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## **NUCLEAR REGULATORY COMMISSION**

### **THE FISCAL YEAR 2012 DEPARTMENT OF ENERGY AND NUCLEAR REGULATORY COMMISSION BUDGET**

**SPEAKER:  
GREGORY B. JACZKO,  
CHAIRMAN,  
U.S. NUCLEAR REGULATORY COMMISSION**

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REPRESENTATIVE ED WHITFIELD (R-KY): OK. I'll call the hearing back into order. We took a recess because Commissioner, you had a – you were called away to the White House, I believe, for a meeting. And we completed with Secretary Chu. So everyone's already given their opening statement. So at this time, that we would recognize you for five minutes for your opening statement.

GREGORY B. JACZKO: Well, thank you, Mr. Chairman, and to you and the other chairmen of the two subcommittees and the ranking members Rush and Green, and members of the – other members of the subcommittee.

I'm honored to appear before you today on behalf of the U.S. Nuclear Regulatory Commission. And given the events that are unfolding overseas, my opening remarks will focus on the crisis in Japan. And I have additional information on the fiscal year 2012 budget that I have submitted for the record.

Of course, I'd be happy to answer questions on those matters. But I'll focus my testimony on the situation in Japan.

I would first like to offer my condolences to all those affected by the earthquake and tsunami in Japan over the last few days. My heart goes out to those who have been dealing with the aftermath of these natural disasters.

I want to publicly acknowledge the tireless efforts, professionalism and dedication of the NRC staff and other members of the federal family in reacting to the events in Japan. This is just another example from my six-and-a-half years on the commission of the dedication of the NRC staff to the mission of protecting public health and safety.

The American people can be proud of the commitment and dedication within the federal workforce exemplified by our staff every day. While the NRC regulates the safe and secure commercial use of radioactive materials in the United States, we also interact with nuclear regulators from around the world.

Since Friday, the NRC's headquarters' operations center has been operating on a 24-hour basis to monitor events unfolding in nuclear power plants in Japan. Since the earthquake hit northeastern Japan last Friday, some reactors at the Fukushima No. 1 plant have lost their cooling functions, leading to hydrogen explosion and rises in radiation levels.

Eleven NRC experts on boiling-water reactors have already been deployed to Japan as part of a U.S. International Agency for – International Development (ph) team. And they are currently in Tokyo.

Within the U.S., the NRC has been coordinating its efforts with other federal agencies as part of the government response to the situation. This includes monitoring radioactive releases and predicting their path. Given the thousands of miles between Japan and the United States,

Hawaii, Alaska, the U.S. territories and the West Coast, we are not expected to experience any harmful levels of radioactivity.

Examining all available information is part of the effort to analyze the event and understand its implications both for Japan and the United States. The NRC has been working with several agencies to assist – to assess recent seismic research for the central and eastern part of the country. That work continues to indicate that the U.S. nuclear facilities remain safe. And we will continue to work to maintain that level of protection.

U.S. nuclear power plants are built to withstand environmental hazards, including earthquakes and tsunamis. Even those plants located outside of areas with extensive seismic activity are designed for safety in the event of such a natural disaster.

And the NRC requires that safety-significant structures, systems and components be designed to take into account the most severe natural phenomenon historically reported for the site and surrounding area. The NRC then adds a margin for error to account for the historical data's accuracy.

This basically means that U.S. nuclear power plants are designed to be safe based on historical data from the area's maximum credible earthquake. And the NRC remains attentive to any information that can be applied to U.S. reactors. Our focus is always on keeping plants in this country safe and secure.

As this immediate crisis in Japan comes to an end, we will look at whatever information we can gain from the event and see if there are changes we need to make to our own systems. Within the next few days, I intend to meet with my colleagues on the commission on the current status, and to begin a discussion of how we will systematically and methodically review information from the events in Japan.

In the meantime, we continue to oversee and monitor plants to ensure that the U.S. reactors remain safe. The NRC will continue to monitor the situation and provide updates via press releases and our public blog. The NRC also stands ready to offer further technical assistance as needed. We hope that this situation will be resolved soon so that Japan can begin to recover from this terrible tragedy.

I would like, if possible, to give you a brief update on what we believe the current status of the reactors in Japan is. There are essentially four reactors that we are currently monitoring as best we can. They are all at the Fukushima No. 1 site. Three of those reactors were operating at the time of the earthquake and were shut down following their normal procedures.

We believe that in general for these three reactors, they have suffered some degree of core damage from insufficient cooling caused ultimately by the loss of off-site power and the inability of the on-site diesel generators to operate successfully following the tsunami.

We also believe that for these three reactors, that sea water is being injected with reported stable cooling. The primary containment is described as functional.

Now, I would note that for unit No. 2 at this site, we are – we believe that core cooling is not stable. But also for that site, we believe at this time that primary containment is continuing to function. I would also note that for unit No. 2, we believe that the spent-fuel pool level is decreasing.

For unit No. 3, we believe that the spent-fuel pool integrity has been compromised, and that there has perhaps been a zirc-water interaction.

Now, in addition to the three reactors that were operating at the time of the incident, a fourth reactor is also right now under concern. This reactor was shut down at the time of the earthquake. What we believe at this time is that there has been a hydrogen explosion in this unit due to an uncovering of the fuel in the fuel pool.

We believe that secondary containment has been destroyed and there is no water in the spent-fuel pool. And we believe that radiation levels are extremely high, which could possibly impact the ability to take corrective measures.

For the two remaining units at this site, we have an IAEA report that the water level was down a little bit in this spent-fuel pool as well. And for the final reactor, we don't have any significant information at this time.

Recently, the NRC made a recommendation that based on the available information that we have, that for a comparable situation in the United States, we would recommend an evacuation to a much larger radius than has currently been provided in Japan. As a result of this recommendation, the ambassador in Japan has issued a statement to American citizens that we believe it is appropriate to evacuate to a larger distance up to approximately 50 miles.

The NRC is part of a larger effort that continues to provide assistance to Japan as requested. And we will continue our efforts to monitor the situation with the limited data that we have available. So that provides a general summary of where – of where the incident stands.

And with that, I would end my testimony and be happy to answer questions you may have. Thank you.

REP. WHITFIELD: Well, Commissioner, thank you. We appreciate your being with us this afternoon. In the earlier question-and-answer period with Secretary Chu, the gentleman from Massachusetts, Mr. Markey, had referred to a finding by Mr. John Ma – I believe is his last name – in a – relating to the AP1000 design.

And he had indicated that Mr. Ma had some serious reservations about the design. And I was just curious: Have you all had the opportunity to review his concerns? And have you come to any conclusions about that?

MR. JACZKO: We have done a very thorough review of the AP1000 design relative to a large number of safety issues. As part of that review process, we have had a vibrant discussion

among the members of the NRC staff. We have thoroughly reviewed as part of that discussion the concerns by one of our staff members that you indicated. And we believe based on a thorough analysis that that design going forward can be – can be acceptable.

It is right now in a process of additional review. It is right now out for public comment, essentially. We do our designs almost like a regulation. So we allow them to be commented on by the public. And so we're at that stage in the process of that review.

But the concerns, while we believe, would certainly enhance the safety of the design, we don't believe at this time that they're necessary to meet our strict regulations.

REP. WHITFIELD: Right. Well, thank you for that comment. I just wanted to follow up on that. Of course, as a result of what's happened in Japan, the focus is on safety as it relates to nuclear. And I believe this is a safe industry over – historically, it's been a safe industry.

And I know that in France, in Japan and many other countries, a large percentage of their electricity comes from generation by nuclear. In the U.S., it takes – and you can correct me if I'm wrong, because I may be – but it takes roughly 10 years or so to obtain permitting for a nuclear plant. Is that – am I in the ballpark when I say 10 years, or not?

MR. JACZKO: Well, I think right now the process has taken, I would say, closer to about five years right now to go through the permitting. Now of course, we're not finished. But we are getting nearer to the end of our reviews. And I like to think about this in a way like when I went to college. You know, everybody goes to college with – people go to college with the intent to graduate in four years. But as you go through that process, you take your classes. If you do well, you have a chance to get done in four, sometimes a little bit – a little bit sooner. Some people take a little bit longer time, depending on how things go.

So as we continue to work with the – with the licensees, or the applicants, we've, I think, improved our understanding of how to make the process work effectively and efficiently. So right now, this has been the first-of-a-kind effort in something we haven't done in a long time. And it involves a new process.

So I would say at this time, I think we're moving at a relatively effective pace, but again, keeping our focus first and foremost on safety.

REP. WHITFIELD: And in your testimony, you did say that you evaluated these permit applications for seismic as well as tsunami-type activities. Correct?

MR. JACZKO: That's correct. We review all designs against a wide range of natural disasters: tsunamis, earthquakes, tornados, hurricanes. It just depends on the geographic location.

REP. WHITFIELD: Right. Well, with all the publicity surrounding Japan right now, everyone, as I said, is certainly focused on safety – and we do certainly think about the Japanese people, but with more focus on safety.

I'm not a nuclear engineer, but I know that there is some technology based around sodium-cooled reactors. And I've been told that sodium-cooled reactors, that there is not a possibility of a meltdown, and that these are smaller-type plants – maybe 50 (megawatt) to 100 megawatt plants. And I was wondering if you wouldn't mind commenting on that technology of sodium-cooled technology.

MR. JACZKO: Well, we don't currently have any specific applications in front of us for a sodium-cooled design. I would say it's a – it's a different type of technology than what we currently have operating in this country. And it – as a result, it presents its own challenges when it comes to safe operation.

