms. MACFARLANE. Thanks for the question, Senator. I was not on the Commission when those decisions were made, so I will not try to second guess the decisions that were made in the past. What I can assure you is that we are fully complying with the court's decision and we are moving forward, continuing with the proceedings, and we are moving forward promptly on this.

Senator VITTER. OK, well, let's move to that. The Commission has repeatedly acknowledged in its order, including this week, that it does not have adequate resources to fully complete the Yucca review and issue a decision. Is that correct?

Ms. MACFARLANE. To fully complete the licensing decision?

Senator VITTER. Yes, to fully complete the review——

Ms. MACFARLANE. We do not have adequate resources.

Senator VITTER [continuing]. And issue a decision pursuant to the review.

Ms. MACFARLANE. That is correct.

Senator VITTER. OK, so what action are you taking to solve that problem? For instance, have you proposed a supplemental budget to OMB?

Ms. MACFARLANE. No, we have not.

Senator VITTER. Have you taken any other action to solve that problem?

Ms. MACFARLANE. We are complying with the court's decision. They told us to use the existing funds that we had, and we are going forward using those funds.

Senator VITTER. Let me ask you about existing resources. As was pointed out by other members a few minutes ago, NRC staff has increased about 34 percent at least since 2000. Meanwhile, the expected increase in workload has never materialized. Quite the opposite. So huge increase in staff, no increase in workload in terms of applications for licenses, et cetera. Are you moving any of that staff to solve this resource problem?

Ms. MACFARLANE. You know, I would like to actually submit something for the record, if that is OK. I have a little chart here which shows our budget from 2003 to 2013. And I know it is a bit of an eye test for you, but it shows it in actual dollars and constant dollars. And if you look at the constant dollar chart, which is in red, our current budget is the lowest it has been since 2007, I believe. And in that time period since 2007 our workload has increased significantly. We have been dealing with Yucca Mountain, we have been dealing with waste confidence, we have been dealing with Fukushima, in addition to all the other work that we are

doing, the new construction work, all of that work. So we are actually now doing more with less.

Senator VITTER. Well, there are going to be a lot of folks who disagree with you and that goes back to my original statement. If you become completely process oriented, I am sure you are dealing with more because you have created that process. If you step back, I think you come to the opposite conclusion. And, as you know, those resources were given to you to meet an expected increase in license application, an increase in sites, increase in nuclear reactors. None of that has happened. Yes, regulations have multiplied almost exponentially, but that fundamental growth of the industry has not happened.

Let me re-ask my question about people, because you will agree that at least since 2000 there has been a huge increase in bodies at the NRC, correct?

Ms. MACFARLANE. Since 2000? We hit our maximum a couple years ago, and we have decreased in size since 2010, and we now have around 3700 employees.

Senator VITTER. OK. Well, not that long ago it was 2900, so there has been a big increase over that time period. Are you moving any of those folks to solve the Yucca resources?

Ms. MACFARLANE. Oh, absolutely. We are currently about——

Senator VITTER. How many of those folks have been moved recently from something else to Yucca?

Ms. MACFARLANE. Well, I can assure you that we are currently about 80 percent staffed up for dealing with the safety evaluation reports, so we are going to be ready to go on those very soon.

Senator VITTER. But again I was talking about following the whole process through. You have said several times you don't have adequate resources, so I am talking about that broader challenge. How do you propose to solve that problem?

Ms. MACFARLANE. I think right now that the budget appropriations have been settled. We are in a reasonable position going forward. I would ask my colleagues to weigh in, if they would like to.

Ms. SVINICKI. Senator, if I could just add to the chairman's answer.

Senator VITTER. Sure.

Ms. SVINICKI. In terms of reallocating appropriated money to Yucca Mountain related activities, there are prohibitions on our doing that. We would have to seek a congressional reprogramming because activities used for Yucca Mountain, I believe, must be appropriated from the Nuclear Waste Fund, so our other appropriated moneys would have to receive a congressional reprogramming.

Senator VITTER. Are you all going to make that request?

Ms. MACFARLANE. This will be a Commission decision, so it is something we will have to decide as a body.

Senator VITTER. Are you considering making that request? Has there been any discussion?

Ms. MACFARLANE. There has been some discussion. We will entertain this as it comes up in future budgets.

Senator VITTER. Yes, sir.

Mr. OSTENDORFF. Senator, if I may add to Commissioner Svinicki and Chairman Macfarlane's comments. Glenn Tracy, who directs our Office of New Reactors, a New Orleans native, has moved a

number of his personnel over the last 2 years, because of the drop-back in licensing of new reactors, over to help with Fukushima action items and the seismic and flooding area. I think Mark Sartorius, our executive director for operations, who is back here in the back row, has taken a lot of steps to ensure the appropriate fiscally prudent use of these resources.

Senator VITTER. Well, I hope you can understand my general concern, which is it took a court order to have the NRC follow a clear legal mandate, and even as that is happening there are all sorts of statements, well, we don't have the decisions to follow through and get everything done down the line. I realize we are not talking about the immediate work at hand, but the full review and decision. So why don't we start thinking about how we solve that problem? I don't hear any request for reprogramming, any significant movement of individuals, even though there has been a major increase over a decade, any proposal to OMB. So can you all discuss how we solve that problem over time and present to us and Congress and everyone appropriate your plan for solving that problem, not just identifying the problem or not just pointing to the problem?

Thank you. That is all I have.

Senator BOXER. Thank you, Senator.

Senator Carper.

Senator CARPER. Thanks, Madam Chair.

I want to go back to the issue raised by my chair, and that is the two-person rule. Let me just note for the record we have heard around here hundreds of times, thousands of times, and people ask me from time to time how did you vote on such-and-such. Frankly, I don't always remember, so I can understand how you may not remember how you voted. But, for the record, let us know how you voted. The other thing, for the record, let us know why you voted that way.

