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EXAMINING AMERICA'S NUCLEAR WASTE MANAGEMENT, STORAGE, AND THE NEED FOR SOLUTIONS FIELD HEARING

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT

OF THE

COMMITTEE ON OVERSIGHT AND REFORM

HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTEENTH CONGRESS

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EXAMINING AMERICA'S NUCLEAR WASTE MANAGEMENT, STORAGE, AND THE NEED FOR SOLUTIONS FIELD HEARING

Friday, June 7, 2019

HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON ENVIRONMENT
COMMITTEE ON OVERSIGHT AND REFORM
Washington, D.C.

The subcommittee met, pursuant to notice, at 11:28 a.m., in Chet Holifield Federal Building, 2400 Avila Road, Laguna, CA, Hon. Harley Rouda presiding.

Present: Representatives Rouda and Comer.

Also present: Representative Levin.

Mr. ROUDA. The subcommittee will come to order.

I am actually going to take a page from Vince Lombardi, who always started his meetings a few minutes early. So since we are all here, if there is no objection, we will begin.

Without objection, the Chair is authorized to declare a recess of the committee at any time.

Without objection, the gentleman from California, Mr. Levin, is authorized to participate in today's hearing.

This subcommittee is convening to examine the management of spent nuclear fuel, concerns related to the storage of nuclear waste, and the need for long-term solutions.

I now recognize myself for five minutes to give an opening statement.

I am proud that we have been able to bring a little bit of D.C. here to OC as we convene this hearing in Laguna Niguel to examine the management and storage of our Nation's nuclear waste and the need for Congress to take action to find long-term solutions.

Questions related to the long-term safety of America's storage of nuclear waste are not new. The first commercial nuclear power plant in the United States was opened by President Dwight Eisenhower in 1958. Twenty-five years later, President Ronald Reagan signed into law the Nuclear Waste Policy Act of 1982, which dictated that the Federal Government would identify a permanent geological repository and begin transferring waste from nuclear power plants by 1998.

As we sit here today, it has been over two decades since that 1998 deadline and over 50 years since the opening of this Nation's first nuclear power plant, and the Federal Government has failed,

and continues to fail, to find a solution to our country's nuclear waste problem.

Without a permanent repository, there are now approximately 100 sites across at least 34 states currently storing high-level nuclear waste. Americans' exposure to the risks associated with having nuclear waste in our communities does not fall along any partisan or demographic lines. Approximately one in every three Americans now live within 50 miles of nuclear waste. Nuclear reactors and spent nuclear fuel sites sit in congressional districts represented by both Democrats and Republicans. The serious challenges at hand affect communities across our country.

One of these sites, the San Onofre Nuclear Generating Station—SONGS—is less than 20 miles from where we sit right now.

Let's put that into context. After the Fukushima nuclear disaster in 2011, the Nuclear Regulatory Commission—NRC—recommended that Americans in Japan evacuate 50 miles away from that site.

Currently, an estimated 8.4 million Americans live within a 50-mile radius of the SONGS plant that is 20 miles from here. That includes residents of Los Angeles, San Diego, Orange, Riverside, and San Bernardino counties.

As a resident of Laguna Beach, my family and I live just 30 miles from the SONGS site. I hear the concerns of my constituents and those of Southern California. I, too, am concerned about the long-term risk associated with storing 3.6 million pounds of nuclear waste at SONGS. This nuclear waste is just about 100 feet from the shoreline, sits adjacent to one of the Nation's busiest highways, and near to seismic fault lines.

Since the promise fueled by the first wave of nuclear reactors in the 1950's, we have seen highly publicized meltdowns at Three Mile Island and Chernobyl and waste management challenges around the globe. It is clear that nuclear power and waste are not without significant risk.

Commercial nuclear power production in the United States has created over 160 million pounds of spent nuclear fuel, and an additional 28 million pounds of nuclear waste has been created by nuclear weapons production and other defense-related activities. And it is estimated that we will be adding another 120 million pounds in the next several decades. That will be a total of 280 million pounds of nuclear waste with no home and risking the homes and lives of over 100 million Americans.

As Chairman of this subcommittee, the protection of public health and safety are among my top priorities. I am committed to focusing the Federal Government's attention on its obligation to protect the public from nuclear hazards and advocate for the environment, and to work to hold the appropriate agencies accountable.

If we take steps now to fully recognize the magnitude of our country's nuclear waste problem, and if we reach across the aisle to develop bipartisan legislation, the United States can pursue workable solutions. But we do not have any more time to waste; the clock is ticking. In fact, because of the challenges and logistics involved with moving and housing nuclear waste with a long-term viable solution, the best-case scenarios, if we act now with purpose and expediency, is approximately 10 years out.

My hope is that we can all agree that our current and past failed efforts to both develop and implement a plan has not led to a viable or safe, long-term solution. Our government owes the American people an effective plan to address our nuclear waste storage problem, a plan that securely stores this waste without presenting health and safety concerns for local communities across the country.

The radioactive material at the core of this challenge will outlast everyone in this room and all humans currently alive. It is estimated that all of our Nation's nuclear waste will remain radioactive for somewhere between 100,000 and 1 million years.

I hope that my statements adequately portray the seriousness of this dilemma. My thoughts and feelings are informed by the fact that our action or inaction will have a direct impact on the lives of our children, grandchildren, and hundreds of future generations.

I thank all of you for joining us today, and I appreciate all of our witnesses for both their ongoing work on this important issue and for taking the time to join us today. I know that many of you have traveled considerable distances to be here and have prepared thoughtful testimony to present.

With that, the Chair now recognizes the Ranking Member, Mr. Comer of Kentucky, for five minutes for an opening statement.

Mr. COMER. Well, thank you, Mr. Chairman, for convening this field hearing. I also want to thank the local community for hosting us today.

This hearing is a continuation of the fact-finding we have done in Washington and will do elsewhere around the country to find policy solutions. When we think about the Federal Government's involvement in energy policy, it has an important role to play in ensuring the safety of our nuclear power plants and the safe storage of nuclear waste.

There are approximately 90,000 metric tons of nuclear waste in the United States that requires safe disposal. And the level of nuclear waste in the United States is expected to increase to 140,000 metric tons over the next few decades.

Yet there is still no permanent disposal site that has been fully approved by the Nuclear Regulatory Commission or the Department of Energy. Anyone serious about tackling these challenges knows that to address the United States' capacity to responsibly manage and store nuclear waste, we must commit to fund the completion of the Nuclear Regulatory Commission's review of the Yucca Mountain licensing application. While it may be politically expedient to say otherwise, the reality is that Congress must take action to ensure that proper funding is distributed to the Nuclear Regulatory Commission and the Department of Energy so that the Yucca Mountain licensing application may be fully reviewed and completed.

Let me be clear: nuclear energy has an important role to play in our Nation's energy needs. It emits zero carbon emissions and is incredibly efficient. But we must solve the problem of where to put nuclear waste.

The nuclear waste at San Onofre has sat here for too long, and this community deserves resolution.

I want to thank the witnesses appearing here today, including the former Chairman of this committee, Darrell Issa, who represented this area for 18 years. Despite no longer being a Member of Congress, Mr. Issa clearly cares deeply about this issue, this community, and finding a resolution to the problem. I want to note that his testimony supports bipartisan solutions to this problem, and I am optimistic that one of those solutions can make its way to the President's desk this Congress.

I look forward to the discussion today, and I yield back, Mr. Chairman.

Mr. ROUDA. Thank you, Ranking Member Comer.

At this time I would like to yield five minutes to Congressman Levin. Before I turn the microphone over to him, I want to applaud Congressman Levin for his unbelievable commitment to addressing this issue. As you know, SONGS lies in the district he represents, and with his leadership I am confident we can hopefully get to a bipartisan solution.

So, Mike, the floor is yours.

[Applause.]

Mr. LEVIN. Thank you.

Mr. ISSA. Don't they let you speak first?

[Laughter.]

Mr. LEVIN. Thank you, Chairman Rouda. Thank you to our Ranking Member as well. I appreciate the opportunity to participate in today's field hearing.

The spent nuclear fuel in San Onofre in my district has been a central focus and will remain a central focus of my service. I regularly hear the same question all across our district, from Dana Point to Oceanside and San Clemente to Del Mar: When are you going to get the nuclear waste off our beach?

And together we have made it a bipartisan priority in Washington to fight for solutions to the challenges at SONGS and at spent nuclear fuel sites all across the country.

Unfortunately, these aren't challenges that are going to be solved in a few months or even a few years, but I strongly believe it is long past time they receive the attention they deserve, especially given the risk that nuclear waste poses to the communities in our district and elsewhere in Southern California.

I look at the issues associated with the spent fuel at SONGS on two tracks. First, it is our job as Members of Congress to ensure that the Federal Government is providing robust oversight for the decommissioning activities at SONGS. And second, we must work with our colleagues in Washington to find solutions that result in the removal of spent nuclear fuel from San Onofre. This is particularly important given the environmental factors that make SONGS a higher-risk site than most nuclear sites across the country.

I am pleased that today's hearing focuses on solutions and continues to shine a spotlight on all the work we have ahead of us. I am pleased to report that we have accomplished a lot in the last five months. First, I have convened a SONGS task force co-chaired by Rear Admiral Len Hering, a former Navy mayor of San Diego, and Greg Jaczko, a former chair of the Nuclear Regulatory Commission. Admiral Herring, Mr. Jaczko, and their partners on the task force are analyzing issues regarding the onsite management

of spent nuclear fuel at SONGS and working to help identify a path forward that fully protects the community and environment around the plant.