But I wouldn't want to speculate too much on what those kinds of challenges are because we really haven't gone through the specific review of one of these. But in general, with a smaller reactor, a large – a smaller energy output, usually the risks are lower because you just have a smaller amount of radioactive material.

But as I said, the sodium reactors do present slightly different technical challenges because of the way that they operate: The sodium has to be maintained in a liquid form. And there are – there are different types of risks and hazards that you would have on that type of design.

REP. WHITFIELD: But that technology, I guess, was developed in United States at one point. And there are some countries that evidently have at least some of these plants in operation. Is that your understanding?

MR. JACZKO: Yeah, that's my understanding. But we don't currently have any licenses operating in the U.S.

REP. WHITFIELD: OK. Well, thank you very much. My time has expired. I'd like to recognize the gentleman from Illinois, Mr. Rush, the ranking member.

REPRESENTATIVE BOBBY L. RUSH (D-IL): I want to thank you, Mr. Chairman. And Chairman Jaczko, it's good to see you. And welcome to the committee.

I'm going to get my Japan question in first. And the crisis in Japan is first and foremost on the mind of many of my constituents in Illinois for a real specific reason: We've got more reactors in Illinois than any other state.

And my constituents are asking a simple question. And that question was summed up in a Fox – (inaudible) – news headline published on Sunday: Should Illinois be worried about its nuclear plants? And before you answer the question, I want to also note that Illinois lies within the New Madrid earthquake zone. How do we know – we do not have to worry about tsunamis. But what assurances can we give to the people in my state, who has the highest concentration of nuclear reactors that also sits on an earthquake zone?

And in your answer, would you please speak to the possibilities and to the effect that a tornado – we are in a tornado zone – that tornados could have on nuclear reactors?

MR. JACZKO: Well Congressman, at the NRC we focus every day – the dedicated women and men at the NRC work every day to make sure that nuclear power plants in this country continue to operate safely.

All the nuclear power plants that are in the United States are reviewed against a very significant standard for seismic activity. We take what is – what we can find out from the historical record, from looking at the rocks and the geology and the seismology. We try and determine what we think is the largest earthquake that can happen in an area.

And from that, we do an analysis of what kind of effect we think that will have on the power reactor – namely, how much will the building shake or what kind of forces will it – will it feel. And we require that the nuclear power plants can withstand that kind of event. And we actually go a little bit larger than that just to make sure there's any uncertainties in our analysis (ph).

So that's a part of what we do for every reactor in the country, whether it's in the Midwest – of course, the seismic activity may be different in that part of the country versus another part of the country.

REP. RUSH: Yeah. It seemed to me, though, in Japan, it wasn't just the earthquake that caused the problem, it was the tsunami that really caused the problem. And my question in that – my question is in terms of a tornado.

MR. JACZKO: We look at tornados as well. We actually look at all natural phenomenon: hurricanes, tornados, earthquakes, tsunamis. Although as you indicated, some sites in the country don't experience all of those phenomenon. But we look historically to make sure we've captured all the natural phenomenon that occur.

So in Illinois, we certainly would examine the impacts of tornados and other extreme weather events in Illinois.

REP. RUSH: OK. And it seems to me – I asked this question of the secretary this morning – that the number one threat to nuclear facilities in this nation is terrorist actions and activities and acts. So can you speak to the – how are the – is the NRC handling the threat of terrorists?

MR. JACZKO: Well, we have a very robust program that requires nuclear utilities to ensure that they can protect their plants against terrorist-type attacks. That includes a very strong program to do exercises once every three years to actually participate in a – in a mock terrorist attack on the facility. And we observe that and oversee that and ultimately use that as a way to – (inaudible, cross talk).

REP. RUSH: Once every three years?

MR. JACZKO: Once every three years. In addition to that, we do conduct our normal inspections at the facilities to make sure that all the security systems are in place and operating effectively.

And I would add that in addition, following September 11<sup>th</sup>, we required all of the nuclear power plants in this country to look at some of the more severe kinds of impacts and effects you could get at a nuclear power plant from a terrorist attack or other types of severe natural phenomenon.

And as a result, we require –

REP. RUSH: My time is almost over. And I just want to – I'm headed to – on Friday, I'm headed to Dresden to tour the generator station there in a rural county – Grundy, Illinois, and Northern Illinois. And I'm going to be there with some of your resident inspectors on location there. So I'll give them your regards.

MR. JACZKO: Well, good. Well, I appreciate that. And we're very fortunate to have some very fine people at our power reactors overseeing them.

REP. WHITFIELD: At this time, I'll recognize the gentleman from Illinois, Mr. Shimkus, for five minutes.

REPRESENTATIVE JOHN SHIMKUS (R-IL): Thank you, Mr. Chairman and welcome, Mr. Jaczko. When the licensing board return its decision denying the Department of Energy motion to withdraw its Yucca Mountain application?

MR. JACZKO: I believe that was earlier in the – end of June, end of June – thank you.

REP. SHIMKUS: Isn't true that all commissioners participating in the decision-making relating to the license board decision have already filed votes on that matter, including you?

MR. JACZKO: We have filed what I would consider to be preliminary views that we exchange among our colleagues on the commission. Those are views that we use, then, to inform our final decision-making.

REP. SHIMKUS: So you're saying you have not filed votes?

MR. JACZKO: We have not come to a final decision at this point.

REP. SHIMKUS: When – so it's your position – you have not filed final votes.

MR. JACZKO: That is correct. We have not reached a final decision on our – unlike perhaps here, you're familiarity with voting, I would consider votes to be more akin almost to prepared statements and remarks of members of the commission. The practice of the

commission is to circulate those prepared remarks on any of the things that we do and then based on those circulated views, we work to see if there's a majority position.

REP. SHIMKUS: So you're saying, then, on October 29<sup>th</sup>, 2010, there wasn't final votes cast by all commissioners?

MR. JACZKO: On October 29<sup>th</sup>, believe we had all prepared our final – we had prepared our written statements that we circulated amongst us.

REP. SHIMKUS: So those written statements are considered votes?

MR. JACZKO: They are considered votes, but they are not the final decision of the commission.

REP. SHIMKUS: Okay, so since you have written statements that are considered votes, when do you plan to schedule a commission meeting?

MR. JACZKO: We will have a meeting an issue an order when we have, per statute, a majority position.

REP. SHIMKUS: And so you have these statements. They're considered votes, but you don't have a majority position?

MR. JACZKO: Correct. As I indicated, the terminology here, I think, is unfortunate. These votes are not, as I said, the final statement of the commission. In an adjudicatory matter, which is what this is, a formal hearing that we issue, the final statement of –

REP. SHIMKUS: Is there a minority decision already rendered by commissioners?

MR. JACZKO: There is no decision by the commission at this point.

REP. SHIMKUS: By the chairman?

MR. JACZKO: There is no decision by the commission.

REP. SHIMKUS: Was the NRC decision to close out Yucca review and hearing activities yours alone or one made by the full commission?

MR. JACZKO: That was a decision that I made as chairman of the agency, consistent with the budget that was prepared by the commission – (inaudible, cross talk).

REP. SHIMKUS: Okay, but let me ask you this question: What was your legal authority to do so?

MR. JACZKO: My legal authority was as chairman of the commission. And it was – the decision was fully consistent with appropriate law.

REP. SHIMKUS: No, I think your position is the budget zeroed it out, but I – I would beg to differ that you had the legal authority to do that.

MR. JACZKO: I would respectfully disagree with you on that.

REP. SHIMKUS: Well, I think we will review that and follow up.

MR. JACZKO: And I would add, if I could, that following that decision –

REP. SHIMKUS: I mean you wouldn't do anything that would be illegal, would you?

MR. JACZKO: Of course I wouldn't. Following – following the decision to begin the closedown activities of the Yucca Mountain project –

REP. SHIMKUS: Begging to differ, I think it's a stated federal position by law that Yucca Mountain should be open. That's the legal authority. There's no legal authority to close Yucca Mountain. The only authority that's been rendered is the administration, in compliance with Majority Leader Reid to pull funding. But there's no legal authority to close Yucca Mountain, by law.

MR. JACZKO: As I indicated, our action is consistent with all appropriate – appropriations law and any other statutes that we have.

REP. SHIMKUS: I would – you better – you better be double-checking your facts because we're not through with this debate on legal authority and I hope you're well-prepared. We had been told that the courts may not rule on whether or not the commission's position is legally defensible until the full commission takes a position. But you seem to be preventing that vote from occurring. If the court runs out of patience and does rule, will you abide by the court's decision and act promptly to carry it out?

MR. JACZKO: The agency will act according to any legal decision by the courts or any act of Congress.

REP. SHIMKUS: Thank you, Mr. Chairman, I yield back.

REP. WHITFIELD: This time, I'll recognize the gentleman from California for – Mr. Green – for five minutes.

REPRESENTATIVE GENE GREEN (D-TX): Thank you, Mr. Chairman. Welcome, Mr. Jaczko and I know you're busy and I appreciate you coming back to our committee. And I know last week, you and I talked about the president's budget and the proposals that go back to FY '08 for your funding and we both expressed concerns about the layoff of hundreds of workers and particularly what happened in Japan. Obviously, this is not the time to go after our Nuclear Regulatory Commission. So I share that and hopefully, that message will get to the folks.