In my old job in the Navy, the Navy PT aircraft world, as Commissioner Ostendorff knows, we handled, from time to time, nuclear weapons, and we had an aircraft rule: when using nuclear [unclear] bombs, you want to arm them or whatever, two people involved in that; and that was for a good reason. So just let us know what is your rationale for doing this. If there is a good reason for it, we would like to know it; and if ultimately there is not a good reason for it, we would like to know that too, and we would like to know sooner rather than later. So if we can put that out there, that would be great.

Another thing, just clarify for the record. You all do a fair amount of travel. We do a fair amount of travel. I am the chairman of Homeland Security Committee. I need to do more international travel, and I am more cognizant of that and am going to try to do a better job this year, now that I have my first year of my chairmanship behind me. But you all travel a lot. Some of you travel a lot. The chairman doesn't travel that much; she has not been in the Commission for as long, which may be the explanation. Some of you travel a lot to Japan. That is understandable. Some of you travel to places where it is less clear. And I would just ask, in terms of taxpayers paying for your travel, my understanding is that the lion's share of the expenditures at the NRC, and I pre-

sume it is travel as well, come not from taxpayer dollars, but from fees collected from utilities and so forth. Can you all give me the breakdown of that? What is it, 90/10? What is it?

Ms. MACFARLANE. Yes, it is 90 percent. We are a 90 percent fee recoverable agency.

Senator CARPER. It sounds like you are fairly transparent on the travel that you do. Just make sure. We get criticized for foreign travel, and a lot of cases it is stuff that is justified. I usually go to places where we have Americans getting shot at, killed at, and so forth, and it is kind of hard to criticize that. But just make sure that you continue to be transparent; explain why it is important. I always like to think what if the trip that I take is going to be on the front page of the newspaper, banner headlines, and I have to defend it. Just kind of take that approach to it and make sure that you are using good common sense.

I want to turn to Sandy. Sandy visited my State a little over a year ago, our region of the country, did a lot of damage, and I think if climate change stuff is real, I think it is, we are going to see more Sandys in the future that are going to come to other places around our country and around our world. What were our lessons? What were our lessons learned from Sandy? What could we have done better not just from our nuclear power plants, but within the Federal, State, and local governments?

Ms. MACFARLANE. What were the lessons learned?

Senator CARPER. Yes.

Ms. MACFARLANE. Well, certainly we were actually very impressed with our licensees' response to Sandy; they were all on alert, they were all prepared. We, ourselves, were prepared; we had extra inspectors at the facilities ready and watching. So we were all ready to manage, and the plants managed very well. The only plant that had any kind of incident during that time was Oyster Creek in New Jersey, which did have high water levels, but it didn't reach the design basis and didn't affect the plant.

Senator CARPER. Other commissioners, what are some things we learned from Sandy that we are acting on now, we could have been better, not just within the NRC, the plants themselves, maybe State and local government in their response? Anybody?

Mr. OSTENDORFF. Senator, thanks for the question. We had a Commission meeting earlier this month, in public, from Rockville, and we had operation supervisor from Salem Hope Creek there, and I think the licensee learned some things, we learned some things. The two comments I had were regional coordination and how the licensee and the NRC communicate with FEMA. Then, onsite there were some areas identified to enhance the operating procedures in the event of a flood.

Senator CARPER. OK. Anything the NRC is doing—and this could be for the chair or the other members as well, but anything that the NRC is doing to better ensure, to better ensure that our nuclear plants and the communities around them are better prepared for storms like this in the future?

Ms. MACFARLANE. Well, we asked all our plants to reevaluate the flooding hazard at the plants, and we are getting their flood hazard reevaluations in. We got a big tranche in last year; we are expecting another this year, to keep up with the potential for increases

in flood hazard from climate change or what have you. So we are on top of that and we are going to be analyzing other aspects of weather and natural disaster events, as we work through the Fukushima Tier 3 activities.

Senator CARPER. Let's go across the world to Fukushima this morning. How are they doing there in their recovery? Just somebody give us—30,000 foot. How are they doing in their recovery from the terrible disasters that they were visited by?

Ms. MACFARLANE. How are we doing?

Senator CARPER. No, no, how are they doing.

Ms. MACFARLANE. At Fukushima?

Senator CARPER. Yes. They are like a sister State to us in Delaware, so we care about it.

Ms. MACFARLANE. They are working very hard. It is a very difficult situation and it is an unprecedented situation, so they are really having to make things up as they go, in other words. There is a constant issue of radiation leakage into groundwater. They have a lot of water issues there and they are working very hard to minimize it. They really literally, I think, are working around the clock. But new problems will crop up, and as Commissioner Apostolakis noted, we are learning more all the time now about the accident, about what happened, and that is giving us more insight into our own operations here.

Senator CARPER. All right. Some of you travel extensively to Japan. Anybody else want to just give us a quick 30 seconds or so? How are they doing over there in their recovery?

Mr. MAGWOOD. Appreciate the question, Senator. There has been some very important progress. They have begun, for example, to begin relocating some of the spent fuel from the damage in the fuel pools, and that is a very important milestone that the people in Japan were watching very closely. I think the biggest challenge they have in Japan, quite frankly, is the continued skepticism that the public has about the ability of the government and the regulators to speak clearly to requirements and making decisions, and they still have those doubts; and I think that is a big challenge for our colleagues at the Nuclear Regulatory Authority as they try to make good decisions. I think they are doing a very good job so far, but that public skepticism is still very high in Japan. It is a big challenge for them.

Senator CARPER. OK. Sticking with Fukushima for another minute or so, in response to the Fukushima event, the Commission, I know, continues to pursue a long list of lessons learned from the accident. That is good. The NRC has several deadlines to meet in the next couple of years, I believe, to meet the time line established in March of, I think it was 2012. Are there any issues that have been a lot more difficult than you might have expected? If so, what have they been?

Ms. MACFARLANE. Issues that have made achieving the activities?

Senator CARPER. Are there any issues that have been more difficult to address than expected?