At the same time, I have been fighting to make Southern California Edison and its contractor at SONGS, Holtec, more transparent with our communities. They must make all decisions with a focus on safety rather than maximizing profits. I have been concerned about some recent events. At the end of March, the Nuclear Regulatory Commission assessed Edison with two high-level violations and a $116,000 fine for an incident last year during which a spent fuel canister nearly dropped 18 feet, and then was not properly reported. And in April, the NRC issued two more violations to Holtec because of design changes to canisters at SONGS. The changes resulted in loose pins at the bottom of the canisters that hold tons of nuclear waste.

Given the multiple incidents and violations that have taken place at SONGS, I believe the NRC must exercise its full authority to enforce safe practices at the site, which unfortunately has a history of inadequate transparency. That is why I have called on the NRC to assign a full-time inspector to SONGS. Senators Feinstein and Harris, as well as Representatives Rouda, Peters, Vargas and Davis, joined me in making that demand.

Nearly two months after we sent a formal letter to the NRC on the subject, we have yet to receive a response. I hope that is an issue we can explore further during the questioning portion of the hearing.

On top of these SONGS oversight activities, I have been working with my colleagues in Congress to create a pathway to get the spent fuel off the beach at San Onofre. Next week, my legislation that makes SONGS one of the highest-priority sites in the Nation for spent fuel removal is receiving a hearing before the House Energy and Commerce Committee. The bill, called the Spent Fuel Prioritization Act, ensures fuel from decommissioned nuclear sites in areas with larger populations and higher seismic risk, such as ours, is removed first. This concept has broad bipartisan support.

However, in order to prioritize removing the spent nuclear fuel off the beach at San Onofre, we must have somewhere to move it to. Due to a request I led with my colleagues, the spending bill the House is set to consider next week includes $25 million for a consent-based interim storage program at the Department of Energy. Similar requests have been made for the past five years, and I am proud that this is the first year that it was adopted into the House spending bill.

Interim storage is not a comprehensive solution to the spent fuel challenge, and it certainly must proceed with a consent-based process. But it is currently the most viable pathway to move spent nuclear fuel away from the rising Pacific Ocean, off of active fault lines, and further from population centers in Orange and San Diego Counties.

It is also a solution that both the House and Senate have expressed bipartisan support for, so it has a real chance to move forward.

Spent fuel storage and disposal are complex and challenging issues. In fact, my own thinking has evolved as I met with our

military and civilian leadership and received a number of briefings on the safest option for our communities. With that in mind, I look forward to hearing from today's witnesses and receiving additional input from a variety of technical experts.

I also want to take a moment to acknowledge my predecessor who is here to testify. I appreciate his past efforts and his continued interest in this issue. I believe it is an area where we can work together on a bipartisan basis for the benefit of those in our district and for all of Southern California.

And with that, Mr. Chairman, I yield back.

Mr. ROUDA. Thank you, Congressman Levin.

For those in the audience, thank you for coming and thank you for your passion and commitment to helping us address a very important issue. But I would also respectfully ask that you not wave signs while you are here. That would be more consistent with the protocol of these committee meetings both in D.C. and in the field.

Now I would want to welcome our witnesses.

Scott Morris, Region IV Administrator with the U.S. Nuclear Regulatory Commission, Region IV.

Tom Isaacs, former Lead Advisor, Blue Ribbon Commission on America's Nuclear Future.

Daniel T. Stetson, Vice Chairman, SONGS Community Engagement Panel.

Don Hancock, Nuclear Waste Program Director, Southwest Research and Information Center.

Darrell Issa, former Member of Congress.

Please stand and raise your right hands, and I will begin swearing you in.

Do you swear or affirm that the testimony you are about to give is the whole truth and nothing but the truth, so help you God?

Let the record show that the witnesses answered in the affirmative.

Thank you; please be seated.

I will note that the microphones tend to be a little bit sensitive, so please make sure that they are close to you and that you speak directly into them. Without objection, your written statements will be made part of the record.

With that, Mr. Issa, you are now recognized to give a five-minute oral presentation of your testimony.

STATEMENT OF HON. DARRELL E. ISSA, FORMER CHAIRMAN, COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

Mr. ISSA. Thank you, Mr. Chairman, Ranking Member, and my successor, Mr. Levin.

I would like to ask unanimous consent that a letter addressed to the Chairman in support of this hearing and the projects that are being considered in Congress from the Orange County Board of Supervisors be placed in the record.

Mr. ROUDA. So moved, without objection.

Mr. ISSA. Thank you.

With my opening statement in the record, I will try to use the five minutes as well as any of us who have served.

As Congressman Levin said, this is not a partisan issue, but it is a regional issue that is going to take members like the gen-

tleman from Kentucky and the two gentlemen from California working together to push for a solution.

The fact that Yucca is not currently the repository is a political decision made based on both Republicans and Democrats in a state that chose not to want the product. That will be true of some people in every state in which you will propose shipping it.

When I came to Congress 19 years ago, one of the first things I became aware of is we didn't have a low-level repository because people decided that they couldn't find a place in California. So we were shipping basically nuclear waste, much of it from cancer treatments and the like, to—and I apologize, I think it was Kentucky, but it could have been Tennessee, to the repository back there which had been produced, essentially paying to offload our responsibility across the country in freight cars at some incremental risk, and certainly while shirking our responsibility.

In the case of the National Repository, it's not California shirking its responsibility, as other witnesses will say. We did have sites considered. But California, in spite of its great size and some remote areas, does sit on an earthquake fault, does have some other challenges, and it was not by anyone's definition the best place.

I think the one thing that everyone should come away from this hearing with is a recognition that no matter what Southern California Edison does, they will never have as safe a storage place as long as it lies between the ocean and I–5 as a myriad of other locations, in New Mexico, in Texas, in Nevada, and, to be honest, in an awful lot of other places we could find.

Some decade ago, I went to Area 51, as it sometimes gets called, or the Nevada test site. This is not Yucca. And I witnessed firsthand as we flew over those mounds. People can see it on Google Earth. It's not a big secret. The mounds were produced by underground nuclear testing.

The fact is we have vast areas that you and I will not be able to go to and walk around for the rest of our lives and lives well beyond our great-great-great-great-grandchildren.

So when we look at where we are today and where we were 18-plus years ago when I came to Congress and first began looking at SONGS, and 18 years before that when Congressman Ron Packard came, and he knew in 1982 that they needed to deal with nuclear power residue and he voted as a freshman to empower a solution, in those 36-plus years, what we've always known is that there are safer places than all 100 sites that currently house spent nuclear rods and like material.

I would say today for the record that if we cannot agree on Yucca or another site, an interim site—and when I say "interim," interim is 10,000 years. If we tell ourselves that interim is a matter of months or years, we fail to meet the responsibility of what might happen. If we do not do that, then we will have 100 sites. And although we may be by many people's estimation one of the worst, if it is in your backyard anywhere in the country, including my home state and the Chairman's home state of Ohio, if you're up there on Lake Erie and the largest body of fresh water and you've got spent rods that if there were a disaster would take about one-fifth of the world's fresh water and contaminate it, then you have a similar view to what all of us do here in Southern California, and

I think it's particularly positive that we have a Chairman who knows both the Great Lakes dilemma with its nuclear plants and California's.

So I want to thank you for inviting me here. I want to make sure that we understand here today that what we have to do is get Congress to move. It is not a question of Republican or Democrat. It is a question of a will to move 21 years after the deadline set by my predecessor in 1982.

And I yield back.

Mr. ROUDA. Thank you, Mr. Issa.

At this time I yield five minutes to Mr. Hancock for an opening statement.

STATEMENT OF DON HANCOCK, DIRECTOR AND ADMINISTRATOR, NUCLEAR WASTE SAFETY PROGRAM, ON BEHALF OF SOUTHWEST RESEARCH AND INFORMATION CENTER

Mr. HANCOCK. Thank you, Mr. Chairman and members of the subcommittee. I appreciate the opportunity to be here to present my organization's views on this important, complex, and difficult subject. We very much appreciate your leadership in looking for solutions that Congress can take.

My name is Don Hancock. I'm with Southwest Research and Information Center, which is a private, non-profit organization incorporated in New Mexico. For the last 48 years we've worked on a wide variety of environmental justice and health issues, including nuclear waste.

So, there's been some discussion already of the history. I want to spend briefly looking at five lessons that we take from some of that history.

First, commercial spent fuel has always been generated without the essential scientifically sound, publicly accepted program for safe disposal of large amounts of very radioactive, very long-lived nuclear waste. Since 1971, even before—the first proposed repository was in 1971. So for all of these years we've had technically problematic sites being proposed which engender a lot of public opposition and don't get operated or built, so we don't have repositories.

Second, there's no consensus about health and safety standards, including whether commercial spent fuel is safe where it is. If it is safe where it is, why move it? If it's not safe where it is, how can it be safe to transport through many other communities to someplace else?

Third, in our Federal system, storage and disposal facilities require consent. No state has volunteered for a spent fuel repository or monitored retrievable storage sites, even though they have been proposed, as we just described, for decades.

Further, many states have specifically not consented to hosting such facilities. Nevada has made very clear that its technical and legal opposition to Yucca Mountain will prevent that site from ever receiving spent fuel. Congress should formally repeal the selection of Yucca Mountain as a repository site.

Fourth, without a repository program, spent fuel will continue to stay at or near reactor sites for decades, including at closed reactors, unless the nuclear industry is willing to volunteer its own re-

actor storage sites. Thus, improved storage measures are needed to better protect public health and the environment, which is what my organization and hundreds of other non-profit organizations have been advocating for many years. I've attached to my testimony "Principles for Safeguarding Nuclear Waste at Reactors," which represents those principles.