Let me talk about a local issue because I think all politics is local and what's happening in Japan. Texas has one proposed nuclear plant that's pending at the OMB. And they're receiving their funding from CPS Energy, NRG and Tokyo Electric Power Company, which presents part of the problem. One of the sites experienced problems – they own one of the sites that's experiencing the problems in Japan.

And so knowing what may happen with their potential investment, CPS Energy and NRG have announced they have trouble finding new investors. Again, part of it's the market. We have low natural-gas prices and for someone to buy into a long-term investment of nuclear power, which our country needs, but we may not be able to get the investors.

Can you talk about the review process for new plants like Texas and how long NRC and OMB process is taking? It seems like I've worked on the congressional side, now, for a number of years to get the expansion at the South Texas plant that's just southwest of Houston and just some information on how long it took, for example, for that expansion that goes through both your process and the OMB.

MR. JACZKO: Well, right now, the South Texas Project was one of the first applications that we received for new licensing. That project – the review that we do for that project will be focused, for sure, on safety and security. That's always our primary focus. We're continuing to do that review. We're nearing some significant milestones as we work to complete the actual design reviews for that type of reactor.

That design review, right now, is out for public comment as part of our process and we anticipate having that back in and working to resolve the comments over the summer. If we resolve those comments in a successful way, then we would move forward with completing the final reviews that are necessary, possibly, perhaps by – within – within 12 months or so. But we – as I said – I want to reiterate. Our focus, fundamentally, is first and foremost, is on the safety and security of these designs.

REP. GREEN: When you said it was one of the first applications, can you tell me the time frame when that was filed?

MR. JACZKO: It was approximately, I believe, 2007. However, we immediately or within several months, had to suspend our review because the applicant in that case made a change in the vendor that they were using to support the design. So that took about a year, a year-and-a-half to work through that particular issue on the part of the applicant.

REP. GREEN: I know the concern, literally for the whole world and particularly for our own country, if what we're doing – making sure we're learning from what's happened to Japan. And I understand the south – the Texas plant southwest of Houston has actually three safety backup systems instead of two.

And it's my understanding that Texas emergency power sources are separate and watertight. We don't have a problem on the Gulf Coast with you know, tsunamis or earthquakes. We do have a hurricane every once in a while and tornados. But I understand that they have

watertight concrete buildings that would withstand a hurricane or storm surges and even earthquakes.

But like I said, I don't think in geological time we've had an earthquake along the Gulf Coast. Our soil's too soft. But the – the agency actually looked at that plant and all the applications, like you said, for safety.

MR. JACZKO: That's correct. We look at all the plants for a variety of natural phenomena and on the Gulf Coast, that can include seismic activity, hurricanes and other types of events. And we do have some analyses to look at tsunamis along the Gulf Coast and portions of the Atlantic Coast. Those wouldn't be expected to be tsunamis that are the same magnitude as ones we could see in –

REP. GREEN: Those have particular plants about 11 miles inland. It's not right on the coast. I know there've been technological advances and I'm almost out of time, but sometime, I'd like if your staff could present – provide to the committee separately some of the technological advances in the current and proposed plants in the United States as compared to, for example, what's happened in Japan with the tsunami and also the earthquakes.

MR. JACZKO: We can certainly provide that.

REP. GREEN: Thank you. Thank you, Mr. Chair.

REP. WHITFIELD: The gentleman from Michigan, Mr. Upton, is recognized for five minutes.

REPRESENTATIVE FRED UPTON (R-MI): Thank you, Mr. Chairman. And again, Mr. Chairman, we welcome you here today. And I just want to say a couple things at the beginning. First of all, I certainly did appreciate our meeting that we had several weeks ago. I know we both discussed Yucca. We may have a different view, but we're going to have ample time in Mr. Shimkus' subcommittee with all the commissioners sometime this spring to fully talk about that and ask a good number of questions.

As you know I'm – as you do – we both support safe nuclear power. We both support appropriate and rigorous oversight of all of our 104 sites around the country. I'm – and I, too, appreciated the visit that I paid to the NRC several years ago and viewed, firsthand, the NRC operations center and looked in, in terms of your day-to-day activities to make sure that things are safe.

Could you tell us what, specifically, the functions are of the 11 folks that you've sent to Japan and what they're doing? And they're reporting back to you and some of the information you might have received?

MR. JACZKO: The 11 individuals that we have in Japan are providing a variety of services. They are helping to organize the look at the reactors, the nuclear look at the reactors and helping to provide a good, coordinated team to provide assistance to the embassy in Japan.

REP. UPTON: So does Japan have a similar operation like we have in terms of the operations center that I visited in Maryland there?

MR. JACZKO: It's my understanding they do, but I'm not terribly familiar –

REP. UPTON: But they're in Tokyo, right? They're not at the Fukushima site?

MR. JACZKO: Our staff is in Tokyo, working to interface with their counterparts in the Japanese nuclear regulatory authority.

REP. UPTON: And as you announced that you had urged – our ambassador now has urged all Americans to move at least 50 miles away. What reaction have you – did you receive from your counterparts in Japan and the government there?

MR. JACZKO: I'm not familiar of any reactor –

REP. UPTON: But that's a recent – I mean that announcement was made very shortly, right?

MR. JACZKO: It was made like an hour ago – about 45 minutes ago.

REP. UPTON: You talked about the four different reactor vessels and the status of the four. Do you know where the hydrogen explosion was in the fourth reactor?

MR. JACZKO: At this point, we don't know that kind of specific information, but we believe that there was a hydrogen explosion at some point, likely because the spent fuel in that reactor has lost its cooling and at some point, then, was producing some degree of hydrogen. And that ultimately accumulated and led to an explosion.

REP. UPTON: And was that explosion today? U.S. time? Today?

MR. JACZKO: No, it occurred several days earlier. We can get you the exact date and time as we – as we know it.

REP. UPTON: Okay. As it relates to your budget – remember, that was the original ask for you to be here today – what is your budget for safety oversight as part of the NRC?

MR. JACZKO: The number we have – the bulk of our budget, probably about three-quarters of our budget goes to the reactor safety work, about 77 percent. So it's slightly over – approximately \$800 million.

REP. UPTON: So does that include the personnel because I've visited my two sites in my district and I'd welcome you and although you indicated a willingness to come out, but on all of my visits, I've always stopped to say and welcome the oversight of your staff that's been there.

MR. JACZKO: Yeah, most of our budget does go to our staff. We have – mostly salaries and benefits. We have a small portion of our budget that's contracting dollars, but the bulk of it, about 80 percent, is the – I'm sorry, it's about 60 percent is the salaries and benefits of the staff.

REP. UPTON: And do you have any reason to believe that your proposed budget is not adequate to assess and monitor the nuclear power plant safety systems? I mean do you feel that it fits the bill?

MR. JACZKO: At this time, we believe it is – it's a sufficient request that will allow us to do the work we need to make sure the plant stays safe. The only caveat I would add is if as we continue to review the situation in Japan, it becomes apparent that we would need additional resources to address issues related to the situation in Japan, then we would perhaps have to come back and ask for additional resources for that.

REP. UPTON: Well, I was going to ask you if you thought you were going to need – will you be able to determine that within the next couple of weeks?

MR. JACZKO: I intend to meet with the commission within the next several days and begin looking at the kinds of questions we have to answer and I think that will be one of the first. But first, we want to kind of systematically figure out what it is that we need to look at and what are the important sources of information.

REP. UPTON: But you don't really have a reserve cushion today to do that, is that right – for fiscal year 2011.

MR. JACZKO: At this time, I would say we don't necessarily have that. But again, I'd like to take a look at that first before I make any conclusions.

REP. UPTON: Okay, well, again, I appreciate your willingness to be up here on a day – as tough as it is today to – and we appreciate your answers and look forward to working with you on a host of issues. Thank you. I yield back.

REP. WHITFIELD: I recognize the gentleman from California for five minutes, Mr. Waxman.

REPRESENTATIVE HENRY WAXMAN (D-CA): Thank you, Mr. Chairman. Mr. Jaczko, you've described a pretty dire situation in Japan. I want to ask you about this. An official from the European Union today used the word "apocalypse" to describe the potential damage that could occur in Japan. What is your reaction to this comment? Could Japan be facing widespread devastation from a nuclear meltdown or a radiation release?

MR. JACZKO: Well, I don't really want to speculate too much at this point on what could happen. I think people are working really, very diligently to try and address the situation. It is a very serious situation, without a doubt and that's part of the reason why I thought it was

important for the agency to make the statement it did that we thought in a comparable situation in the United States, we would have issued evacuation instructions to a larger distance away from the plant. So it is a very serious situation and efforts are ongoing to try and resolve it. But it will be some time, I think, before it's finally resolved.

REP. WAXMAN: Well, you said that you're recommending an evacuation of U.S. citizens within 50 miles. What are the risks that are causing you to make this recommendation?

MR. JACZKO: Well, it's based on an assessment of the current conditions of the site. Because of the damage to the spent fuel pool, we believe that there's very significant radiation levels likely around the site.

And given that the reactors, the three reactors that were operating – given that they are operating with a – more of a backup to a backup, if you will, safety cooling system, if anything goes wrong with that, it would be very difficult for emergency workers to get into the site and perform emergency actions to help maintain that cooling.

So there is the likelihood that the cooling functions could be lost and if they are lost, it may be difficult to replace them and that could lead to a more significant damage to the fuel and potentially some type of release. So as a prudent measure with a comparable system situation here in the United States, we would likely be looking at an evacuation to a larger distance.

REP. WAXMAN: So it is the – is it the spent fuel problem in this Unit 4 where there's water covering the fuel rods – is that the greatest concern you have at the moment?