Ms. MACFARLANE. I would say at this moment not directly, no. We are certainly learning as we go and shifting things around a little bit as we go. You know, we issued an order, for example, on

hardened vents to make them more secure. Last year the Commission revisited this issue and said, you know, we really need to make sure that these vents are hardened, it is possible to open then in an accident scenario, but these vents have to be able to withstand the conditions of an accident; the temperature, pressure, intense radiation conditions of an accident. So we revised the order and reissued it so that these vents will be capable of being operated under those conditions as well. So we are doing that as we go along.

Senator CARPER. All right.

Commissioner Apostolakis, it was last September, along with Senator Sessions and Senator Barrasso and Cardin, we sent a letter to the Commission encouraging the NRC to streamline the licensing process for dry cast storage. Since we sent our letter, we understand that the NRC has implemented a new expedited process for approving dry cast storage designs, and I was wondering if you might elaborate for us on that process, if there was any feedback that you have been receiving from the industry, please. Commissioner Apostolakis, if you would, please. Do you have some feedback that you have received from the industry? How are we doing here?

Mr. APOSTOLAKIS. I have not heard any complaints from the industry. I think we are doing fine, as far as I know.

Senator CARPER. Anybody else want to respond to my question? No? All right.

Chairman Macfarlane, can you give us an update on where the NRC is on waste confidence, please?

Ms. MACFARLANE. Yes. As I said, we have finished our public comment period of getting public comments on the waste confidence rule and the generic environmental impact statement. We are now in the process of going through those over 33,000 public comments and addressing them, and we will be about, right now the estimate is 1 month over time. So we will be done by the beginning of October.

Senator CARPER. Madam Chair, our colleague, Senator Sanders, raises interesting questions. I put my old Governor hat on, about the appropriate role for State and local governments. I have a clear interest in the decommissioning of these facilities around our country, including Vermont and other places. And I don't know that we need a law to do that, I don't know if we need regulations to make sure that they have the ability to play an appropriate role. There is clearly an interest and a concern. I would have it as well. And let's see if we can't use some common sense to make possible for the State and local governments to have some involvement. We will follow up, Senator Sessions and I will follow up with you, some further discussions, and involve Senator Sanders if he would like to be part of that. Thank you.

Senator BOXER. Senator Inhofe.

Senator INHOFE. Thank you, Madam Chairman. I have to confess, I was hoping the Senator Sessions would make it back, because I always do so much better when I ask my questions after Senator Sanders has asked his questions, and you will find out in a minute.

[Laughter.]

Senator INHOFE. Let me ask this also. I really think, and I have been here for quite a while and I used to chair this committee a long time, and I think we have an excellent Commission. I mean, all five of you, I just appreciate your service so much, and it is well balanced.

I noticed, Mr. Apostolakis, that you are going to be the next one that would be coming up for renomination, and I would hope that you would continue on and, if you are inclined to do so, I would appreciate your service to continue.

In my opening statement, I am going to repeat something that I said there because it is kind of following up a little bit on what Senator Vitter was talking about, but it may be in a different way. And I remember it so well because at that time I chaired this committee; this was 2003. The NRC asked Congress for the bigger budget to build new buildings, add all these employees. And, by the way, I have some specific numbers.

Madam Chair, you weren't here at that time, so you are off the hook, partially.

But they wanted to do this so they could add expected approval of four design certifications for new reactor designs and 17 of the COLAs; not the normal COLAs we talk about, the construction and operating license applications. So that was 4 and 17.

Now, that was actually, at that time, in discussing this, we were looking in terms—because I went back and checked our notes—that we would have to anticipate having that increase workload in 3 to 5 years. Now, that has been a long time, and now 10 years later we only have approved one design certification and two COLAs. So it has gone from an expectation of 4 design certifications and 17 COLAs down only 1 and 2.

Now, I say this, and I would like to get a response from each member, maybe start with, well, since you weren't here at that time, let's start with Ms. Svinicki. Tell me how that can happen. Why did that happen?

Ms. SVINICKI. Well, I would note, Senator, some statistics I found, just very quickly here, is that NRC does have under review right now three design certifications and—the chairman is helping me out.

Senator INHOFE. I am not talking about under review. We said at that time that we would have those in 3 to 5 years, not be reviewing them 10 years later.

Ms. SVINICKI. As some members of the committee have noted in their opening statements, some of the larger economic circumstances for the utilities that were interested in building these new reactors have changed somewhat significantly. As a result, some have suspended or withdrawn their applications, but some have decreased the pace at which they are supporting the review of their application, by which I mean when we generate questions, they have indicated that they are content with a slower pace to our review. So some of the schedules have become protracted for that reason.

Senator INHOFE. OK. Because of timing, I am going to—if there is time, I will come back and ask the same question of the other three, but I want to get another thing in here in the meantime, and that is that the NRC near-term task force in two Japanese reports

on Fukushima determined that the disaster was one that we call made in Japan; in other words, the cultural differences, the gaps that are out there. It would seem that we need to have that determined. And we talked about this way back in 2011, when it happened. We said there are differences here, there are cultural differences here.

So I would ask Chairman Macfarlane has the NRC conducted a thorough gap analysis between the Japanese and United States systems and regulations to compare and contrast the complete picture comparing U.S. and Japanese models to more closely and wisely cost-effectively suggest policy changes? Have we made that kind of a study?

Ms. MACFARLANE. Yes, we did a comparative study of the U.S. and Japanese regulatory systems, but it wasn't comprehensive.

Senator INHOFE. It was not comprehensive.

Ms. MACFARLANE. No, it wasn't completely comprehensive.

Senator INHOFE. It didn't include all the cultural——

Ms. MACFARLANE. In part because to get into the weeds of comparing the U.S. and Japanese, we would have to translate all of their regulations to fully understand the differences. But let me just jump to the conclusions of the study that we did. We found some similarities and we found some differences. But the bottom line was that there was no evidence that a Fukushima-type accident would have been completely avoided in the U.S.

Senator INHOFE. OK.

Ms. MACFARLANE. And what I have learned from the fantastic staff at the NRC is that one of the most important things for a regulator is operating experience. And the operating experience that we gained during the Fukushima accident is significant. We did not, prior to the Fukushima accident, expect or analyze for more than one reactor at a site to have an accident.