So, for example, at San Onofre, which appropriately all the people in this room are particularly concerned about, the fuel needs to be moved away from the ocean to higher ground for storage and robust atmospherically controlled building.

Fifth, New Mexico has some history in all of this, too. The first important point to recognize is New Mexico is and has always been majority population people of color. The state has disproportionately borne the negative impacts of the nuclear fuel chain, including contamination and resulting health effects from the first nuclear bomb, which was not in Hiroshima, it was at the Trinity site in New Mexico. We have continuing victims from that all these years later, again mostly people of color who have not been recognized, compensated, or cared for.

Uranium mining and processing started 70 years ago. A huge amount of the uranium that fueled the cold war came from New Mexico and the Navajo Nation. We have more than 1,000 abandoned sites that have not been cleaned up that continue to be health problems, again primarily for indigenous people in our state.

Third, Los Alamos National Lab, which was created during World War II to build the first bomb and test the bomb, is there, and it continues to be a source, a long-term source of contamination.

Fourth, New Mexico also has the Nation's only operating geologic repository, the Waste Isolation Pilot Plant, which is for defense transuranic or plutonium contaminated waste.

New Mexico, however, has never had commercial spent fuel. No reactors, no commercial fuel. That doesn't mean it hasn't been discussed. When it's been proposed we have said no. We have been promised no. The WIPP Land Withdrawal Act Federal law says no. But yet there are still proposals, one in the '90's from the Mescalero Apaches, which we said no to, and a current one from Holtec International, which we are also saying no to.

There are ways forward. But continuing targeting New Mexico is not scientifically sound, is not publicly accepted, and is an environmental injustice. Thank you.

Mr. ROUDA. Thank you.

Mr. Stetson, I now yield five minutes to you for your opening statement.

STATEMENT OF DANIEL STETSON, VICE CHAIRMAN, SONGS COMMUNITY ENGAGEMENT PANEL

Mr. STETSON. Good morning, Mr. Chairman and members of the subcommittee. Can you hear me okay?

Mr. ROUDA. Yes, thank you.

Mr. STETSON. Thank you for the opportunity to appear and testify at today's meeting. My name is Dan Stetson, and I serve as Vice Chairman of the Community Engagement Panel, or "CEP", for the San Onofre Nuclear Generating Station, or "SONGS" for short.

I was invited here today to serve as a representative of the SONGS CEP. The CEP was formed in early 2014 after the retirement of SONGS in 2013. The purpose of the CEP is to serve as a bridge and conduit between SCE and the local community.

The 18 members of the CEP represent a range of stakeholders, from environmental NGO's and Native American tribes to business and organized labor. More than half are local elected officials, from Oceanside to Dana Point, sworn to represent the best interests of their constituents. All of us are volunteers.

The three officers—including Chairman Dr. David Victor of UCSD; myself, Vice Chairman; and Jerry Kern, immediate past city council member from Oceanside—provide input to SCE on agenda topics and public engagement. We hold quarterly meetings and periodic workshops. All are open to the public for transparency. Meetings are webcast live, and video recordings are posted online. We provide at least one full hour at every meeting for public input.

Over the past five years, the CEP has addressed a wide range of issues that are important to the local communities. But I have learned that they really boil down to two. The first one is safely managing the spent fuel that's onsite, and No. 2 is safely removing the spent fuel from the site.

Let me first address onsite storage, and more specifically dry cask storage. This is what we on the CEP have come to call defense-in-depth for dry cask storage. Defense-in-depth means looking at the full complement of means to support safe onsite storage of spent fuel. This starts with the design and fabrication of the spent fuel canisters, while also considering operation, maintenance, and security, as well as canister inspections and, if needed, remediation of a compromised canister.

Over the past five years we've had 21 meetings, many workshops, and dry cask storage has been the topic or has been included in every single one of those meetings. As a result of these meetings, SCE has taken concrete steps to address areas of concern of the general public. One such step is laser peening the welds of the new canisters to minimize the risk of chloride-induced stress corrosion cracking of the canister shells. They have also agreed to provide radiation monitoring as long as the fuel is onsite.

The second important issue is safely moving the spent fuel offsite. Over the years, most but not all members of the local community have expressed an interest in moving the spent fuel offsite from San Onofre to a federally licensed storage or disposal facility. Off-site storage has also been addressed at every single CEP meeting.

The ongoing costs are also a very important consideration as the schedule for the Department of Energy to remove spent fuel continues to slip. The 2018 audit report of the Office of the Inspector General estimates the slippage cost to the American taxpayer of over $35 billion. This translates to over $2.2 million per day that we don't move the fuel.

To address offsite storage, in 2017 Chairman David Victor delivered testimony before the House Oversight and Government Reform Subcommittee on Interior, Energy, and Environment. David, Jerry, and I, and other CEP members, have met and continue to

meet with members of the California congressional delegation to advance Federal legislation for spent fuel. Congressional outreach is part of a broader effort to try to effect changes to the Nuclear Waste Policy Act and enable solid interim storage and permanent disposal.

I sincerely appreciate the requests by Representatives Rouda, Levin, and others for $25 million in the Energy and Water Appropriations bill to help fund CIS, transportation, and infrastructure.

On behalf of the SONGS Community Engagement Panel, let me close by thanking you for making this a top priority of your administrations. We look forward to congressional action to safely remove the spent fuel from San Onofre.

With the passage of the Nuclear Waste Policy Act of 1982, Congress made a solemn promise to the American people. To date, that promise remains unfulfilled. We are counting on you to keep this promise and solve this seemingly intractable problem once and for all. Thank you.

Mr. ROUDA. Thank you, Mr. Stetson.

Now I recognize you, Mr. Isaacs, for five minutes for your opening statement.

STATEMENT OF TOM ISAACS, FORMER LEAD ADVISOR, BLUE RIBBON COMMISSION ON AMERICA'S NUCLEAR FUTURE

Mr. ISAACS. Thank you very much. Thank you for the opportunity to testify, and I am pleased that you and other Members of Congress are focusing on this important issue.

In 2010, the Administration halted the extensive yet controversial work on Yucca Mountain, calling the program "unworkable." The Secretary of Energy was directed by the President to establish a Blue Ribbon Commission, or BRC. The BRC was co-chaired by General Brent Scowcroft, a Republican and national security adviser to two U.S. presidents, and Congressman Lee Hamilton, a Democrat and 17-term member of the U.S. House of Representatives and Vice-Chair of the 9/11 Commission.

After two years of work by the 16 distinguished commissioners on the BRC, we produced a report entitled "Blue Ribbon Commission Report on America's Nuclear Future." The report put forward eight fundamental recommendations. I will not describe all of them here as the report is readily available online, but four stand out.

The first recommendation was that the program should move forward with consent-based siting; that is, new facilities dedicated to the storage and disposal of spent nuclear fuel should be sited in locations where there would be adequate consent by those who would be affected.

The second recommendation was that the program be moved from the Department of Energy and established as a stand-alone organization focused solely on this challenge. This was not so much a criticism of DOE as a recognition that to establish the requisite program stability, trust, and confidence required a dedicated program over decades and a degree of buffering from short-term political considerations.

The third and fourth recommendations called for prompt actions dedicated to siting and building both interim storage and final disposal facilities for spent nuclear fuel.

I believe that the Nation owes all of us a pragmatic and timely solution to nuclear waste management. There are a number of compelling reasons that spent nuclear fuel should be moved from reactor sites everywhere, but particularly where reactors have been shut down. These arguments include economics, national security, and environmental considerations, and the BRC report describes them in detail.

Disposal in a deep, stable, underground repository is the preferred solution for every country that is addressing this issue, and this has been the case for decades. There is an international consensus and confidence that such repositories can be licensed, constructed, operated, and then closed, permanently isolating the waste from the accessible environment.

The U.S. Government has been liable for the delays which are costing taxpayers billions of dollars, and the liabilities continue to grow. Shut-down sites should have their spent fuel removed to allow for full decommissioning of the sites and their return to productive use. The central reason I believe that waste must be removed is simple: it is the right thing to do. When communities, regions, and states accepted the siting of nuclear power plants in their vicinity, they did not sign up to be the host of these waste facilities located on the surface forever. We should not leave a legacy to our children and our children's children to clean up after us because we did not have the political will to meet our responsibilities.

So what are we going to do? The first problem, in my view, is the mistaken view that there is little or no crisis here, and since any solution is politically charged, the easiest path at any point in time is to do nothing. As I have stated, we owe it to ourselves, future generations, and the rest of the world who look to us for leadership to solve this highly solvable problem.

Second, we need to understand and respect that there are differing views by responsible people who truly want to solve this issue. We are unlikely to get there as long as this is viewed as a win-lose situation.

Third, we need to establish a national waste program that has the requisite talent, stability, flexibility, and access to the required funding to do the job and work every day to earn the trust and confidence of affected parties.

Fourth, we need a vibrant program to demonstrate our commitment to success and to reassert our international leadership and lead by example to ensure that safety, nuclear security, non-proliferation, and counterterrorism remain effective across the globe.

Let me conclude by quoting from the Blue Ribbon Commission report. "The problem of nuclear waste may be unique in the sense that there is wide agreement about the outlines of the solution. Simply put, we know what we have to do, we know we have to do it, and we even know how to do it. Experience in the United States and abroad has shown that suitable sites for deep geologic repositories can be identified and developed. The knowledge and experience we need are in hand, and the necessary funds have been collected. Rather, the core difficulty remains what it has always been, finding a way to site these inherently controversial facilities and to conduct the waste management program in a manner that allows

all stakeholders, but most especially host states, tribes, and communities, to conclude that their interests have been adequately protected and their well-being enhanced, not merely sacrificed or overridden by the interests of the country as a whole. An informed and empowered public, a national waste program dedicated to excellence and engagement, and a Congress and Administration that sees the solution as a fundamental responsibility are among the key next steps for our shared success."