MR. JACZKO: Well, I think it's all of the factors together, really. It's the combination. And so you know, there's the possibility of this progressing further. And so as I said, in this country, we would probably take the prudent step of issuing evacuation to a larger distance.

REP. WAXMAN: High levels of radiation are being released from the pool – is that right?

MR. JACZKO: We believe that around the reactor's site, that there are high levels of radiation. Again, we have very limited data so I don't want to speculate –

REP. WAXMAN: And what would be the significance of that?

MR. JACZKO: The significance would – well, first and foremost, it would mean that it would be very difficult for emergency workers to get near to the reactors. The doses that they could experience would potentially be lethal doses in a very short period of time. So that is a very significant development and largely, is what prompted the agency to make the statement that it did.

REP. WAXMAN: And if they can't – if the emergency workers cannot get in there because of the danger to themselves, what would be the possibility, then, to deal with this problem of the spent fuels?

MR. JACZKO: Well, again, I don't want to speculate too much because again, we don't have direct information about the conditions on the ground. But it's certainly a difficult situation and one that needs to be addressed.

REP. WAXMAN: Well, you describe serious risks at these facilities. Can you describe what you think are the highest risks and why?

MR. JACZKO: At the sites in Japan?

REP. WAXMAN: Yeah. I think right now, as I think has been the situation from the beginning, the efforts are to continue to keep the reactors cool – the three reactors that were operating at the time of the earthquake. And that is, right now, being done with a variety of different systems. And again, in more a nontraditional way because they have lost a lot of their electrical power and their off-site power capabilities.

In addition, the other risk is really to the spent fuel that may be in the spent fuel pools for possibly up to six of the reactors at the site. So keeping those pools filled with water and keeping that fuel cool is also, then, the primary concerns.

REP. WAXMAN: And what's the significance of the report of a crack in the unit itself, in the containing – the containment unit?

MR. JACZKO: I want to be clear. Certainly, the indication that I was referring to was a crack, possibly, in the spent fuel pool on one of the other units. And the significance of that would be if there is a crack, then there's the possibility of water draining from that pool and perhaps an inability to maintain the appropriate level of water in the pool, which could lead to a damage of the fuel in that pool.

REP. WAXMAN: What would you say is the best case now for Japan and what do you think might be the worst case?

MR. JACZKO: Well, I think – certainly, the efforts are to continue to provide cooling of the reactors and to do everything possible to provide cooling to the spent fuel pools. Again, I don't want to speculate on what could happen because you know, it is a very dynamic situation and there are – you know, certainly a lot of efforts that are being undertaken with efforts of the U.S. government, in particular.

I want to emphasize that this is really a U.S. government response. The NRC is playing one small part, but other assets have been located from other parts of the U.S. government and are being provided to help provide this cooling and do what we can.

REP. WAXMAN: Thank you very much.

REP. WHITFIELD: The gentleman from Texas, Mr. Barton is recognized for five minutes.

REPRESENTATIVE JOSEPH BARTON (R-TX): Thank you, Mr. Chairman and thank you, Chairman, for being here on what's obviously a very difficult day for you. You may have answered some of these questions before or you may have even commented on them in your opening statements so I apologize if I ask something that has already been addressed.

My understanding is that the systems at – the safety systems at the power plants or the reactors in Japan are an older technology that requires an active backup and that the licenses that you're reviewing now have a different system that is a passive backup, i.e. if something happens catastrophic, the system automatically shuts itself down and the cooling system can perpetuate itself without outside power. Is that correct?

MR. JACZKO: Well, I wouldn't necessarily want to comment too much on the Japanese sites because I'm not – their designs are a little bit different from the designs we have that are similar in this country. But we are reviewing new reactors that do operate on what they call a passive cooling system.

It is not all of the designs that we're reviewing, however. It's only two of the designs that we're looking at, but –

REP. BARTON: Well, my understanding is that there's – and correct me if I'm wrong, that there's one new nuclear power plant under construction and that's the Southern Company facility in Georgia and that their safety system is a passive safety system that if you were to – of course, you won't have a tsunami in Central Georgia, but you could have an earthquake.

And if there were to be an earthquake, that it would automatically shut itself down without outside intervention and the coolant is a gravity-flow cooling system that perpetuates itself, again, without any outside power. Is that correct?

MR. JACZKO: That is correct. The system that is used for that particular design, which is the AP1000 does essentially rely on gravity to initiate circulation of water through the reactor and then naturally circulate based on the heat flow. It will circulate without the use of off-site power. However, there are other safety systems that do rely on the off-site power.

REP. BARTON: But we could say, in the instance of the one new plant that's currently under construction, what happened in Japan, assuming the construction of the plant is robust enough that the containment is not destroyed by the earthquake, that in terms of cooling the reactors and shutting down the reactors, they would be shut down and they would stay cool.

MR. JACZKO: Well, again, I wouldn't necessarily want to speculate on everything. We don't really know what happened in Japan. We obviously know there was an earthquake. We know that there was a tsunami. We know a lot of safety systems haven't functioned as would be needed. So you know, at this point, I don't really want to speculate on how that applies to any U.S. facilities until we have a chance to really do a methodical and systematic –

REP. BARTON: I'm not asking you to speculate on what happened in Japan. I'm asking, specifically, if an earthquake hit the power plant in Georgia, based on your agency's review of their safety design, would it withstand that earthquake?

MR. JACZKO: All of the plants that we've licensed and all of the plants that we are currently reviewing will meet strict safety standards for earthquakes and other natural phenomena. So certainly, for the existing plants, we believe absolutely that they can withstand an earthquake and they can meet the high standards that we've put in place. In the new plants, we're still continuing our review. We haven't completed our review, so I don't want to – I don't want to prejudge the outcome of that by making any final determinations.

REP. BARTON: Okay. But you are allowing this plant in Georgia to be constructed. So you've approved something.

MR. JACZKO: It's a preliminary approval for a limited amount of construction activity that's not related to the most safety-significant systems at this time.

REP. BARTON: Now, in general, for each plant in the United States, regardless of where it's located, does it have a minimum safety requirement to withstand an earthquake?

MR. JACZKO: That's true. All the plants have a requirement to be designed to deal with the kinds of earthquakes we would expect in about a 200-mile radius from that nuclear power plant.

REP. BARTON: Now, obviously, if a plant is in an area that's more prone to earthquakes, it might have a higher requirement than a plant that's in a location that's never had an earthquake in 500 years, but they all have to withstand some base-case earthquake design criteria.

MR. JACZKO: That's correct. They all have to withstand what we think is the maximum expected earthquake from the historical record within about 200 miles of that site.

REP. BARTON: Now, I'm told that the earthquake that hit Japan is order of magnitude, the fifth most powerful, ever-recorded anywhere in the world. So that's obviously a very powerful earthquake. In the United States, is the design criteria currently for that level of an earthquake that would be – say the standard the earthquake that hit San Francisco in 1906?

MR. JACZKO: Would like me to answer?

REP. BARTON: I would like you to answer. (Laughter.)

MR. JACZKO: I think it's important – I want to try and give a demonstration. I think we – we talk a lot about the magnitude of the earthquake and that's not really what the NRC looks at. If I – if you look at the cup of water that I have over here and you think of that as the nuclear reactor, the earthquake would be – I probably shouldn't fill up the water glass.

REP. BARTON: This is going to make TV, so do it right. (Laughter.)

MR. JACZKO: I practiced it before I started, so – so if you think of this as the nuclear power plant, the earthquake and when you talk about the magnitude of the earthquake, it would be like me hitting the table with my first. So something like that. And you'll see that it makes the glass over here vibrate.

That's what we actually measure and we design our nuclear power plants around is that shaking of the power plant. So the actual impact depends upon where I hit in relation to the glass. So you have a large earthquake like this that's very far away, may not have the same impact on a site as an earthquake that's maybe a little bit less but much closer, so something like that.

So we actually worry more about – we look at all of the different earthquakes that could happen in this region and we look at what that shaking is and we make sure that that shaking can handle what we think are the maximum historical earthquakes in that region. Now –

REP. BARTON: No, go ahead. Summarize.

MR. JACZKO: (Chuckles.) In addition to that, we know that we don't always know everything. So we've done a lot of studies over the years to look at earthquakes and phenomena beyond that kind of design earthquake and we've had the plants go back and look and see if there are things that they could do to ensure that they would be able to better withstand some possible earthquake that nobody's thought of or seen at this point.

And so we have what we call severe accident programs that all of the utilities have where they have procedures and they have ability to mitigate that kind of more severe event that may not ever have occurred in a particular region. So it's a multilayered system of defense. And if I could just briefly summarize one other point.

In addition to that, following, September 11<sup>th</sup>, we required all of the nuclear reactors in this country to pre-stage equipment that can perform this emergency last – kind of – ditch effort cooling to the reactor and the spent fuel. And that's a – that's a variety of procedures and different types of equipment that are required to be at the reactor sites. And we've inspected the reactors to make sure that they have that. So you know, that gives you another level of defense beyond really just what the design of the reactor is.

REP. BARTON: Thank you and thank you for the chair's courtesy in letting him answer that question.

REP. WHITFIELD: The gentlelady from California is recognized for five minutes.

REPRESENTATIVE LOIS CAPPAS (D-CA): And Mr. Chairman, if you wouldn't mind granting me a little consideration – I represent Diablo Canyon nuclear facility and I have three packed questions, but something was stated earlier that I believe needs to be clarified just for the record. If I could ask the chairman, in addition to thanking him for his testimony, did you say

that Unit 4 in Japan, in the incident there, that there was no water in Unit 4 surrounding the spent fuel and that Unit 3 was in danger of losing the water source?