Senator INHOFE. OK.

Ms. MACFARLANE. So that was not planned for. We had not prepared properly for extended long-term station blackout; no electricity, no backup sources. And we are now addressing that. And do you know what? Every country with a significant nuclear program around the world came to the same conclusions and they are doing the same thing.

Senator INHOFE. OK, what I would like to have is a copy of this report that you have.

Ms. MACFARLANE. Certainly. It is publicly available.

Senator INHOFE. Even though you state that it is not as complete as we would all probably want. But I want to compare it with the notes that we took 3 years ago on the changes. For example, you have to actually go get permission in advance to do things that we, through the NRC, empower those people on the site to do; and there are so many changes like that.

I would like to ask, Captain Ostendorff, would you think it is important for us to have the benefit of a complete report, even more complete than the one we have right now?

Mr. OSTENDORFF. Senator, I appreciate the question. I agree with Chairman Macfarlane's response, and I know that this has been some discussion over the last couple of years with this committee. I think we have thoughtfully taken aboard the Fukushima lessons

learned, including the scope of Japanese regulations in place at the time for those areas that were important.

Senator INHOFE. OK. Well, we would just like to have the benefit of everything. While we are talking about getting reports, Madam Chairman, I know we have had enough funding to complete the Yucca Mountain report, and I will be watching real closely to see—do you have a date that we would have that report?

Ms. MACFARLANE. I think it is about a year from January, but I need to get back to you on that, so let me take that for the record.

Senator INHOFE. OK. When you get back to me, and for the record I would like to have you give me a date that we should anticipate receiving it, because I think, to me, anyway, that is very important.

Now, in the remaining time, I asked the question, in opening up, how we can—first of all, increasing the staff. It is my information that we have 900 more employees right now than we had in 2004. Now, I don't know whether that agrees with your chart or not, but what I would like to have you do is take your chart, since this action took place in 2003, extend it to the 3 years prior to 2003 so we can get a better look on how much of that came from the increased activity that we anticipated were going to happen in COLAs and design certification. So I would ask that you take the chart, go back to, instead of starting at 2003, start at 2000.

Ms. MACFARLANE. Certainly. We can do that for you.

Senator INHOFE. OK.

Now, the rest of you, in terms of the increase from anticipating 4 design certifications and 17 COLAs, and only getting 1 design certification and 2 COLAs in that time, would the other three of you who didn't have a chance to respond to that tell me what I am overlooking here?

Mr. APOSTOLAKIS. Well, on the face of it, I must agree it doesn't look good.

Senator INHOFE. OK, that is a good response.

How about you, Mr. Magwood?

Mr. MAGWOOD. Senator, I think that when you look at what actually has taken place over the last several years, you find that the applicants and the licensees have actually struggled somewhat when it comes to answering some of the technical questions.

Senator INHOFE. Yes, but somewhat is a little bit different than the gap that I am talking about.

Mr. MAGWOOD. There has been significant back and forth with the applicants over technical issues, and it has taken significantly longer than I think anyone thought. But as Commissioner Svinicki pointed out, there are still reviews underway as we speak.

Senator INHOFE. I am almost out of time.

Mr. OSTENDORFF. Also, real quick, Senator, I will give you two examples on the design certifications. Mitsubishi had a design certification submitted to the NRC for what is called the APWR. They, the submitting group, backed off their resources to focus them back in Japan.

Second one, ARIVA had an application in for the EPR. There have been problems in the international community with digital alliance——

Senator INHOFE. My time is up. I will tee up one more thing for my good friend, Senator Sanders——

Senator BOXER. We have a vote at 11:15, so I am afraid people aren't going to get a chance.

Senator INHOFE. No, just one sentence. Out of your time, that is good. All right, that is good.

Do you think it was unfair for me to assert that perhaps we are trying to regulate the nuclear energy out of business, just like we are trying to regulate the fossil fuel business out of business? That is it.

Senator BOXER. Thank you for that provocative thought.

With that, we will turn to Senator Sanders.

Senator SANDERS. Let me begin. Senator Inhofe and I disagree every now and then, despite being very good friends, but I share your line of questioning about the growth of employees at the NRC. And as Commissioner Apostolakis said, it doesn't look so good on the surface, and I would agree with you. That is something we want to pursue together.

The other issue I want to back to the point that I made earlier about the role of State government in the decommissioning process, but before I do that I want to get to this voting issue, which concerns me. It is actually an issue that has been raised for a number of years. Every person up here as United States Senators has to cast some very difficult and controversial votes, and occasionally those votes are distorted and put on to 30-second ads. That is our reality; we live with that.

Is there any reason why every vote that you cast should not be made public? Right down the line. Madam Chair.

Ms. MACFARLANE. I think there are, when we vote——

Senator SANDERS. Very briefly, please. Maybe yes or no.

Ms. MACFARLANE. When we vote in our adjudicatory role. Those votes I don't believe are public.

Senator SANDERS. My point is just give me an answer. We cast votes about whether we go to vote or not, of some consequence. They are made public. Any reason why your votes should not be made public? You are saying yes, you think there are some occasions when they should not. I hear that.

Ms. MACFARLANE. Yes.

Senator SANDERS. Ms. Svinicki.

Ms. SVINICKI. I agree with that and would add that if there are security-related matters, those are not made public as well.

Senator SANDERS. Well, that is a big word, security. We can hide a whole lot under security.

Mr. Apostolakis.

Mr. APOSTOLAKIS. I agree with my colleagues.

Senator SANDERS. All right.

Mr. Magwood.

Mr. MAGWOOD. The vast majority of our votes are public.

Senator SANDERS. Mr. Ostendorff.

Mr. OSTENDORFF. Senator Sanders, every single one of our Fukushima-related votes that come to us sticky paper, when the voting process is complete, those votes are all made public.