Mr. ROUDA. Thank you, Mr. Isaacs.

Mr. Morris, the Chair now recognizes you for five minutes for an opening statement.

STATEMENT OF SCOTT MORRIS, REGION IV ADMINISTRATOR, U.S. NUCLEAR REGULATORY COMMISSION, REGION IV

Mr. MORRIS. Thank you, Mr. Chairman. Good afternoon, Chairman Rouda, Ranking Member Comer, Congressman Levin. My name is Scott Morris, and I am the Administrator for the U.S. Nuclear Regulatory Commission's Region IV Office based in Arlington, Texas. I am a 26-year veteran of the agency and a retired U.S. Navy nuclear submarine officer.

I appreciate the opportunity to testify before you today to discuss the NRC's role and responsibilities associated with the oversight of high-level radioactive waste. I will also provide the status on licensing a permanent deep geologic repository and an overview of the NRC's reviews associated with two proposed interim spent fuel storage facilities. Finally, I will describe the NRC's oversight of the handling and storage of high-level radioactive waste at the Nation's current and former commercial power reactor sites.

The NRC was designated by statute as the independent regulator for overseeing the design, construction, operation, and eventual closure of a geologic repository for the permanent disposal of high-level radioactive waste at Yucca Mountain, Nevada. In 2008, the NRC received a license application from the U.S. Department of Energy, which is responsible for siting, constructing, and operating the repository. The NRC completed its safety evaluation report for the application in January 2015 and supplement to DOE's final environmental impact statement in 2016.

With two exceptions related to land and water use, the NRC staff concluded in its safety evaluation report that DOE's application met all applicable requirements for issuance of the construction authorization. However, the final decision on whether to authorize construction cannot be made until an adjudicatory hearing is completed and the Commission completes its review of contested and uncontested issues. The adjudicatory hearing associated with the application was suspended in 2011.

Over the past three years, the NRC has received two applications for consolidated interim storage facilities, one from the Interim Storage Partners for a facility in Texas, and a second from Holtec International for a facility in New Mexico. The NRC staff had anticipated completing its review and issuing final licensing decisions for both applications in the summer of 2020. However, the schedule for both applications is expected to change based on the completeness and the timeliness of answers to staff questions on the applications and whether or not evidentiary hearings will be held.

So until a permanent repository or a consolidated interim storage facility is licensed and operational, NRC licensees may store spent fuel in spent fuel pools or in dry storage casks. The NRC has determined that both methods of storage are adequate to protect public health and safety and the environment. Dry storage casks can be arranged in vertical, horizontal, or underground systems at the plant site, known as independent spent fuel storage installations, or simply ISFSIs. The NRC reviews all spent fuel storage cask system designs before they are certified for use to ensure that they can protect against natural phenomenon such as seismic events, tornadoes, flooding, and can also withstand the potential impacts from airborne debris or accidental drops of storage and handling equipment.

NRC regulations do not specify a maximum time for storing spent fuel. The Commission has determined that spent fuel can be stored safely in a pool or dry storage cask for at least 120 years. Dry storage casks are licensed or certified for up to 40 years, with possible renewals of up to 40 years.

In conclusion, NRC licensees are safely handling and storing spent fuel, and the agency will continue to provide oversight to ensure adequate protection of the public health and safety and the environment.

Chairman Rouda, Ranking Member Comer, Congressman Levin, this concludes my prepared remarks. Thank you for the opportunity today, and I will be pleased to respond to your questions.

Mr. ROUDA. Thank you, Mr. Morris.

Thanks to all of you for your opening comments.

I am going to reserve my opening five minutes of questions and yield to the distinguished member from Kentucky, the Ranking Member, Mr. Comer, for five minutes of questions.

Mr. COMER. Well, thank you, Mr. Chairman. Again, I thank the witnesses for their testimony.

Before I ask a couple of questions, I just want to make certain here that the entire panel agrees that the current business model to store nuclear waste is unsustainable; correct? Everyone agrees with that.

Mr. Isaacs, one of the things that wasn't really touched upon in the testimony was the potential threat of terrorist attacks, the homeland security risk. Do you believe that most commercial nuclear power plants where nuclear fuel is stored are safe from potential terrorist attacks?

Mr. ISAACS. I believe that this has been looked at quite closely by the NRC, and they have found that when you look at credible potential incidents, that these facilities have been adequately designed and implemented to be protective. But I would ask my colleague to perhaps talk more about that.

Mr. COMER. Mr. Morris?

Mr. MORRIS. Yes, thank you. We do have a robust regulatory regime in place to ensure adequate protection of the spent fuel in either type of installation. In addition to ensuring their compliance through the licensing process, we also provide robust and routine oversight to ensure that those measures continue to remain in place and are reliable.

Mr. COMER. What about the transportation process and the risks of terrorist threats? If you are transporting—if we can get to a consensus on, for example, Yucca Mountain, what is the potential threat there? I am sure that is something that has been studied thoroughly, as well.

Mr. MORRIS. It has, and with respect to transporting high-level radioactive waste, there really are at least two Federal entities that are actively involved. Of course, the NRC, because we are the ones that approve the designs for transfer casks, and I will just note for the record that the type of design and the testing that those transfer casks have to endure are pretty robust and involve extreme temperatures, impacts, full submersion, et cetera.

So we regulate, the NRC regulates the transport mechanism itself and how the licensee loads the fuel into those. The Department of Transportation is responsible for the driver, whatever vehicle is used to transport the cask, and we work with the Department of Transportation to identify and approve prior to shipment secure transport paths.

Mr. COMER. Before I yield back, I just want to say that I look forward to working with you, Mr. Chairman, to try to come up with a solution, a sustainable solution. In my district in Kentucky, we have a uranium enrichment site that is being deactivated. It is right on the Ohio River, I mean literally right on the Ohio River, and I think this is an issue that everyone has mentioned is bipartisan, and it is an issue that affects probably a majority of Members of Congress, and it is something that I appreciate the purpose of this hearing and look forward to finding a solution.

With that, I yield back, Mr. Chairman.

Mr. ROUDA. Thank you.

At this time, I recognize Congressman Levin for five minutes of questions.

Mr. LEVIN. Thank you, Mr. Chairman.

Mr. Morris, thank you for generally being available, for taking the time to brief me on a number of occasions. I look forward to our continued opportunities to work together.

Mr. MORRIS. You are welcome.

Mr. LEVIN. I want to begin. I want to get through quite a few questions with you. I wanted to start with some basic yes-or-no questions.

Is it true that the NRC found that the near-miss incident at SONGS was caused by deficiencies in Southern California Edison's training, equipment, procedures, and oversight?

Mr. MORRIS. Yes.

Mr. LEVIN. Did the NRC find that Southern California Edison's staff at SONGS were not properly trained, certified, and supervised?

Mr. MORRIS. Yes.

Mr. LEVIN. Is it true that Southern California Edison failed to formally report the near-miss incident within the timeframe required by the NRC?

Mr. MORRIS. Yes.

Mr. LEVIN. And is it true that a similar event had previously taken place at SONGS but Southern California Edison didn't take corrective action to ensure it wouldn't happen again?

Mr. MORRIS. Yes.

Mr. LEVIN. With these findings in mind—and this is not a yes-or-no question—can you please explain to us why the NRC fined Southern California Edison $116,000 earlier this year?

Mr. MORRIS. Absolutely, and I will try to be brief. Once we became aware of the incident, we constituted a special inspection team, a team of experts that we sent from our Arlington Office who spent a week onsite. They worked closely to understand the circumstances around the incident, and in subsequent weeks and months continued to work with Edison to fully understand the root causes of their event, and I think it is fair to say that we provided a lot of input into that process to ensure that their causal analysis was comprehensive.

We then looked at the corrective actions that they developed to address those issues, and we ultimately satisfied ourselves that the corrective actions that they initiated were appropriate and robust. Of course, we will continue to inspect and assure going forward that they are maintained. But the enforcement action, the two key elements of that were that Edison, the licensee, failed to operate the system in accordance with its license design approved by the NRC, and they failed to report it in a timely manner, and those two factors alone were the basis for our enforcement.

Mr. LEVIN. Thank you, Mr. Morris. Along with the fine, Edison was assessed Level 2 and 3 violations, which the NRC refers to as escalated violations and significant enforcement actions. Is it common for NRC licensees to receive Level 2 violations?

Mr. MORRIS. It is quite uncommon. The incident at Edison was unprecedented in terms of the level of significance.

Mr. LEVIN. So as I mentioned in my opening statement, my colleagues and I wrote to the NRC and Region IV urging you to assign a full-time inspector to SONGS. We haven't received a response from the chair, but Region IV has told our staff that instead of a full-time inspector, you will have "unannounced inspections on a frequent basis."

Do you have the authority to assign a full-time inspector to SONGS?

Mr. MORRIS. It is actually a matter of policy. We implement the policy, and——

Mr. LEVIN. But you have the legal authority.

Mr. MORRIS. Oh, yes. The Commission certainly does.

Mr. LEVIN. So I again strongly urge you to do so. Your testimony today has illustrated the unique situation at SONGS and the urgency, and the site's disappointing track record with regard to transparency and reporting, which I think warrants this unusual measure.

With the time that I have—and I have more questions for a second round. So, Mr. Chairman, we will hopefully get to that.

Mr. Isaacs, I wanted to thank you for bringing your expertise and experience to today's hearing. Do you think that a commercial reactor site located near an active fault is less safe than one located in an area without any earthquake hazard?

Mr. ISAACS. Sure.