MR. JACZKO: We believe, at this point, that Unit 4 may have lost a significant inventory, if not lost all of its water.

REP. CAPPS: And that Unit 3 is in danger?

MR. JACZKO: Well, I would say what we know at Unit 3 is that there's possibly – again, our information is limited, so we do – well, we believe that there's a crack in the spent fuel pool for Unit 3 as well, which could lead to a loss of water in that pool.

REP. CAPPS: Thank you. Diablo Canyon nuclear facility in my congressional district sits on the Hosgri fault zone. Then in 2008, the U.S. Geological Survey informed the utility that a new fault had been found near Diablo Canyon. It's called the Shoreline fault. You're well-aware about the California law requiring the energy commission to perform reviews of the seismic issues associated with our state's nuclear plants, I'm sure.

The energy commission recommended – and our state PUC directed that independent, peer-reviewed advanced seismic studies be performed prior to applying for re-licensure. So you think the NRC should take advantage of the talent, expertise and resources available in California so that all information on seismic issues could be analyzed with the goal of avoiding costly duplication?

MR. JACZKO: Well, we – ultimately, we have to make decisions, as an agency, based on the technical review that we, as an agency, do. And again, I can't get too far into some of these issues because we do have an ongoing hearing related to some of the very points that you've raised. So in our hearing process, we are prohibited from discussing those things outside the context of the commission.

REP. CAPPS: All right, I'll tell you what it seems to me and my constituents, that having the best eyes and minds in our country working together, looking at the seismic issues, makes the most sense. First and foremost, for my constituents, this is about safety. But seismic concerns also impact affordability and regional – reliable generation as well. So I hope that this issue can be revisited, not to take away from the responsibility and authority of the federal agency, but to work with other agencies. And I look forward to working with you as we go along in this area.

MR. JACZKO: Well, Congresswoman, if I could just briefly say.

REP. CAPPS: Sure.

MR. JACZKO: We actually did host a workshop within the last year, actually, that brought together a lot of these technical experts to have a discussion for the point that you said. We certainly are always open to hearing information from any technical expert that can provide information to us. So I just want to make the point that in the end, the decision-making has to come from our expert staff.

REP. CAPPS: Great. All right. Here's another question: My constituents have become increasingly concerned about the preparation for a station blackout event. If power is lost, they want to be assured that backup power will be available throughout the duration of an accident in order to prevent fuel melting.

In the last half-decade, both California reactors have been cited by you, by the NRC, for instances in which both backup diesel generators were down or there were problems involving battery power availability. In such instances, merely citations were given to the utilities. Should the NRC reevaluate its regulations and perhaps increase the penalties for such infractions in light of the accident in Japan as an incentive to force better compliance from the nuclear operators?

MR. JACZKO: Well, as I said, we intend to do a very systematic and methodical look at any lessons we can learn from this Japanese incident. And I certainly will keep your suggestion in mind as something for us to take a look at.

REP. CAPPS: Finally, I'd like you to address some safety issues in the event of an earthquake and a simultaneous accident at a nuclear plant. Diablo Canyon has a workable evacuation plan. They wouldn't be able to operate without one.

But as you may know, there's basically only one way in and out of San Luis Obispo, narrow Highway 1 along the coast. The NRC has ruled that it was non-credible that there could ever be multiple catastrophes such as an earthquake and a meltdown at the plant.

This is the quote from the NRC: "The commission has determined that the chance of such a bizarre concentration of events occurring is extremely small. Not only is this conclusion well-supported by the record evidence, it accords most eminently with commonsense notions of statistical probability." That's the end of their quote.

Now, we have just witnessed an earthquake, a tsunami and a nuclear meltdown all occurring in sequence. I want to ask the commission, if you would on my behalf, do they still believe the chance of this bizarre concentration of events is merely hypothetical? Do you think this decision should be revisited in light of the events in Japan?

MR. JACZKO: Well, I certainly will take your suggestion back to the commission. I would want to review that entire document in its entirety because certainly, we do – we do examine the possibility of earthquakes as an initiating event for a possible reactor problem. Of course, we believe we have systems in place that would, one, really prevent any kind of core damage from that, but two, if there is subsequent problems, we have mitigating strategies in other ways to cope with those. So I would just be happy to take a look at that document in its entirety.

REP. CAPPS: Thank you and just in conclusion, Mr. Chairman, you know, that's what they said two weeks ago, no doubt, in Japan as well. Enormous anxiety and sadness over the events that happened there. And here, we have seen in the past year, our three major sources of energy that this country uses, coal, oil and nuclear, all experiencing tragic accidents. And I do

look forward to working with you – your committee – your commission on the number-one goal of keeping our energy sources safe. Thank you.

MR. JACZKO: Thank you. And Congressman, if I could just add, of course, you understand we have not had any nuclear incidents in the last year in this country. The incidences were in other countries.

REP. WHITFIELD: The gentleman from West Virginia, Mr. McKinley, is recognized for five minutes.

REPRESENTATIVE DAVID MCKINLEY (R-WV): Thank you, Mr. Chairman. Does the NRC still have the authority, given – in light of what’s happened in Japan, I assume you still have the authority to grant the permits for continuing the design implementation of nuclear facilities?

MR. JACZKO: Certainly, the agency is an independent regulatory –

REP. MCKINLEY: Given – is there any delay or are you hearing anything that would set up – I would expect some extension might be necessary, but what would you suggest is a reasonable time frame for someone making an application?

MR. JACZKO: Well, as I said, I think the process of reviewing an application for a nuclear power plant’s a very complicated process and this is the first time we’re doing this, the first time we’ve done it in a long time. So I think there’s going to be some lessons that we learn, but the applicant and the agency. I’m sorry, I don’t want to get into kind of speculating how long or surmising how long I think it should happen. I would just say that, you know, we will do the thorough job we have to do to ensure safety of – (inaudible, cross talk).

REP. MCKINLEY: Do you have, given that this also is for budgeting, I haven’t seen – do you have some R&D money allocated for researching alternate uses for spent fuel rods?

MR. JACZKO: We currently, in our budget right now, have a significant amount of resources that we are using to look at spent fuel, the safety and security of spent fuel and transportation. We have a small piece of our budget that’s looking at reprocessing and developing a framework for reprocessing, which would be, perhaps, what you’re referring to as alternate uses.

REP. MCKINLEY: If you could send more to me, I’d like to know a little bit more about – and let’s go to the Yucca Mountain just for a moment. I don’t know whether it’s anecdotal or fact, but I know, of course, that the application has been withdrawn. But it was my understanding that consumers are still paying on their utility bills funds for that project. Is that accurate?

MR. JACZKO: I believe it is, although I would add that that’s not an area that the NRC has authority over.

REP. MCKINLEY: But is that accurate?

MR. JACZKO: I believe it is, but again, I don't follow that very closely other than generally what I read in the press.

REP. MCKINLEY: Okay, I'm just curious because if – from what I understand, we're collecting money for something that's never going to happen. You don't understand that. What about Shippingport? I think that was the first facility we had in this country, isn't it? Given – I think it was maybe – was that '65 – '63? When was Shippingport opened?

MR. JACZKO: I don't have the exact date of the initial license, but it was very early on in the U.S. nuclear program.

REP. MCKINLEY: In light of the circumstances and maybe you don't want to do a kneejerk reaction at all to this, but will you be looking at some of the older facilities to see what new technology – has Shippingport been upgraded all along?

MR. JACZKO: Shippingport is no longer an operating reactor.

REP. MCKINLEY: Is no longer in operation at all. So what happens when Shippingport goes out of operation – it goes out?

MR. JACZKO: Any of the reactors, when they go on a service are eventually decommissioned. We've decommissioned a large number of reactors in this country.

REP. MCKINLEY: Okay. There was also a story in the media that one of our naval vessels sailed through a cloud off Japan's – were you aware of that?

MR. JACZKO: Yes. We did have indications that in the early days of this incident, the reactor was going through a process that involves venting steam that accumulates in the reactor containment structure. And that steam needs to be released in order to reduce the pressures in that – in that containment vessel, which is one of the important – (inaudible, cross talk).

REP. MCKINLEY: Could that have been avoided – the ship going through that? Could that have been avoided?

MR. JACZKO: Well, my understanding was, they were performing activities to support search-and-rescue efforts in Japan, and that the doses that they were experiencing were from that particular plume, were not doses that would have a significant impact to health and safety.

REP. MCKINLEY: That's all I – and I yield back my time. Thank you very much.

REP. WHITFIELD: Thank you. This time, I recognize the gentleman from Massachusetts, Mr. Markey, for five minutes.

REPRESENTATIVE ED MARKEY (D-MA): Thank you, Mr. Chairman. Welcome. What interim safety measures are you going to require while you study the issue? In Germany, they're taking interim steps right now, as well as Switzerland, China, Venezuela. Are there any steps you would like to announce that you are going to take in order to ensure that the plants in our country are safe?

MR. JACZKO: Well, we – Congressman, we continue every day to make sure that the plants are safe. And at this time, we don't have any specific actions that we think are necessary to add to the safety of the facilities beyond what we do.

REP. MARKEY: Are there any interim advisories that you are going to send out? After 9/11, the NRC sent out some interim advisories. After Fukushima, are you – are you planning on doing that?