Senator SANDERS. Well, you know, I happen to think that unless there is some extraordinary circumstance, votes should be made

public. That is just my own view and that is an issue I want to pursue. I think Ranking Member Vitter raised the issue of a "rash" of nuclear shutdowns in this country. The truth of the matter is there are a whole lot of people who are concerned about nuclear power. We are concerned about safety aspects of nuclear power; we are concerned about the cost of the production of nuclear power. You know, many of my very conservative friends here say over and over again they want the Government to deregulate; they want the Government out of the private sector. We hear that every day. The truth of the matter is if we did not have legislation like Price-Anderson, which is not a well known piece of law—what Price-Anderson is about, if, God forbid, there were ever a nuclear disaster of consequence, a Fukushima in the United States, I am not sure that everybody is aware the taxpayers of this country would be called upon to come up with who knows, tens and tens and tens of billions of dollars to deal with the cost incurred in that disaster.

Am I right, Ms. Macfarlane?

Ms. MACFARLANE. You are correct.

Senator SANDERS. So I would, in the goal of getting the Government out of the private sector and overregulating, I would wonder if any of my conservative friends would cosponsor with me legislation to repeal Price-Anderson so we can leave the nuclear power industry alone and not get involved with Government. And I look forward to working with Senator Vitter or Senator Inhofe getting the Government out of the nuclear power industry. Any volunteers at this point?

Senator INHOFE. [Remarks made off microphone.]

Senator SANDERS. OK. There we go.

Senator VITTER. Bernie, I am not going to volunteer. I just want to underscore exactly what I said. I listed all those shutdowns and I said if you believe most or all of these sites are not safe or not safe enough, then that is a good result. But if you don't, I think the vast majority of informed folks do not, then I think it is a failure on our collective part.

Senator SANDERS. Well, David, my only point here is——

Senator BOXER. We can't do too many more back and forths, because I am so nervous people aren't going to get a chance. It is not fair.

Senator SANDERS. OK. I would just say——

Senator BOXER. But finish your time.

Senator SANDERS. David, I have heard all of your given speeches, we have heard speech after speech about the Government being involved in the private sector, not letting free enterprise do its thing, and here you have a situation. Without Price-Anderson, it is quite likely the nuclear industry in America would collapse tomorrow. And you know why? Because Wall Street, whose job is to make money, and the insurance company, whose job is to make money, they don't think insuring nuclear power plants is a pretty profitable enterprise, and they won't do it. So I look forward to working—maybe Jim and I can work together on this—getting the Government out of the nuclear power industry.

All right, that is an aside.

I also wanted to mention in terms of nuclear power, I think everybody here knows Germany is in the process, the people in Ger-

many are not dumb, they are in the process of phasing out their nuclear industry, I think by the year 2022. Switzerland and Spain have indicated they don't want any more nuclear power plants. So people around this planet have different views on nuclear power.

All right, here is the issue that I did want to focus on, and that is the role of States. And I appreciate Senator Carper for reiterating my concerns. There are a number of States in which nuclear power plants will be shut down; California, Vermont, elsewhere. It is of enormous importance to the people in those States how the decommissioning process works. Will it take 60 years? Will it take, as has been the case, 10 years? Will the people of the State be satisfied about the lack of radioactivity in the area? Where will the nuclear fuel rods be placed? Who will get the jobs? What about the financial arrangements? All of which are of very much concern, I can tell you, to the State of Vermont. So I have three questions that I would like to ask for brief responses to the members of the Commission.

Do you agree that States have a strong interest in how their nuclear plants are decommissioned? Ms. Macfarlane.

Ms. MACFARLANE. I would agree that States and the public certainly have a strong interest.

Senator SANDERS. Ms. Svinicki.

Ms. SVINICKI. Yes, States have an interest.

Senator SANDERS. Mr. Apostolakis.

Mr. APOSTOLAKIS. Yes.

Senator SANDERS. Mr. Magwood.

Mr. MAGWOOD. Yes.

Senator SANDERS. Mr. Ostendorff.

Mr. OSTENDORFF. Yes.

Senator SANDERS. OK.

Do you agree that it is fair and reasonable for the host State to have a real seat—now, I know the term real seat is not quite a technical term, but a significant role to play—during the decommissioning process; not just a hearing, not just giving their opinion, but having a seat at the table helping to determine the outcome? Ms. Macfarlane.

Ms. MACFARLANE. Let me just explain something. What we do is regulate the safety and security of these facilities as they decommission. Let's just talk about the decommissioning piece of this. And in that our relationship is with the licensee. We are holding them accountable to make sure that they are providing safety and security. Now, the public should have some kind of role, OK? And we do encourage public engagement; we do hold public meetings——

Senator SANDERS. You and I chatted about this issue.

Ms. MACFARLANE. We encourage strongly that the licensee form some kind of community advisory board in which they can——

Senator SANDERS. OK, I apologize, I just don't have a whole lot of time. I understand all that; we chatted. Community advisory, that is not satisfactory to me because advice can be rejected. So my question to you all is should the States themselves, who have to deal with the consequence of the decommissioning process, have a real—and I understand real is not a technical term, but be part of the process such that if what is negotiated between the industry

and the NRC is not satisfactory, that will not happen; to be a real player in the process? Should the States have that type of authority? Ms. Macfarlane, very briefly.

Ms. MACFARLANE. I think it depends on the specific situation in the State. I think that there are more interests at stake than just the Governor of the State; there are local interests as well.

Senator SANDERS. Absolutely.

Ms. MACFARLANE. Those need to be represented.

Senator SANDERS. But in our democratic society it is the State government that ends up getting elected to do those things.

Let me just say this, because I think I am probably not going to get a clear answer from any of you. This is a very, very important issue. I think your rules right now are not satisfactory. I think you do not give enough input—not input, you don't give enough power, if you like, in the decisionmaking power to the people of the States. I would hope, and you and I will chat about this, Ms. Macfarlane, that we will change the rules as they are currently constituted. If you do not change the rules, I will introduce legislation to make sure that States do have that authority.

Madam Chair, thank you.

Senator BOXER. Thank you. And you can count on my support for that, because I think decommission; I think Massachusetts has one coming as well.

Senator Sessions.

Senator SESSIONS. Thank you.

Well, we don't want to get the Government out, I assume, of solar, auto, ethanol, wind powers.