Mr. LEVIN. And do you think larger populations near commercial reactor sites increase the risk associated with the site?

Mr. ISAACS. In general, yes.

Mr. LEVIN. So the Blue Ribbon Commission report that you referred to discussed a new approach to prioritizing the transfer of spent fuel from reactor sites and said the prioritization policy, and I quote, "should be driven first by safety and risk considerations." The Blue Ribbon Commission also found that there is significant cost savings associated with accepting spent fuel from decommissioned sites first. As I discussed earlier, I have introduced a bill that would prioritize the removal of spent fuel from decommissioned nuclear reactor sites in areas with larger populations and higher seismic risk. Do you agree that we should be considering environmental externalities when we prioritize spent fuel for removal?

Mr. ISAACS. Yes. I think we should do a very careful and thorough systems study to look at all of the potential benefits and risks of various schemes for picking up spent fuel when it is possible to do so, and prioritize the pick-up of the spent fuel, the actual operation based on optimizing in terms of cost, environmental concerns, safety concerns.

Mr. LEVIN. Thank you, Mr. Isaacs.

I am out of time, for now. I hope we have another round, Mr. Chairman. Thank you.

Mr. ROUDA. Thank you, Congressman Levin. You raised an interesting point.

This is going to be a little less formal than a typical committee meeting in the sense that I am going to enter into some questions shortly, and at the conclusion of my five minutes I am going to allow the three of us to really ask questions of all of you and hopefully have a more open narrative than the structure of a typical committee meeting. And I am also hopeful at the end that we might have—if there are any important final comments any of you would like to get out before we break up, that would be welcome. We will also have some questions that I have received from people around the country who want to ask questions, so there will be a few questions there as well.

One housekeeping. I would like to recognize that Supervisor Bartlett and Mayor Jennings from Laguna Niguel, and current Council member and former Mayor Toni Iseman from Laguna Beach are here, and we appreciate having their support and presence here as well.

So I am going to yield myself five minutes for questions.

Mr. Isaacs, I am going to start with you because we sat next to each other at a meeting at SONGS I guess maybe six weeks ago or so, and if I recall correctly you shared with me at that meeting that part of the issue as to why we have not had a long-term solution was because initially when we started building nuclear power plants, the first one in 1958 and many more in the '60's, we never thought we were going to have any nuclear waste that needed to be stored. Did I recall that correctly?

Mr. ISAACS. Almost. What I sort of said and I think is true is when I started my career in those days, a stock answer to the question of why don't we build a repository was largely if we built one, it would stand empty. And the reason for that was there was every expectation at that point in time that there would be a massive

growth of nuclear power plants. In fact, the standard planning objectives in those times were 1,000 reactors by the year 2000. We fell short, of course, by 900 reactors.

The expectation at that point in time was if we have that many reactors, at some point we are going to start running out of uranium. It is going to get scarce, and it is going to get very expensive. So what we should do is prepare to reprocess that spent fuel to extract out the unused uranium and probably the plutonium that is produced and recycle it back into reactors. And the truth is, if we went to these advanced reactors, which is where I started my career, designing them, you wouldn't have to mine another pound of uranium for centuries. The uranium that is already mined is there. So it was very appealing in that sense.

So if you were going to reprocess the spent fuel, which we wound up not doing because the nuclear industry did not continue to grow the way we anticipated, then we found ourselves in a situation which I think was unfortunate, and we should have built one. Where we had an expectation that we were going to be reprocessing, we would then take the spent fuel, extract the waste, and then we would put the waste only into a repository, so that would be the time to build it.

Mr. ROUDA. So, in essence, the continued supply of uranium has not created the market demand for the reprocessing of spent nuclear fuel?

Mr. ISAACS. I would say in most cases that is true. There are a couple of countries that have invested in reprocessing, France being the most notable case. They have reprocessed fuel. They have put the unused parts of that back into reactors. That doesn't avoid the need for a repository, whether you reprocess or not. That is the part I want to make clear. As I think I told Congressman Levin, there is no magic machine out there that is going to avoid the need for an ultimate permanent disposal.

Mr. ROUDA. And, Mr. Morris, that confirms the conversation we had earlier too, that even if we did reprocess/recycle, we would never get to a zero amount of spent nuclear fuel that would have to be deposited somewhere.

Mr. MORRIS. That is correct.

Mr. ROUDA. Okay, thank you.

Mr. Hancock, we talked a little bit earlier too about the standards for the long-term entombment of spent nuclear waste, and there is a debate about what those standards should be. But my guess is that the standards are within a window as to what the experts believe they should be, and I guess my question is couldn't we as a country right now be identifying multiple sites in the United States that are within the parameters of the potential standards being set forth by various experts and begin a market-based process to determine multiple sites, rather than putting all of our efforts into one egg in the basket, which was Yucca Mountain?

Mr. HANCOCK. Well, as I have said, I think Yucca Mountain should be stopped, and I think that is, frankly, a crucial first step, because to have this program that you are talking about with standards and looking at multiple sites, that hopefully is also going to have a consent basis to it and have multiple sites. People need

to be confident that Congress means what it says about consent. Nevada has said no, will continue to say no. You can't say you are doing a consent program and have the first repository in a non-consenting state.

Mr. ROUDA. So assume consent is there by the appropriate jurisdictions, and the geologic conditions are favorable to the agreed upon standards, and that the economics are also agreeable to the local municipality, as well as the state municipality. Does it make sense, with a market-based approach, to have multiple sites?

Mr. HANCOCK. Yes, there would have to be multiple sites, technically as well as whatever market incentives that you put in, because people have to understand that this is a shared responsibility.

Mr. ROUDA. Okay. Simultaneously with identifying sites that work—and I am going to turn to you now, Mr. Stetson—is making sure that we have the appropriate transportation system in effect to be able to move the waste, and maybe there are others who want to weigh in on this as well. But that is certainly one of the issues that goes along with where we house it, how do we get it there.

I do know the United States Department of Defense is transferring spent nuclear fuel on a daily basis around the country; am I correct? Maybe not a daily basis, but on a regular basis. So this isn't something that we have no experience doing. We have experience transporting spent nuclear fuel. But is it unique with the reactor spent fuel? Does it require additional logistics, additional safety concerns? Please elaborate on that, if you would.

Mr. STETSON. Actually, I think Mr. Morris or Mr. Isaacs would be better prepared than I would to answer those questions.

Mr. ROUDA. Thank you.

Mr. MORRIS. The transportation issue obviously is a key issue, and the casks, the transport casks that we have licensed and certified are extremely robust. I mentioned that they have to endure pretty violent tests—in succession, I might add—of a violent impact, excessive heat for extended periods of time, and then full submersion, in sequence. So these are extremely robust transfer casks.

The issue of the safe transport of the cask itself—and, by the way, the fuel itself, as such, the fuel inside the transfer cask will remain safe under those circumstances. The transport vehicle itself is something that the Department of Transportation is actively pursuing. But the third leg of that stool is the transportation route that is used to ensure that it is not only a safe route but a secure one as well.

Mr. ROUDA. Then one other question before I open it up to my colleagues here to continue asking questions, and I am going to use SONGS as an example.

So if SONGS, if somehow the existing dry storage was breached, breached by terrorist attack from the outside, terrorist attack from somebody on the inside, a potential earthquake that could cause a spill, a significant spill, what would be the protocol at that point as far as addressing the spill and addressing the 8.1 million people living within 50 miles?

Mr. MORRIS. I guess I will start. So we do have, in fact, a very comprehensive, as I mentioned earlier, security aspect to ensure that the onsite security force can repel a very substantial adversary

force, and it includes—I can't get into details, but vehicle bombs and armed adversaries, insiders, the whole bit, for the fuel that is in the pool.

For the fuel that is in the dry casks, the nature of the storage makes it such that it is very self-protecting and doesn't require as much security infrastructure to protect. That being said, if there were some sort of breach, we have also got very robust requirements associated with emergency planning and incident response.

But, frankly, the radiological risks associated with a shutdown reactor, particularly when the fuel has had the opportunity to cool for many years, simply aren't as significant from a hazard standpoint, particularly an offsite hazard standpoint, than would be for an operating reactor. And as such, our requirements reflect that.

Mr. ROUDA. But just to push a little bit further, if there was a breach and there was a spill, what would the protocol be?

Mr. MORRIS. Well, the NRC—initially the licensee would report the incident. They are obligated to report that incident within 15 minutes to the state and local authorities. They are obligated to report that to us in the Federal Government within an hour. And at that point the entirety of the national response framework would be engaged, which involves a large array of not only Federal entities but they would be in support of the state and local entities. The county emergency supervisor and the local emergency services directors have worked together to ensure that, particularly for an operating reactor, they understand the protocols. They have worked together, they have practiced together, they know each other well and can quickly and efficiently respond under those circumstances.

So on a shutdown, decommissioned reactor, the plan changes slightly. The offsite emergency planning licensees can ask for an exemption for that, which we have typically granted, simply because the radiological hazard is not as significant as it once was in the operating reactor. And as such, offsite state and local response agencies defer to what is called an all-hazards plan. So there is a standard plan for responding to emergencies, the all-hazards plan, and this would fall within that, and they would come to the aid of Edison to the extent it was needed.

Mr. ROUDA. Yes, Mr. Issa?

Mr. ISSA. Sometimes it pays to be a former government official. A little piece of history.

During the operation of SONGS, and during that period of time—and I am going to be brief and less accurate than some of these folks could be—the operating plan both for a failure of the pooled storage and a possible catastrophic failure of one of the active reactors included a pretty massive withdrawal of more than a million people from the surrounding area. It included the backup facility of the Marines at Camp Pendleton to provide safety. It included the shutdown of Interstate 5 and, quite frankly, impacted the operation of the new State 15, meaning there was effectively no north-south route for over 10 million Californians to take, and, for that matter, all the international traffic.