MR. JACZKO: We do intend to send out what we refer to as a regulatory information summary that will – that will generally characterize the event at the – in Japan. Again, at this point we don't have detailed information. But that will remind licensees of, of course, their obligations under their existing license – but as well as these additional measures that I talked about to these severe-accident-types of strategies, as well as the efforts that we implemented after 9/11 – to put in place these systems and procedures to ensure that they could provide emergency cooling to the reactor if necessary.

REP. MARKEY: Going back to the question which Chairman Whitfield asked you about Dr. Ma and his concern about the AP1000 design, you said in your – with your vote that “while it is clear that the use of ductile material in all areas of the shield building would provide an additional enhancement to safety, that I am not convinced that such a design requirement exists.”

After what's going on in Japan right now, would you reconsider that in order to, perhaps, consider adding that ductile material as part of the process – the construction of AP1000 plants?

MR. JACZKO: As I said, I think we'll do a very thorough review of the information from Japan. But we don't anticipate getting to a final decision on that design for at least until the end of the summer. So I think there'll be plenty of information from our review at that time to inform that decision.

REP. MARKEY: Yeah. As you know, I authored legislation in 2002 that required the distribution of potassium iodide to residents living within a 20-mile radius of nuclear power plants, based upon a Sandia study. Because we learned after Chernobyl that this cheap medication can prevent cancers caused by radioactive iodine.

The Bush White House ignored my language and blocked an effort by HHS to implement it. In fact, they even took away HHS' power to complete – to complete its KI distribution guidelines. The Obama administration has not implemented it even though the surgeon general has just said yesterday that she thought it was worthwhile precaution for West Coast residents.

Don't you think that this distribution of potassium iodide to residents within 20 miles of nuclear power plants is a common-sense measure that should be implemented?

MR. JACZKO: Well, the particular protective actions that would be issued for any nuclear power plant incident are ultimately the responsibilities of the state and local governments. They have that primary on-the-ground responsibility to decide how to deal with an accident. So –

REP. MARKEY: But the plants are licensed by the Nuclear Regulatory Commission, not by the states. You're the agency of expertise in terms of the spread of nuclear materials, not state officials. Do you believe that it is advisable to look at a 20-mile radius for distribution of potassium iodide?

MR. JACZKO: The current policy of the commission is that potassium iodide would be one of the protective action that could be considered within what we call our emergency –

REP. MARKEY: The Bush guideline was that for 10 (miles) to 20 miles, people should just stop running or ducking under their bed. Do you think that's – there is no other medicine. So is there – is there a recommendation from you that they should look at potassium iodide for the 10- to 20-mile radius?

MR. JACZKO: Again, I would, really in many ways, defer to state and local governments as they believe that that's appropriate. I think that there certainly are many protective actions that could be taken – (inaudible, cross talk).

REP. MARKEY: I just don't think that they have the expertise looking at the probabilistic risk assessment of the likelihood of an accident in terms of having KI there.

Now, the San Onofre reactor is also rated to withstand a 7.0 earthquake. Should we – should we be retrofitting those reactors to ensure that they can withstand much stronger earthquakes? The IAEA warned Japan two years ago that their nuclear power plants were not designed well-enough to withstand a strong earthquake, and they were only able to withstand a 7.0 earthquake. That's what San Onofre is designed to. Should we be looking at retrofitting of the San Onofre plant and plants like that?

MR. JACZKO: Well, as I said, the plants are actually designed to the ground motion and the shaking that you would get at any facility. And that's based on what we think are the most, or, well, what are really the – what's the maximum earthquake that's occurred in any particular area.

So it doesn't directly necessarily mean a 7.0 earthquake. It's what we think is the maximum credible earthquake. And I continue to believe that that's the appropriate standard for the agency. But again, we will – we will take a look at all of the information we have from Japan as that comes in. And if we have to make modifications to our requirements, we will.

REP. MARKEY: I would just hope that maximum credible earthquake would be re-examined after what's happened in Chile, New Zealand and Japan, that we'd be in the other part of that earthquake zone – that as you have to have an earthquake, and so that we do have the proper protections.

REP. WHITFIELD: The gentleman from Louisiana, Mr. Cassidy, is recognized for five minutes.

REPRESENTATIVE BILL CASSIDY (R-LA): Thank you, sir. Are you all – just from a – I'm a physician, so I'm going to speak about it and sound like a physician. In effect, there's going to be a post-mortem done on that accident. And folks are going to go in there and see what went wrong, and learn from it to ideally keep it from occurring again.

Now, are there going to be people from industry invited to that party, if you will, or to that post-mortem? Or it only will be academia and government? It seems all three need to be there. And so I don't think I've heard you mention having industry there to kind of – yeah, what do we do? Thoughts?

MR. JACZKO: Well, we haven't – we haven't yet decided how we'll go about our review. But I want it to be systematic and methodical. Those are the two words that I think are most important right now. And in our normal practice as an agency, we always reach out to stakeholders – not just industry, but public-interest groups and other members of the public. So I would expect that whatever we do as part of this process will have a significant public involvement.

REP. CASSIDY: Now, let me ask. Because when I toured the nuclear power plant near my home – I live in – I'm from Louisiana, so it's the River Bend nuclear power plant. As I recall, they were coming up with a fail-safe mechanism to keep the generators running even if there was something dire that happened to the plant.

I gather what has happened here is that the tsunami – because the diesel was on the ground – washed away the diesel, so they were unable to run the generators. So just for the reassurance of folks here – and frankly, my city, if you will – it seems that we've been proactive on that particular issue so that there is a backup to the backup to the backup to keep the generators running, to pump the water in case – you see where I'm going with that.

MR. JACZKO: Well, we do – and again, I don't want to speculate on exactly what happened in Japan because we really just don't know – (inaudible, cross talk).

REP. CASSIDY: I think I'm channeling CNN right now. (Laughter.)

MR. JACZKO: All the diesel generators at nuclear power plants in this country are considered vital equipment. The emergency diesel generators are vital pieces of equipment. So they are designed as with the other safety-significant structures and components to be able to withstand the natural phenomenon.

So if – depending on the plant, that could be hurricanes, tornados, tsunamis, earthquakes – whatever the natural phenomena are that are relevant to a particular site.

REP. CASSIDY: So I – but is – not knowing that you – that we’re not speculating on what happened in Japan, but just to go to the point. The backup generators to keep those cooling units running, we do have – we have proactively addressed this in this country. And there is a way if a Hurricane Katrina comes through and hits my state and one system goes out, there’s another system to keep it running. Is that my understanding?

MR. JACZKO: That’s correct. Each reactor has at least two diesel generators. In the event that one of them can’t perform its function, that will be an additional – in addition to that, many states have – I’m sorry, many sites have what we call a station-blackout diesel or some other type of electrical power supply that can function in the event that those primary emergency diesel generators are not operating.

And then of course in addition to that, as I’ve referred to, all of the plants in this country have been required to look at pre-staging other additional emergency equipment that could deal with this kind of situation.

REP. CASSIDY: You mentioned that –

MR. JACZKO: In some cases, that would be electrical power supplies or portable generators, and things like that.

REP. CASSIDY: Got you. You may have answered this next question. I’m sorry, I was out of the room for a bit. Clearly, we’re talking not just natural disasters, but man-made. Do I understand that new nuclear power plants – or do I not understand correctly – that they have to be built so that if there is a terrorist attack and a plane is driven into them, that somehow it is still protected?

MR. JACZKO: For the existing fleet of reactors, we have required them to be able to deal with the – with large fires and explosions that could occur at that – at the plant. And some of that was related to the possibilities of terrorist attacks involving aircraft.

For new plants, what we’ve required them – the new designs that are required to be able to withstand an aircraft-type impact at the site.

REP. CASSIDY: Now, the containment structure – again, you may have said this; I apologize – the containment structure, though – even if there is a meltdown, how effectively can that containment structure keep it contained?

MR. JACZKO: Well, that’s the purpose of the containment structure – is again – in the event that – the very unlikely event that all of the safety systems fail and we’re not able to keep cooling to the core, and were it to eventually have significant fuel damage or some kind of melting, that any radiological material would be contained within that structure.

REP. CASSIDY: Given that there's some that would be vented off – but nonetheless, if there's a disaster, it's a disaster within the containment?

MR. JACZKO: That would be – that's the design goal and the expectation. And of course, if that were to fail, we have very robust programs in place to do emergency evacuations – (inaudible, cross talk).

REP. CASSIDY: So this is a 1970s-circa plant. So I presume since it dates from the '70s since, we have even more robust protections?

MR. JACZKO: We've looked at all of these plants over the years. And in some cases – well actually, in the late '80s and early '90s we did systematic evaluations of the plants to see how they would deal with these kind of very severe accidents. In some cases, plants took the step of low-cost modifications that would deal with these more severe kinds of events.

So we have a lot of – a lot of things that have been done. The plants are certainly not the same plants that they were when they were originally built and designed.

REP. CASSIDY: Thank you very much.

REP. WHITFIELD: The gentleman from Michigan, Mr. Dingell, is recognized for five minutes.

REPRESENTATIVE JOHN D. DINGELL (D-MI): Mr. Chairman, I thank you for your courtesy. Mr. Chairman, I'm sure you are making a careful review of the events that are going forward in Japan with regard to the nuclear facility over there and the attendant circumstances. Will you make such a review?

MR. JACZKO: We certainly do intend to.

REP. DINGELL: All right.

MR. JACZKO: Once we have good, credible information, we'll do a thorough and systematic review.