Senator BOXER. How about oil?

Senator SESSIONS. Oil? There is not much in that except——

Senator BOXER. Except $6 billion a year.

Senator SESSIONS. That is a disputed fact.

Senator BOXER. OK.

Senator SESSIONS. As to whether or not that is any special tax break or whether it is just a normal tax situation oil corporations have.

OK, what I would like to see Bellefonte done in Alabama. I don't know whether Vermont does. They sued Vermont Yankee multiple times. I guess they finally just gave up and closed the plant. That is all right; Vermont wants to have their electricity produced using carbon fuels or whatever, so be it. I would like to see clean nuclear power be used more around the country.

Now, I raise this concern because I am really worried about it. I think all of you are aware of the situation we have concerning constriction of nuclear power, and it is staged now. I get to second guess your regulatory powers and maybe they have a right to do so, but if they jump in and double up on the cost of closing a plant or opening a plant, it is just one more burden that makes it even less likely that we will have an expansion of nuclear power and more likely that we will see this decline continue. So I am worried about it.

Ms. Svinicki, you have been on the Commission for some time and you have observed these issues develop. Would you give your thoughts to us and share your thoughts with us about what might be contributing to the erosion of nuclear power generation and the

failure of new plants to get started that we thought would be started?

Ms. SVINICKI. Well, I think, as is well acknowledged by economic experts, the situation of abundant natural gas, while good for the United States in many ways, does affect the economics of both new nuclear, but also current nuclear. So from the regulatory standpoint, although we don't control any of those macroeconomic factors, I think that our pledge as a Commission is to make certain that we do the most disciplined sort of analysis and work so that we are only imposing regulations that we have thoroughly analyzed and justified.

Senator SESSIONS. Is it possible that these regulatory factors and, let's say, a lack of final certainty over waste disposal and Yucca Mountain and cumulative costs of compliance are affecting the future of nuclear power?

Ms. SVINICKI. I support the Commission's action to address the court's remand to us of our waste confidence decision. I think that the Commission and the agency staff are taking quick and responsible action to address the deficiencies that the court identified, which were not the entirety of the rule that we had put forward, but the court asserted and found that our analysis and evaluation lacked certain points. We are remedying those specific deficiencies and, as the chairman has noted, although we have delayed our schedule by 1 month, we still continue to push forward very aggressively.

Senator SESSIONS. Well, it is worse than that. The court hammered the Commission and Congress and declared it was an absolute violation of multiple requirements of law, and it goes to the very core of who writes law in America. Congress passed laws, we chose this site, it has been authorized and directed, fees have been collected in billions of dollars, and very little action has been done. Wouldn't you agree that the court's decision was a real critique of the failure to act on the congressionally approved Yucca Mountain site?

Ms. SVINICKI. Yes, on the matter of Yucca Mountain, the court's language was unequivocal and was very, very strong. But, again, we have taken actions to address the writ of mandamus.

Senator SESSIONS. Will that be completed in what time?

Ms. SVINICKI. Well, we are providing monthly reports to this committee. We do not have the team of NRC experts who will address that work fully assembled; I believe the last I heard last week we have 75 percent of the experts assembled. And as Chairman Macfarlane noted, I think they still anticipate it will take approximately 1 year.

Senator SESSIONS. I understand she has talked about that previously, but I think if you need to reprogram money you should ask for it. It just comes down, at some point, to a constitutional question: Will the Government of the United States execute the laws established by the duly elected Congress? And you have a duty to do that. Not one member of the U.S. Senate, some powerful Senator, ought to be able to block what has been decided by the majority of Congress.

I will say this, I believe if you are seeking investments to build a nuclear plant in the future, the fact that we have failed to have

an approved disposal site is a factor—how much, I don't know—in weighing against building and going forward with investments in a plant. If you are not sure that that will ever be affected, ever saw, it could reduce your confidence that you can have the waste disposal disposed of as required, you will be less confident in investing.

Ms. Macfarlane, how many plants are in license or re-license process now?

Ms. MACFARLANE. In licensing process? We have nine combined license reviews underway. Many of them have been slowed down in part because there are delays in the design certifications for the plants, and those delays were requested by the vendors themselves. And there are no firm construction plans right now for those, including Bellefonte.

Senator SESSIONS. Right.

Ms. MACFARLANE. But we do have five reactors under construction actively in the U.S. and we will be seeing, most likely, the completion of the Watts Bar 2 Unit.

Senator SESSIONS. So you take the TVA, Watts Bar 2, the two at Vogtle——

Ms. MACFARLANE. Two at Vogtle and two at Summer in South Carolina.

Senator SESSIONS. OK. And the Vogtle and Summer are entirely new?

Ms. MACFARLANE. They are entirely new designs, yes, the Westinghouse AP1000.

Senator SESSIONS. I know you visited the Vogtle plant recently as part of your inspecting tour. I hope they don't complain about that travel; that is good travel. You can go and you can observe the plant and see what is going on. Was it your observation that these plants with the new design, AP1000 with passive cooling, so if all power is shut off, you can still allow the water to cool the system and prevent disaster, would that be an improvement on the Fukushima design and avoid some of the dangers that occurred there, and how would they?

Ms. MACFARLANE. Passive systems are certainly better than active systems, systems that have to be activated, so those passive systems are an improvement.

Senator SESSIONS. For people who are listening, would you describe how the passive system would work?

Ms. MACFARLANE. In light of the time, I am going to take that one for the record.

Senator SESSIONS. OK. Well, do you feel like these plants, the new ones that are moving forward, could help the United States be a leader in a modern nuclear plant and set an example for the world, as well as our country?

Ms. MACFARLANE. Well, it is our job at the Nuclear Regulatory Commission to ensure that the operating plants and the plants under construction are moving along safely, the plants are operating safely and securely. We are protective of public health and safety. It is not our job to prognosticate on the health of the nuclear industry or what is best in terms of nuclear policy or energy policy, we leave that up to Congress and the Administration.