So the reason I bring it up is that as they finally get the last of the liquid storage into dry casks, that does change, and I think the experts would agree that it reduces. What doesn't reduce, though, is that if your catastrophic example of a terrorist attack were to

cause a breach of these massive concrete casks such that you would have exposed high-level radioactive material, if, for example, those casks were sitting—and I am going to use the example that the two Californians brought up because I think it is a good one. If it was sitting right at the corner of Fort Irwin, 29 Palms and Andrews, if it were sitting out in the California desert 70 miles from the nearest town, then the answer would be that you would have to bring people in in HAZMAT suits and do the repair.

Clearly, as the former representative of this district, if it were to happen where they currently are, it would clearly shut down Interstate 5. It would impact the operation of the base, of ocean traffic, of air traffic for a protracted period of time, and I think that is the important question you deserve an answer for. As long as these are there, as remote as the possibility is, your example of a deliberate attack leading to a breach is dramatically different if it is here versus the desert, even of California.

Mr. ROUDA. Thank you for that clarification, because I had the opportunity to tour the Port of Long Beach last week. When you take the Port of Long Beach and the Port of L.A. into account together, 40 percent of the goods that come into our country via ship come in through those ports, which would be within that radius we talked about earlier.

With that, I will open it up to the other members here to ask additional questions.

Mr. LEVIN. Mr. Stetson, a few questions for you.

On May 15, the Orange County Register published an article entitled "Moving Nuclear Waste at San Onofre Sparks War of Words Between Contractor and Community Panel." You are the Vice Chair of that panel. Dr. Victor is not here, so I am going to direct these to you.

The article describes a letter that you and Community Engagement Panel leadership sent to Southern California Edison that outlines concerns with Holtec's management of canister downloading at SONGS, as well as its corporate governance.

Holtec responded to you by describing your letter as, quote, "irresponsible claptrap."

Chair Rouda, I ask unanimous consent that the Community Engagement Panel letter to Southern California Edison and Holtec's letter to the Community Engagement Panel in response are included in the hearing record.

Mr. ROUDA. Without objection, so ordered.

[The information referred to follows:]

Mr. LEVIN. Mr. Stetson, can you please describe for us the concerns that you and Dr. Victor and others on the CEP have with Holtec, the company's governance, and its actions at SONGS?

Mr. STETSON. Certainly. As you know, there were four instances during the transfer of spent fuel that came to our attention. No. 1 were the shims. No. 2 was the incident in August. There was also some concern about a seismic restraint, and also some scratches. We felt that Holtec, while addressing them afterwards, that those events should never have happened. So on the basis of those events, we wrote the letter to Southern California Edison pointing out that we thought that there should be some additional concern

and oversight with reference to what Holtec was doing. Southern California responded.

Also, of course, there was the NRC investigation over all of those things.

So we felt that the intent of the letter met our concerns and the response from Southern California Edison was appropriate for what happened.

Mr. LEVIN. And how about Holtec's letter to Dr. Victor? What was your response to that, or your reaction to that?

Mr. STETSON. Well, I have to say that we were a little surprised by the letter itself. We can understand their concerns, but we felt that it was appropriate primarily to address it since Southern California Edison is the one that is the primary party involved, that really our efforts should be directed with Southern California Edison and we should not get back and forth in any sort of duel with Holtec.

Mr. LEVIN. Well, I hope that members of the public that haven't had the opportunity to read the letter from Holtec to my friend David Victor, who is a volunteer Chair of the Community Engagement Panel and a professor at UC San Diego with whom I work on a number of issues, I hope you have a chance to read this letter because I find it concerning, particularly from a company that is not just responsible for the canisters at San Onofre but also for roughly half of our Nation's spent nuclear fuel across the country. In fact, they are one of the two applicants for a consolidated interim storage site in New Mexico. So I think this is something that everyone needs to realize.

Mr. Morris, last week the NRC announced that it had given Edison permission to resume loading canisters at SONGS. We had a meeting subsequent to that, and the NRC has since told the public and Congress that it could take Edison multiple weeks before it is physically prepared to resume loading, and that Edison will tell you, the NRC, before it does so.

My question for you is very simple, another yes-or-no. Will you commit to informing Orange County and San Diego area Members of Congress, like me and Chair Rouda and others in the San Diego delegation, and the Orange County delegation, immediately after Edison informs you of their intent to resume loading?

Mr. MORRIS. Absolutely.

Mr. LEVIN. Thank you.

Mr. Isaacs, in your testimony you mentioned a number of countries—Finland, Sweden, France, Canada—all of whom have national nuclear waste programs that are making progress. When we met recently you also discussed a term that I hadn't heard but that I was definitely impressed by, "adaptive phased management," which I understand is a long-term spent fuel management strategy in Canada, one that you pointed to as a gold standard.

Could you describe adaptive phased management and how we should apply it to San Onofre?

Mr. ISAACS. Sure. So, adaptive phased management—I might, if it is all right, take a step back and say that the Canadian program was run technically very, very well early on. When I was in the government, we used to collaborate with them. And then the program was stopped by an independent panel who said that from a

scientific and technical point of view, the program was very well run. From what they called the social license point of view, it was not. And so the program was taken away.

Canada passed a new law in 2002 and created a new organization called the Nuclear Waste Management Organization to take responsibility for that. They came up with a dual approach to how to approach this issue. Canada has a lot of spent nuclear fuel. They have a scientific and technical method, which is very similar to what we want to do, which is to ultimately dispose of it in a deep geological repository, and a management approach, so science and management.

The management approach is called adaptive phased management. What that says is you keep your eye on the ultimate goal. The ultimate goal is safe, permanent isolation of this waste from the accessible environment. But we know that these programs take a very, very long time, generations, to implement, even if you are on schedule, generations.

So every once in a while, as you reach a certain point, it makes sense to sort of pause and ask yourself I know what my goal is, but are there things that have happened in the intervening time that might make it prudent to revisit certain aspects of the program? Maybe science and technology has advanced. Maybe politics have changed. Maybe the value system in the country has changed, or in the region has changed, and ask yourself am I still making the prudent decisions going forward, or can I improve.

One of the aspects of effective management is continuous improvement. You shouldn't rest on what you have. You should always ask yourself can I do better. That is, in essence, what adaptive phased management is, and I think as it might apply to Southern California Edison or any other utility in a similar circumstance, it would be a prudent thing to every once in a while take a pause at an appropriate time and ask yourself are there things that I might learn and do to improve the program.

Mr. LEVIN. So I would offer in that spirit that this is exactly the time for Southern California Edison and the NRC to do that, to look at the practices that are occurring onsite, the selection of the Holtec canisters, the procedures that have led to the scratching and gouging of canisters, that may lead to unnecessary public risk, and to assess and to take the time to be prudent and cautious to assess whether these are the safest practices moving forward. I can tell you that I believe the San Diego and Orange County delegation in Congress insists that you do that.

And I will yield back to the Chair.

[Applause.]

Mr. ROUDA. I am going to start with Mr. Isaacs. But again, anybody can jump in if you have additional input. But I do want to dig in deeper on market-based solutions, and I also want to look at that from a midterm and a long-term solution. There was also another variable or another option in there, and I don't recall what it was called, but instead of having nuclear waste go into long-term underground repositories, I believe I read somewhere about the idea of a midterm situation where it can provide a solution for maybe a couple of hundred years, but then there is another continued effort to move it into another spot.

I just want you to elaborate on all of this because we have to start identifying solutions and moving the existing 100 sites to midterm/long-term solutions. So if you could help us and these folks here understand a little bit more.

Mr. ISAACS. First of all, I think you have done a very nice job just now explaining the situation. It is my view, and it was the view of the Blue Ribbon Commission, that—there has been this view for quite some time, by the way—that we need both interim storage, centralized or regional interim storage, and we need an ultimate final repository for permanent disposal.

This waste, as has been mentioned by you, is hazardous potentially for very long periods of time, geologic time periods. So the consensus is that while we can store the waste safely for decades, generations, it requires active administrative control to assure that, and if you stored it long enough, ultimately those containers would have to be unloaded, and the waste would have to be loaded into new containers, and that seems to be, to everyone who has looked at it in this country and abroad, not a very pragmatic solution.

So the answer was we should come up with a solution that allows for but doesn't require active administrative control, and as early as 1957 our National Academy of Sciences wrote a report saying we think the best preferred solution is to find a deep, stable geologic formation, make sure that it is operating the way we think it is, put the waste in there, watch it for a period of time, a few decades, and if it is working well, put the plug on.

And now you can watch it, monitor it if you want, but you don't have to worry about 1,000 years, 10,000, 100,000 years of safety. The geology and the engineering that you do in there should do the job.

So that is the general approach. But building a repository takes a long, long time, as we have seen. Even if we got the program restarted, it is going to take decades. And it seems prudent to me and to others that we should find one or more places that are dedicated to managing spent fuel. These reactor sites, San Onofre and elsewhere, when they were developed, part of the bargain was not, oh, and by the way, you are going to have this waste forever, so you need to plan on managing it forever.

So there ought to be places put together in appropriate locations for management, temporary storage, "temporary" meaning in nuclear waste terms—decades, generations—to transfer that waste in an orderly fashion from the reactors, particularly from shut-down reactors, so that you can offload the spent fuel, decommission those reactors that are shut down, and put that land again into useful use in the locations where they are located.