REP. DINGELL: Good. Now, I would assume that when you have – well first of all, one, would you submit to this committee your plans with regard to that, as to how you intend to go into that to ascertain what happened?

MR. JACZKO: We certainly will. We'll make – (inaudible, cross talk).

REP. DINGELL: And then, would you see that we're informed as events go forward so we know what's taking place over there?

MR. JACZKO: We'll certainly do that.

REP. DINGELL: And would you also submit to us for the record how NRC is going to go about defining the lessons that you have learned about events in Japan, and how you will incorporate them into your regulatory requirements? You'd do that for us – (inaudible, cross talk).

MR. JACZKO: We'll certainly do that.

REP. DINGELL: Now, does the NRC regularly use new information about the different types of risk as these different types of risks and information become available? Yes, or no?

MR. JACZKO: Yes.

REP. DINGELL: Would you provide for the record the process by which NRC does this risk assessment?

MR. JACZKO: Well, there's a variety of –

REP. DINGELL: No, just for the record.

MR. JACZKO: Oh, of course.

REP. DINGELL: Our time, Mr. Chairman, is very limited.

MR. JACZKO: Please. Of course.

REP. DINGELL: And I have a lot of questions here. Mr. Chairman, do the NRC's licensing standard for nuclear plants take into account the risk of earthquake or tsunami?

MR. JACZKO: They incorporate all natural hazards, including earthquakes and tsunamis.

REP. DINGELL: I would – I would note with distress. I think you probably remember Diablo Canyon some years ago where they were going to build right on a fault. Are you more careful about that than your predecessors were in that particular –

MR. JACZKO: Right now – well, we look at all the nuclear power plants in the country. We look at seismic activity from all of them because while not all plants are in high-seismic areas, almost all plants could experience some seismic activity from lower-level earthquake activity. So we consider that for all plants.

REP. DINGELL: Now Mr. Chairman, would you provide a list of the kinds of disasters for which NRC takes account of in terms of its licensing standards? Just submit that for the record please.

MR. JACZKO: We'll provide that.

REP. DINGELL: Now Mr. Chairman, it's my understanding that one of the main problems in Japan has been inadequate access to emergency power to keep the reactors cool. And that poses some substantial ongoing risk. Do NRC's licensing standards include adequate access to emergency power? And are you satisfied that they do so?

MR. JACZKO: We believe that our requirements are very strong in this area. And we continue actively in our inspection program to ensure that licensees have the appropriate equipment such as diesel generator, and that it operates successfully.

REP. DINGELL: Now Mr. Chairman, you have an unholy mess on your hands – you and the Department of Energy – with regard to Yucca Mountain. You've spent, as near as I can gather, something like 17 billion (dollars) on this that's been collected from rate payers for long-term storage of nuclear waste. The administration opposes going forward. You've got this nuclear waste that's piling up all over the country. Some of it is going into cooling ponds. They're talking about putting the rest in dry cask storage.

Do you have any kind of long-term plan to address what you're going to do with this infernal mess, and how you're going to deal with the problem?

MR. JACZKO: Well right now, we're looking at a longer time frame for storage of spent fuel than we have in the past. But right now, we believe that spent fuel certainly can be – can be stored safely and securely with the existing systems over several decades –

REP. DINGELL: But you don't have – but you don't have a plan for how you're going to deal with it. You're being sued by the electrical utilities because they're collecting monies from their rate payers that are not being spent on the purposes for which they're being collected. The stuff keeps piling up. And you've doubled the amount that you can store in a single pool, but that's running out. You're running out of pools in which to store it.

And as these plants close, you're going to – you're going to perhaps lose the responsibility of the persons who are storing this thing. And the stuff just keeps piling up. Is there a long-term plan anywhere in government, in your agency, in the Department of Energy, in the Office of Management or Budget, or in any other agency of the federal government as to what we're going to do about this infernal mess?

MR. JACZKO: Well, although it's not an area that we are directly working, the Secretary of Energy has convened a blue-ribbon commission to look at some of those longer-term options and see what an optimal approach should be –

REP. DINGELL: The answer – the answer, Mr. Chairman, is no. Is it not?

MR. JACZKO: I –

REP. DINGELL: Go ahead.

MR. JACZKO: I believe there are plans through this blue-ribbon commission to look long-term. And we believe, certainly from the agency, that the existing systems are –

REP. DINGELL: But the answer – the answer, my beloved friend, is no. And I say this with respect and affection. But the simple fact of the matter is, you're sitting on a – you're sitting on a mighty fine mess that nobody knows what to do with. And each and every one of those situations offers unique opportunity for terrifying mischief to the – to the private-public interest and to the people in the – in the area. And the cost of this whole sorry-ass mess keeps growing up – and going up.

REP. WHITFIELD: : And we agree with you, Mr. Dingell. At this point, I'd like to recognize the gentleman from Texas, Mr. Burgess, for five minutes.

REPRESENTATIVE MICHAEL BURGESS (R-TX): Thank you, Mr. Chairman. And Mr. Chairman, thank you for being here and spending so long with us today. Thank you for speaking with me yesterday at the end of what obviously was a very long day for you. And I appreciate your willingness to make yourself to members of both sides of the dais during this crisis in Japan.

Recently, an e-mail has been circulating – and I think it came to the committee staff – that suggested a much higher level of radioactivity at one of the plants than has previously been reported. Do you know anything about that?

MR. JACZKO: Well, we are continuing to monitor the situation as best we can. Again, I'm not familiar with the e-mail that you're talking about. But we do believe that certainly with one of the spent-fuel pools, that there have been certainly elevated radiation readings. And over the last several days, there have been times based on certain incidents in the site where radiation levels have gone up and come back down.

REP. BURGESS: But when you say elevated, ballpark – are you talking about chest X-ray, CAT scan, multiple CAT scans? What sort of numbers are you talking about?

MR. JACZKO: Right now, we have indications at the site of radiation levels that would be levels that would be lethal within a fairly short period of time. So they're very significant radiation levels.

REP. BURGESS: Very significant. OK. And that's different from kind of what we've been hearing before. Is that correct?

MR. JACZKO: Again, I'm not – I would say it's certainly a more recent development that we've seen these very, very high readings.

REP. BURGESS: OK. Now, you were very good to provide us with written testimony. You were very good to provide us with some updates on the situation. It's obviously a very fluid situation in Japan. Would you be good enough to give us in written form what you described to us as you are finishing up your prepared testimony this afternoon, so that there's no confusion

over what we – when we quote you? The press is here, and we'll all be asked questions as you finish up.

Could you provide us the written information that you would like us to have?

MR. JACZKO: We'll provide that for you.

REP. BURGESS: Because some of it – and I think Ms. Capps on the other side talked about it a little bit. I mean, you talked about the spent-fuel pool being dry and the radiation being high, and again, things that were different from what I had been gathering from the – just of the press reports just prior to coming in here.

And it – and it would be good to see that – again, what is factual and what is not.

MR. JACZKO: We'll be happy to provide that. And I would just say that our information is limited. So we've been very careful to only provide information that we believe is very reliable.

REP. BURGESS: Well now, we're here to talk – (chuckles) – about the budget. And the budget you prepared, obviously, was before all this happened. Do you anticipate submitting an addendum to the request in light of things that have happened this past week?

MR. JACZKO: That's something we'll review at this point. I don't – I don't have an answer for you. But I will certainly come back to the committee if we do.

REP. BURGESS: Can you give us just kind of a back-of-the-envelope estimate: In a perfect world, what would be the percentage of electricity in this country – in this country produced by nuclear power?

MR. JACZKO: It's approximately 20 percent.

REP. BURGESS: What is being produced now?

MR. JACZKO: Currently? I would have to look. But I would take an estimate of about probably – about that number. I'm not aware of any significant plant outages right now.

REP. BURGESS: So it would be your position as chairman of the Nuclear Regulatory Commission that the percentage of electricity produced in America would not increase over what it is today? Do I understand that correctly?

MR. JACZKO: I'm sorry.

REP. BURGESS: In an ideal world, this country maximizing all of the different energy production possibilities that we have, how much – what percentage – would be nuclear?

MR. JACZKO: Well, it's really not up to us to decide that. I think the agency's responsibility is to make sure that if there are nuclear power plants in this country, that they continue to operate safely and securely.

REP. BURGESS: Do you have a concept of what would be the ideal number of nuclear plants in this country in the next 10, 20, 30 years?

MR. JACZKO: That's really not – certainly, as an agency, we don't have a concept of an ideal number. Our job is to make sure it's safe and secure.

REP. BURGESS: How many would be too many for you to keep up with to ensure that they were safety (ph)?

MR. JACZKO: Right now, we think – certainly, we're planning for the possibility of new plants to be under construction in the next several years. So we believe with the budgets that we've developed, we would have the resources we need to handle those additional units if they're licensed.

REP. BURGESS: All right. Chairman Dingell described in very colorful terms “an infernal mess” at Yucca Mountain. If you were the king of the nuclear – (chuckles) – regulatory world, the sole decision-maker on nuclear waste, what would be the ideal solution, the sine qua non? What would you do?

MR. JACZKO: Well, I – as I said, I really – I can't get too much into that because we do have an ongoing proceeding with regard to Yucca Mountain. And you know, the job of keeping plants and the materials and all the things that we regulate safe is pretty much a job that – in particular, these days – keeps me awake almost 24 hours a day.

So I'll worry about – let somebody else worry about some of those other broader policy questions.

REP. BURGESS: We thank you for your activities during this crisis. Thank you.