Senator SESSIONS. Well, you have a role to play in it, and excessive regulation at this time of real competition from low cost natural gas that is fairly clean, carbon fuel, but not as clean as nuclear power, I think that the scales could be tilted in a way that we could see a collapse in the future of nuclear power; and I think you have to be aware that there are ramifications from your decisions.

Thank you for your work. I think all of you have tried to do the right thing for the country.

Senator BOXER. Thank you so much, Senator.

Senator Fischer.

Senator FISCHER. Thank you, Madam Chair.

Thank you all for being here today. Nice to see you, Dr. Macfarlane.

The NRC Principles of Good Regulation, they emphasize efficiency and focusing on activities that have the greatest safety significance. Rulemakings are a small portion of the total scope of your activities that licensees must respond to. How does your agency prioritize its non-rulemaking activities to ensure that your finite resources are focused on activities of the highest safety significance and in the most significant manner?

Ms. MACFARLANE. Let me first say thank you for your question.

Senator FISCHER. Do you believe that a prioritization process is necessary?

Ms. MACFARLANE. Yes, and we do use a prioritization process and we do work with industry in helping set that prioritization process, and I believe we are going to be receiving a staff paper on this topic this year. But let me just say that, in general, we weight safety and security as the highest priority setting factor, but we also depend on how new rules would fit into our strategic plan and what the interests are within the NRC, within Congress, within other governmental bodies, the public, NGOs, and, as I said, industry, of course.

Senator FISCHER. With regard to Fukushima and what is happening there, part of evaluating that lesson I think needs to be how you look in the future, the consequences and working with other agencies here within our Government, and especially with regards to more dams upstream, and if there would be any failures of those dams. This is a subject, I know, that is not just of interest to you, but also to our other agencies out there, the Corps, for example, Department of Homeland Security. How is the Commission coordinating its research on that?

Ms. MACFARLANE. We are working with the other agencies that you mentioned, as well, as the FERC, the Federal Energy Regulatory Commission, which also has some purview over dams. But we are working closely with them to deal with these issues. They are significant issues.

Senator FISCHER. Do you look at any uniformity in trying to come up with a good assessment on that?

Ms. MACFARLANE. Uniformity among the Federal agencies?

Senator FISCHER. Yes. How is that working?

Ms. MACFARLANE. Yes.

[Laughter.]

Ms. MACFARLANE. We have our differences.

Senator FISCHER. Do you think you are going to be able to work together?

Ms. MACFARLANE. Yes. Yes. Certainly.

Senator FISCHER. I mean, this is a huge concern.

Ms. MACFARLANE. Yes.

Senator FISCHER. Do you have a formal process in place that you are following right now?

Ms. MACFARLANE. To work with other agencies? Yes, we do. Our staff has been coordinating with them and meeting with them on a regular basis.

Senator FISCHER. OK. Do you anticipate you are going to be coming up with a plan soon or is it going to be targeted for each area?

Ms. MACFARLANE. Let me get back to you with a specific answer on that one, OK?

Senator FISCHER. OK. And then from a review of industry performance over the last 20 years, it appears that the most significant safety improvements have been attained as a result of voluntary industry assessments to identify and fix those latent vulnerabilities. Do you agree with that?

Ms. MACFARLANE. No, I don't, actually.

Senator FISCHER. Good. Tell me why.

Ms. MACFARLANE. I don't think there is any evidence that any—let me put it this way, there have been a number of voluntary actions taken by the industry, but I think those have been prompted by actions within the NRC, in anticipation of new rules at the NRC.

But my colleagues might disagree, and I encourage you to ask them.

Senator FISCHER. Yes. Do any of you have anything to add to that? Can you give me specific examples?

Mr. APOSTOLAKIS. The studies that were done in the mid- to late 80s to identify so-called vulnerabilities certainly contributed to enhancing the safety of the plants, but I wouldn't call those the most significant safety improvements. I think we have made tremendous progress in fire protection, for example, where both the industry and the NRC staff have come up with ways of improving fire safety and understanding better. So I would say that is a more significant improvement.

Senator FISCHER. Thank you.

Yes, sir.

Mr. OSTENDORFF. Senator, thanks for the question. I would just provide another example, and that is in the context of the Fukushima action items. I would make two comments. One, the Commission, back in 2011, made a very concerted decision to prioritize those safety issues into Tier 1, Tier 2, and Tier 3, Tier 1 being the most important. And I think that served the Commission and the industry and the country well.

The second piece I would mention is that in the context of Fukushima, industry developed what is called a flex proposal to deal with loss of power offsite, onsite, to deal with other issues associated with a catastrophic event. That has been a partnership; industry has developed that in response to our mitigating strategies order, so I would say it is really a partnership with lots of discus-

sions, interactions between the regulator and the industry and the public on these issues.

Senator FISCHER. Yes, sir.

Mr. MAGWOOD. Senator, I think it is an excellent question and I think it is a complicated question because if you look at the operations of each individual nuclear power plant, licensees take actions both in response to NRC initiatives and also to their own desire to build margin and increase safety; and there is a handshaking that goes along with those. So I think each plant benefits from voluntary actions taken by licensees. How to add that up and compare them to regulatory actions, I don't think we have ever tried to do that, but I agree with my colleagues that I think the regulatory framework we put together is one that is built to assure safety, and when licensees go above that, that is just a good thing.

Senator FISCHER. Thank you very much.

Thank you, Madam Chair.

[The prepared statement of Senator Fischer follows:]

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

Chairman Boxer and Ranking Member Vitter, thank you for holding today's hearing. Chairman Macfarlane and Commissioners, thank you for being here and sharing your time with us today.

When Chairman Macfarlane was before our committee last year, I shared with her Nebraska's unique distinction of being the only State in the Nation that is 100 percent public powered. We are very proud of our public power system in Nebraska and thankful that we enjoy some of the lowest electricity costs in the country.

In Nebraska, electricity costs are well below the national average—thanks, in part, to nuclear energy. Nebraska normally receives more than 25 percent of its electricity from its two nuclear power plants.