Mr. ROUDA. But from a regulatory framework—and, Mr. Hancock, perhaps you can take this; and, Mr. Morris, you as well—from a regulatory framework, is it easier to site spent nuclear fuel in a regional facility that is more short term than long term? Or are we jumping through the same hurdles and hoops and timeframes?

Mr. MORRIS. Is it easier? I don't know——

Mr. ROUDA. That is a very relative term.

Mr. MORRIS. Yes. I don't know that it is easier. I mean, when it comes to——

Mr. ROUDA. Let me ask you this: Is it a shorter timeframe?

Mr. MORRIS. To do the interim storage?

Mr. ROUDA. Yes.

Mr. MORRIS. Well, based on the current track we are on, I expect that we will be in a position to make a final licensing decision on the New Mexico and Texas applications in the next two years. I mean, the original plan, as I said, was 2020. That has been delayed a bit for the reasons I mentioned. Certainly, when the contentions get resolved, that may result in hearings, et cetera. But it is likelier on a faster path than where we are at currently with Yucca Mountain.

Mr. ROUDA. Okay.

Mr. HANCOCK. So, two points. NRC has only talked about the sites underway. It already licensed a consolidated interim storage site for 40,000 metric tons of fuel at private fuel storage in Utah. That was done in 2006. So a site exists, but it hasn't been used, and it won't be used for a couple of reasons.

One, there is strong opposition in Utah to it, another state, by the way, without reactors. Why are we only looking at states without reactors for either interim or long-term disposal? So that is one point.

The other point that I think is important to remember is that more than 90 percent of that spent fuel that you talked about in your opening statement, Mr. Chairman, is east of the 100th meridian, quite a ways away from where we are. So there has got to be responsibility, management and otherwise, taken by folks in that eastern part of the country for interim storage. That is where it is. They are going to have to take responsibility. Many of these plants are planning to be open for 40 more years, so they are going to be storing more waste at those sites for this period of time.

As I mentioned, if you really want to think about incentives, the people who currently have the best incentives to keep spent fuel safe are the people who have the spent fuel because they don't want accidents for liability, and operating power plants can't operate if they are having accidents.

So I would really encourage some discussion with the nuclear industry about what kind of incentives they need in order to talk about one or more, probably multiple, consolidated storage sites.

Mr. ROUDA. And, Mike, I will get back to you here in a moment.

Another question that came up I think somewhat—Mr. Morris, you perhaps flagged this for me to ask—is what are other countries doing? What is our concern with other countries around the world? I recognize that France and many of our European allies probably have sophisticated ways to manage this process, including Canada. Are there any countries that we are concerned about? Because I think what you are alluding to, when you start looking at 100 years out, 200 years out, 300 years out, the financial viability of any country at that time, which we do not know what it will be, their ability to manage a nuclear waste issue that is going to be around for tens of thousands of years, what is already the potential concern we are seeing in other countries' ability or inability to adequately address spent nuclear fuel?

Mr. MORRIS. Well, I don't know that I am prepared to answer the question about what the status of other countries is. Perhaps Mr. Isaacs or somebody else on the panel would be better suited.

Mr. ISAACS. I would be happy to help respond to that.

Mr. ROUDA. Please. You may want to move the microphone a little bit closer.

Mr. ISAACS. Sure. First, as you suggest, there are several countries that have made substantial progress in solving this problem. The leading countries in the world right now are probably Finland and Sweden, followed closely by France, and right now Canada is in a very interesting stage where they had a consent-based approach. They had a number of sites that expressed some interest, and they are in the process of narrowing down to the preferred site, which will probably occur in the next five years or so. That is an active program. It is not guaranteed success, but it seems to be going quite well.

At the other extreme, there are a number of countries that are in very difficult circumstances. For example, South Korea, Taiwan and Japan, all three of which have had extensive nuclear power, relied on nuclear power greatly for large percentages of their electricity, but they are small countries with limited geographical or topographical opportunities to site these facilities because they are very mountainous, and where they are not mountainous they are very highly populated.

I actually work on this issue through a grant that I participate in with senior managers in several of these countries, the Pacific Rim countries, to share best practices, lessons learned, and ways in which we can help each other better succeed with this.

They are in tough circumstances. They are running out of room at the reactor sites. They have the same kinds of political issues, maybe even more difficult, siting temporary storage and a repository for both population reasons and geographic reasons, which has led several countries to look at prospects which I won't go into now, unless you goad me, for multinational facilities where countries would come together and cooperate on one or more facilities that they could share. The obvious question that immediately pops up is they are all for it, they just don't want it to be in their country.

Mr. ROUDA. Similar to Mr. Hancock, what you are talking about with some of the utilities working together in a concerted effort.

Representative Issa?

Mr. ISSA. You know, one of the limitations of being a former member is unless you ask a question like that, I am in a non-lobby one-year freeze, so thank you for asking the question.

As a Member of Congress, you have the most freedom to explore all the solutions to the problems that we are talking about today and to push for solutions, and particularly economic solutions. I will tick off a couple.

First of all, the answer to your earlier question is Russia is a poster child for a country that ran out of money, let nuclear submarines sit with hot fuel on them, in some cases sink. If not for the U.S. initiative, Kazakhstan would still have all of its spent plutonium, or its unspent plutonium. We actually harvested it and returned it to Mother Russia.

By the way, bear in mind that the Russians have never given up one ounce of plutonium. They were happy to have us spend the money to make Kazakhstan safer, but they took back that high-level valuable cargo.

So when we look at countries running out of money, that is a very valid concern, and I think that should be a global concern that Congress should lead on.

The second thing is that there are a number of solutions that have been talked about here today that exist, but they do require congressional action. For example, in Congressman Levin's district, you have General Atomic. They have been a leader on a number of solutions, including the ability to actually turn plutonium into energy in the reprocessing area, additionally in some other creative areas. Those solutions would require Congress to empower DOE to go further than just the studies, and in some cases it might be what the late Mark McCormick, a business fellow—you probably have looked at his books over the years—said. The difference between a problem and a business decision is a problem can't be solved by money; a business decision is a decision to spend money.

So another example is that today there are not enough vehicles, if we had repositories, to quickly, safely move spent rods. So one of the things Congress could do is it could sponsor the development of next-generation rail and production of them so that they would be available when we reach that surge opportunity, whether it is one or more sites.

Today we are looking at, when SONGS becomes available, you are still going to be standing in line for years waiting for a train to come in to take, one at a time, these casks. That could be something that you could do today.

So reprocessing, obviously the next-generation reactors that could actually do that.

The last one is the one we have been talking around. If, in fact, the gentleman from New Mexico is correct and over their dead and bleeding body they will ever accept; if, in fact, that is true, then Congress could look and say each state or region must develop a regional solution. We did this in low-level radiation, radioactive material, and it worked somewhat well. I mentioned in my opening statement it didn't work as well for California, but we bought our way out of our limitations.

When I mentioned the deserts of California, if we look at Humble Bay, Diablo Canyon, and SONGS, it would be unreasonable if we could not get to a site by 2030, when all of our rods will be ready for transportation, the last of them will be ready. If we would not at least, as Californians, recognize that these three facilities all would benefit by at least going to a regional facility that, quite frankly, Congress and this state would put a priority on, nobody can tell the state of California that if the solution doesn't come federally, that California is empowered to do something at least to help the citizens of these highly populated areas.

All of those are areas that you could be working on. I recommend that you work on all of those as though you are never going to have these other two sites or Yucca, that you work on these other solutions, because if you fail to do so, then 10 years from now a very senior Congressman Levin will be where I was at the end of my

18 years, no real progress, simply older concrete casks sitting on the edge of the Pacific Ocean.

Mr. ROUDA. Thank you.

Congressman Levin?

Mr. LEVIN. In 10 years I will be a little grayer, a little older. Hopefully we will make some progress, but I appreciate that.

A few more questions, Mr. Morris. What is the annual budget of the Nuclear Regulatory Commission?

Mr. MORRIS. It has been declining. I believe the Fiscal Year 2019 budget is approximately $900 million.

Mr. LEVIN. So about $900 million. What do you think the cost of a full-time inspector would be per year?

Mr. MORRIS. Our budget model assumes roughly $420,000 per annum.

Mr. LEVIN. Per year. So what is the cost of inspecting the canisters, as you did? You inspected, along with Edison's help, eight of the 29 canisters, is my understanding. What was the cost of doing that?

Mr. MORRIS. I don't know exactly, but, I mean, it——

Mr. LEVIN. Estimate.

Mr. MORRIS. Twenty thousand.

Mr. LEVIN. Twenty thousand dollars.

Mr. MORRIS. Just to do—you said the eight canisters.

Mr. LEVIN. The eight canisters.

Mr. MORRIS. If you factor in travel and salary and benefits. I mean, that is probably high.

Mr. LEVIN. What would the incremental cost have been of inspecting all 29 of those canisters?

Mr. MORRIS. I think—I would have to defer to Edison. I don't know what amount of resources they spent to actually do the inspections they did.

Mr. LEVIN. Is it a significant incremental cost? Is it a small incremental cost?

Mr. MORRIS. Again, I would be guessing. I have heard numbers in the couple of hundred thousand dollars per canister, but I don't know that that is——

Mr. LEVIN. Just to inspect them?

Mr. MORRIS. Just to pull the lid off the vault, they employed a contractor to use robotic vehicles, and they covered the vast majority of the surface area of——

Mr. LEVIN. But I thought a second ago you said to inspect the eight was only $20,000?

Mr. MORRIS. I was referring to the cost of our inspection.

Mr. LEVIN. To the NRC.

Mr. MORRIS. Yes.

Mr. LEVIN. Okay. So the cost to Edison is higher.

Mr. MORRIS. Oh, absolutely. We don't purchase the equipment and——

Mr. LEVIN. There would be no incremental cost to the NRC. What do you estimate the incremental cost would be to Edison? Maybe a few million dollars?