REP. WHITFIELD: This time, I'll recognize the gentleman from Pennsylvania, Mr. Doyle, for five minutes.

REPRESENTATIVE MICHAEL F. DOYLE (D-PA): Thank you, Mr. Chairman. Chairman, thanks for your patience and endurance today. Given what's happened in Japan, I'm sure this has been a reminder to all of us that everyone agrees that certifying new nuclear designs is a crucial and important task to make sure these reactors are durable and can be safely operated.

And I understand that the new reactor design certification process involves not only professional and accredited NRC staff, but there's also an outside expert advisory committee that oversees the review and recommendations of the NRC staff. Is that correct?

MR. JACZKO: We do have an – it's an outside – or it's a agency-independent advisory committee.

REP. DOYLE: Yeah. That's right. The ACRS. And then ultimately, you and your colleagues also evaluate and make your own independent judgments. Correct?

MR. JACZKO: Correct.

REP. DOYLE: So I want to address this situation to get more clarification and more on the record about concerns raised by my good friend, Ed Markey, regarding Westinghouse's AP1000. I want you to helpfully provide some more clarification to the process that was involved certifying this reactor.

Now, is it true that Dr. Ma's nonconcurrency issues during the deliberation for the Westinghouse AP1000 advanced final safety evaluation report were, in fact, given due consideration by his NRC staff colleagues?

MR. JACZKO: I believe that they were.

REP. DOYLE: And also, the members of the independent Advisory Committee for Reactor Safeguards?

MR. JACZKO: They did. As part of their review, they did specifically receive a presentation from Mr. Ma about this – (inaudible, cross talk).

REP. DOYLE: And you and your commission colleagues?

MR. JACZKO: I don't want to speak for the actions of all of my colleagues. But I personally met with him and talked to him about his concerns. And –

REP. DOYLE: And can you tell us what happened after Dr. Ma made his presentation and raised his concerns? So he raised these concerns. And tell us what happened after that.

MR. JACZKO: Well, they were – I think they were looked at by certainly all of – or the staff at the agency that were reviewing the design. This advisory committee also did look at his perspectives. And they came to their own conclusions that, I think, ultimately, no one disputes that the recommendations that he has would make the design safer. But we think that the design, as it is right now, would appear to meet our standards. But I would add that it was also Mr. Ma who originally raised concerns with a previous iteration of the design.

And as a result of those concerns, the agency did indicate to Westinghouse that significant changes would need to be made. They in fact did make significant changes and I think in some sense, Mr. Ma believes that – and I don't want to speak for him directly – but my understanding of his position is that he thinks that those changes are not necessarily enough to satisfy his initial concerns.

REP. DOYLE: But it's true that his concerns were put forward and that the NRC team of reviewers that throughout the drafting of the AFSER, they evaluated it and they basically overruled his concerns, basically, as did the subcommittee, as did – I mean this went through a process. I just want to make clear for the record that we don't have a person at the department who's raised concerns and they were swept under the rug or ignored. I mean these concerns were addressed. Is that not correct?

MR. JACZKO: Yeah, I feel very strongly that we create an environment at the agency where people can raise concerns and those concerns can be thoroughly reviewed and vetted. And I believe, in this case, that that's what happened.

REP. DOYLE: Thank you very much. That's all I have, Mr. Chairman.

REP. WHITFIELD: The gentleman from Nebraska, Mr. Terry, is recognized for five minutes.

REPRESENTATIVE LEE TERRY (R-NE): Thank you for being here. I'm just as curious – there's two power plants – Mr. Barton talked about one in Georgia, but there's one in Georgia, one in South Carolina that sometime this year or early next year should be issued their combined construction and operating license. My question, first, is: Are there any discussions occurring to delay that COL now because of the Japanese disaster?

MR. JACZKO: Well, right now, all of the – those two plants – potential plants that you've referenced are all based around the AP1000 design. That design is currently undergoing a public review process. I expect we'll get comments as a result of that public process related to the situation in Japan. So we'll evaluate those as we get them.

REP. TERRY: So it's yes and maybe no.

MR. JACZKO: At this point, we haven't done – we're following our normal path with the reviews at this point.

REP. TERRY: All right. It sounds like there may be some uncertainty in that process of whether they'll get their combined construction, operating license in '11 or early '12.

MR. JACZKO: Well, we – we're proceeding down a path to continue the reviews. As I said earlier –

REP. TERRY: There's no reason to repeat the answer. I'm curious to how many other applications have been made for the early site permits. Do you know how many are sitting with you all?

MR. JACZKO: We currently have, I believe, one or two new early site permits in front of the agency are expected to come.

REP. TERRY: All right. Are there any that have been – have been provided their early site permit and now on course to go to the next level of permitting? I'm just trying to figure out how many are in the pipeline?

MR. JACZKO: Right now, we have 12 applications in front of us for approximately 20 reactors. Those are actual combined license applications and then we have, I believe, it's two early site permits that are not yet tied specifically to an actual license for a plant.

REP. TERRY: All right. I've studied a lot over the last couple years the small modular reactors. I just want to know what your personal opinion is, where the process is in reviewing the technology, how close we are to perhaps even rolling out a pilot project?

MR. JACZKO: Well, we – I like to think of the small modular reactors in three groupings. We have the small modular reactors which are very much based on the existing type of reactors that we have now, but smaller. For that type of design, which we call (integral ?) light water reactors – we would anticipate, in the next year or so, an application for the construction of a small modular reactor type.

We also anticipate one or more applications for designs related to those smaller modular reactors. The second category we have are what are basically called high-temperature gas reactors. So it's a slightly different technology. That is mostly work that's tied to the Next Generation Nuclear Plant project and that is an activity that's a little bit farther away, probably more like 2013, where we might see an application.

The area in which probably there's the least certainty is with more of the nontraditional reactor types – (inaudible, cross talk).

REP. TERRY: The one that the chairman may have raised earlier with you.

MR. JACZKO: Exactly. Those are much more, right now, in what I would call the conceptual stage. So they haven't progressed to the point where we really have detailed discussions about possible reviews of applications.

REP. TERRY: All right. I appreciate that. I'll yield my 59 seconds back to the chairman.

REP. WHITFIELD: Thank you. At this time, I recognize the gentleman from Louisiana, Mr. Scalise, for five minutes.

REPRESENTATIVE STEVE SCALISE (R-LA): Thank you, Mr. Chairman and Mr. Jaczko. I appreciate you being before our committee. I know we have some votes on the House floor, so I'll try to be brief and ask direct questions. I think the secretary had indicated that the United States was helping Japan, doing some testing on contamination on the ground. Are you familiar – what types of testing's currently being done that we're involved in and have you all found anything right now of concern?

MR. JACZKO: Well, right now, my understanding is we have – are working to provide the ability to do air sampling of radiation. We have some readings of – as I said, of very high levels of contamination around some of the reactor sites and at this point, I'm not sure of the origin of that, whether that's coming from U.S. assistance to Japan or whether that's coming directly from the Japanese.

REP. SCALISE: Okay, thanks. I would imagine, right now, there are a number of applications that are pending before your agency at various levels, awaiting decisions. Do you anticipate that those decisions will still go forward at the current pace or do you see anything changing there?

MR. JACZKO: Right now, we don't – we don't have any intention to change the approach we're taking. But as I've said, we're – we're going to do a very systematic and methodical review of the information coming from Japan. And if there's some information that would require us to revise our approach, then we'll certainly do that.

REP. SCALISE: Thank you. And I would imagine – you know, as with any crisis. I mean we've experienced more than our fair share in South Louisiana, but there will be an evaluation in general just to see what lessons can be learned and I imagine we'll – you know, we'll make sure that if we learn some things from how they did things right, maybe how they did things wrong if they did that we can incorporate that. But in the end, to still move forward and not retreat from energy production in this country.

MR. JACZKO: Well, we'll certainly do that type of review. And again, I don't want to prejudge what comes out of it. If we get information that tells us we need to make a change, we will if we get information that tells us that things are good, then we'll continue to proceed as we are.

REP. SCALISE: Thank you for your time. I appreciate it. Thank you. Mr. Chairman, I yield back.

REP. WHITFIELD: Mr. Jaczko, I just want to ask for clarification. In response to Mr. Terry's question, you talked about on the small modulars, there are three or four different categories, the existing type, the third type was NGNP 2013 conceptual. What determines what category a design would be in? Is that based on actual applications or is that just on general knowledge or –

MR. JACZKO: It's really the – I would say the state of readiness of the designers and the vendors themselves. So –

REP. WHITFIELD: The state of readiness of the vendors and the designers?

MR. JACZKO: Yes.

REP. WHITFIELD: Okay. Thank you. Mr. Rush, do you have anything else?

REP. RUSH: Mr. Chairman, Administrator – I would like to know if, in fact, over the last five years, can you furnish this committee with the infractions or violations or emergency conditions where the NRC had to send an emergency crew to any of the facilities that operates within the continental United States?

MR. JACZKO: We can certainly send you that information.

REP. RUSH: Yeah, I'd like to just know what level of responses and what level of issues that you've dealt with over the last five years.

MR. JACZKO: We will send you that information.

REP. WHITFIELD: Thank you very much. Mr. Rush, you and I have three minutes to go vote. Mr. Commissioner, thank you for your time today. We appreciate it very much. We look forward to working with you as we move forward on nuclear energy and safety and look forward to future opportunities.

MR. JACZKO: Thank you.

REP. WHITFIELD: With that, the hearing is ended.

(END)