Recent nuclear power plant shutdowns have shown us just how important nuclear energy is in keeping electricity rates down. The U.S. Energy Information Administration reported in July that the California power market experienced a 59 percent increase in wholesale power prices, which it attributed in part to the outage of the San Onofre Nuclear Generating Station.

In Nebraska, we are very grateful that Omaha Public Power District's Fort Calhoun plant is now back online. We appreciate NRC's efforts to ensure a safe restart. We are also hopeful that following a process of more than 7 years, the license renewal for the Crow Butte uranium mining operation will be completed. Also pending before the NRC are license applications for development of three expansion sites in Nebraska, so our nuclear fuel resources can be safely developed for years to come.

It is critical that we ensure the continued viability and success of the U.S. nuclear energy industry. The Nuclear Regulatory Commission plays an important role in that task. We must have an NRC that ensures the safety and security of our nuclear power and inspires public trust and confidence 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.

As NRC works to implement new safety enhancements, complete a safety evaluation of the Yucca Mountain repository, and review and approve licensing requests, we need a Commission that truly puts these principles into practice.

Commissioners, I look forward to our discussion on these important issues at today's hearing.

Thank you.

Senator BOXER. So I want to thank my colleagues because this is really great. The votes, I guess, have just started? They just started, so that is really good.

I want to thank all you commissioners for coming here today. We are going to have you back real soon because there are many more issues we didn't get to. Specifically, we are going to go in the next hearing, we are going to look at more of the transparency by com-

missioners. We are also going to look at the 12 recommendations that were made post-Fukushima for safety by your own staff, who between them all had 150 years' experience, who laid out 12 things you should be doing, you should do; and at that time there was a hope in the Commission to get those things done in 5 years. So Fukushima is March 2011 and March 2012 has passed and March 2013, and we are approaching March 2014. My understanding is there is one rule out of the 12, and everything else is in stages.

I also found it very interesting, talk about cost-benefit, and we are going to make public your vote because you don't seem to mind on who voted which way. My understanding is, chairman, you voted with everybody else not to do—I mean, everybody agreed not to do the two-person rule, so that, just to jog your memory, we found that in the public record somewhere, we dug for it. So the issue is that your own staff, who had 150 years of experience, said get these 12 things done, don't do a cost-benefit analysis because the cost of Fukushima, might I remind you, is pretty much immeasurable, and the benefits of avoiding that is pretty much immeasurable. But, no, you are doing cost-benefits on everything. So I am going to find out from you next time, all of you, the status of each of these 12 recommendations, and I hope you can move forward on them. That is very, very critical.

The other thing, I am going to put in the record, Madam Chairman, a letter that I just got as you delivered, you signed it, this next tranche of information, and your answer to me was, well, if you still have a problem, call me. I have a problem, because you asserted some kind of a legal bar to your giving me everything. Is your general counsel here? I have never met her. Is she there? Could I meet her, please?

Ms. MACFARLANE. She is here.

Senator BOXER. OK. I think it is important that you talk to my counsel and that you also speak with those who advise us, because our understanding is the privilege that you are suggesting is absolutely off the wall. And our understanding from every legal expert here is that you can assert executive privilege or your Fifth Amendment right not to incriminate yourself, and you are talking about some separation of powers. Well, the arrogance of that is unbelievable, because you wouldn't be here without the Congress. You wouldn't be here without the Congress setting you up. You wouldn't be here. And you have to be subjected to oversight and we have a right to documents, and when you sit there and you tell me and you tell Senator Vitter you are going to hand us all the documents we want, and then you don't, and you say very sweetly, oh, I would be happy to find out, if you need any more. Yes, I need them all. And I need to know what whistleblowers are saying. I need to know that all because I swear that I will uphold this Constitution and defend and protect the people that I represent and the people of this country.

So this is not a good relationship. It certainly isn't. I feel very bad. It is not personal; I am sure each of us could just be very friendly on a personal level, but that is not what this is about. It is about openness and transparency; it is about safety; it is about accountability. And for you to withhold documents, which you admit that you are doing, based on some phony legal argument is

beyond the pale. Maybe it winds up in court, maybe we sue you, I don't what we do. I want the information and I will get it, even if I have to go to whistleblowers. But I am just telling you get me the information, because when I have a situation where a plant was obviously in a dangerous situation, and even before the inquiry there was a staff opinion to let it go and open it, and I can't find out why and how is just wrong. So I am really sorry that this continues on and on.

I thought maybe with a new chairman and a new spirit here things would change, but whether it is your travel that some of you want to have buried, you have asked us to make it confidential, don't tell people what we spend. What is that about? You are not above the American people. I want you to travel somewhere; I want you to go to Japan. I don't know, some of these other places look like they are really fun to go to. I don't know how much they have to do with anything. But I am hoping that you would go back and talk to each other, instead of going back and saying, oh, that Barbara Boxer, ooh. You have a right to do that, but I hope you will also change your attitude about openness, transparency, about moving a little quicker.

To have adopted one out of these 12 recommendations, I don't understand it. Just look at the faces of the people who got caught. And you could say all you want it will never happen here. Don't say that. We never thought we would be hit on 9/11. We never thought we would see the likes of Hurricane Sandy. No one ever thought kids would have to be on a bus on an ice road for overnight, either. We are just not that powerful, we are just not. We are humble in the face of what could happen.

So I hope you will go back and I hope your counsel will look at the law in the light that our experts are telling us, and our experts, they don't have anything to hide or anything to gain; they have just been advising Congress forever. And I have the opinion here. You know what? I will give it to your counsel. This is the summary of it. And we have the full book if you need it. But I hope you will take a look at this. Shall we give her the whole thing? OK, we will give you the whole entire book about it, because what you are telling us is simply unheard of, and we don't get it from any other agency, just so you know, we don't. People complain about EPA, but they are not asserting—they are asserting either executive privilege or one of the arguments that are legitimate.

So we will have you back soon. We are going to look at the 12 recommendations and how you are going about it. And I thank you for being here and for answering all the questions you did.

Thank you very much. We stand adjourned.

[Whereupon, at 11:29 a.m. the committee was adjourned.]

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