Mr. MORRIS. To do the remaining 21 canisters?

Mr. LEVIN. Twenty-two, yes. Or 21.

Mr. MORRIS. Again, it would be absolute guesswork on my part. But if it was a couple, $300,000 per canister times 20, so a couple of million.

Mr. LEVIN. Okay. Do you think that is worth the money?

Mr. MORRIS. I believe that the analysis that the Edison folks did—and, by the way, we witnessed the collection of the data on those eight canisters, seven of the eight canisters. We witnessed that data. They performed a detailed analysis on their own that incorporated not only the real data they collected but made a number of assumptions about worst-case effects of manufacturing defects, and even what additional scratching might be incurred upon withdrawal of the canister, not simply the insertion, and they concluded that they would be within oil and pressure standards. We did an independent review of that and similarly concluded that their analysis was robust and sufficient.

We also did our own evaluation of the data, and again that provided the confidence that we had that worst-case scratching, even for the remaining 40-some-odd canisters, would be within the limits of the code standard. So I——

Mr. LEVIN. Just for the public's awareness, there were 29 canisters, of which two canisters had issues, number 22 and number 29. Number 29 was the one that was almost dropped 18 feet, yet Edison and the NRC decided to inspect only eight of those canisters on the premise that it was 95 percent certain that an inspection of eight of the 29 would be sufficient.

I would say with something this significant, where again you have over 8 million people within a 50-mile radius, where you have active earthquake faults and the rest, and particularly when you have behavior from an actor like Holtec and the regard that they have treated the Community Engagement Panel, I would encourage that you spend the extra money and you inspect the rest of the canisters.

A couple more questions on the canisters.

Mr. MORRIS. Sure.

Mr. LEVIN. To your knowledge, the best of your knowledge, do they have real-time monitoring for radioactivity?

Mr. MORRIS. My understand is it is not real time. They are required by NRC regulations to do routine radiation surface——

Mr. LEVIN. But they do not have any real-time monitoring?

Mr. MORRIS. Currently, no. But they have made a commitment to the local community, is my understanding. Maybe Dan could comment on that. They made a commitment with respect—they described it at the panel meeting the other night.

Mr. STETSON. That is correct. Edison has promised to have full-time radiation monitoring as long as the spent fuel is onsite.

Mr. LEVIN. Hopefully we can followup with Edison. They are not here to pick on this morning, but I would like to followup to understand the specific date by which they will have real-time radiation monitoring in place.

Also, to the best of your knowledge, do they have real-time humidity monitoring, given that this is a coastal area with very high salinity? There is a lot of scientific dispute over whether or not the humidity in the area could impact the canisters negatively.

Mr. MORRIS. I actually don't know the answer to that. I mean, I could go——

Mr. LEVIN. So they don't, they don't.

Mr. MORRIS. Okay.

Mr. LEVIN. But I would recommend that that be part of the adaptive phased management, thinking through whether these canisters make the most sense and what type of monitoring is needed to ensure that they do.

With that, I have a few closing remarks, but I appreciate your willingness to engage, and I mean that sincerely, and more to come.

Mr. ROUDA. As I mentioned earlier, we are going to do this a little bit informal. So I would like to take a moment for each of you—and, Representative Issa, I will have you start off—if there is anything we did not ask or that you wish we had asked or something that you feel has to be said, I really appreciate your comments from just a few minutes ago. I thought they were very helpful. But if there is anything else you would like to add, now is your chance.

Mr. ISSA. Well, I think that the most important thing that Members of Congress have to do is to recognize—and I am going to use a few terms, but I will just use one that everyone knows. There will always be NIMBYs. There will always be people who want things out of their backyard, Okay? And I am sitting next to a gentleman who is self-described as I don't want it in my backyard, and the audience today is filled with people who, for good reason, believe that it is time for it to begin moving out of their backyard.

Those people need to be listened to and appropriately their concerns, those who need it out of their backyard, those who do not inherently want it in their backyard.

What I would ask you to do is push aside what I have observed over my decades of service, and I am sure everyone on the panel has, and that is the people who subliminally, between those two, will tell you they don't want it in anyone's backyard. Those who simply would like to have the problem continue because it is part of the anti-nuclear, if you will, agenda must be pushed aside in favor of people who want a solution to the problem. You can be anti-nuclear and still recognize that there has to be a place for these, that there have to be solutions.

So what I found over the years is I had people who told me that even though it wasn't their backyard that it was in, even though it wasn't their backyard it was going to, that any transportation would be impossible, that any movement would be impossible, and that any place it was or would go to would be dangerous.

Now, I have no problem with that all being right, but solutions require that you do better than leave it where it is if there are better places to move it to, and that sort of a responsibility falls to you to divine, if you will, the concerns that are legitimate of the "froms" and the "tos" and push aside those who want to tell you that all solutions won't work, therefore the status quo is where you are going to be, and it becomes a political issue that, quite frankly, it is time that we end it. It is time that we do what responsible countries are doing, which is find real solutions to reduce the threat to our communities of not just these but of all nuclear waste.

Let's bear in mind that none of us want to fail to have cancer cured with what is, in fact, deadly poison if it is left sitting around the hospital. So it is not just what we are talking about today. It is all the things we know we are going to still have in the way of radioactive isotopes.

Thank you.

Mr. ROUDA. Thank you.

Mr. Hancock?

Mr. HANCOCK. Thank you very much for engaging and taking on this difficult task. I very much appreciate that, and it is a long process, and there are lots of people who must be involved, and I include stakeholders in various states.

Also, one of the difficulties as you think about how consent would work—and I think that is its own interesting subject that is going to have to be looked on—is what are the roles of transportation and adjacent folks in dealing with that.

Even though you have done a good job getting started, and it is going to be a long process, I want to also, in your role in the oversight committees, suggest another thing that you might want to look at that is related. You have some serious problems unrelated to spent fuel, including in California at the Santa Susana site, and there are significant issues with waste handling not related to commercial sites but related to Department of Energy sites that is also, I think, due some additional oversight. You are doing so well that I want to give you a little more to do.

[Laughter.]

Mr. HANCOCK. Thank you.

Mr. ROUDA. Mr. Stetson?

Mr. STETSON. Well, once again I want to thank you for the opportunity to come and speak with you today, and I really want to end with something that I learned from my colleague here, Mr. Isaacs, that what we are really looking forward to on behalf of the community is trust. We really want to trust you. We really want to trust everyone involved in the process.

But, No. 1, that means that those who are involved have to be competent in what they are doing. No. 2, they have to be making decisions with the public's interest at heart, making decisions that are best for the general public. And No. 3, that it is an open process that encourages dialog from all parties.

And I want to thank you, Tom, for teaching me that.

Mr. ISAACS. Not only did I teach you that, you just stole my concluding remarks.

[Laughter.]

Mr. ISAACS. So I will change subjects.

I just want to make one perspective comment based on this, and this has to do with this issue of trust and confidence.

There is a balance, a very hard and delicate balance to be drawn between making sure you rigorously look at all dangers, risks, and threats, and making sure that all of the systems that are a potential effect of that are handled properly so that the public and the environment are protected.

It is too easy in an atmosphere where there is a lack of trust and confidence to lapse over into sensationalism and to start making decisions that are probably not in the best interests of all the par-

ties, because people don't trust the people because they lack the kinds of things that Dan just mentioned.

You know, we talk about the dangers if something goes wrong here. If we over-sell the dangers and then we say, by the way, we want to send it to you instead, we don't want it anymore, it is too dangerous, you take it, what do you think their reaction is going to be?

So, No. 1, you have to be very prudent and sensible about how you balance the need between making sure that you are protected, that the community is protected, that the environment is protected, and sending a message that goes to the place where it is no longer based on science and prudent decision-making but is based on atmospherics.

You know, it is interesting to me, you mentioned the 50-mile evacuation zone for Fukushima. First of all, Fukushima, a complete disaster, no question about it, but it was an operating reactor. It was not a spent fuel pool passively storing the waste. Fifteen thousand people died from the tsunami itself, 15,000 people died. Very, very little direct health consequences came as a result of that catastrophe. But it had immense public consequences, immense social consequences, immense economic consequences.

The evacuation itself disrupted the lives of untold thousands of people, completely destroyed their lives, but had nothing to do with the radiation. The fact that there were conflicting rules coming out or guidance coming out about how far to evacuate made things much more difficult and counter-productive than they might have been otherwise.

So I simply want to leave with the message that, absolutely, we need to make sure that the public is protected at all points in time, the workers at the site are protected, the environment is protected, and that we make decisions based on the best scientific and engineering judgment and based on an engaged public who gets to ask and have answered all of their concerns. Thank you.

Mr. MORRIS. And I would just like to end with that I believe and I think most of the 3,000 colleagues I have within the NRC are absolutely committed to public health and safety. Our regulatory requirements are based on extensive research. We have very robust regulations in place that all applicants and licensees have to meet. They are subject to a detailed and rigorous licensing process. All of the decisions that we make are a matter of public record. And then once the license is issued, we begin a very important and robust oversight program that includes enforcement opportunities when there is bad behavior involved.

I believe that any policy that is raised with respect to the ultimate or interim disposition of high-level radioactive waste will not succeed unless there is a strong, credible regulatory body in place to ensure that the safety and security of the American people is protected.

So again, I will emphasize what we consider our critical principles as a Federal regulator over this material. We strive every day to maximize our independence, the clarity around the work we do, our openness and transparency, our reliability, the consistency with which we make our decisions, and efficiency as well, that we

are using the dollars that we receive in the most efficient and effective way possible. Thank you.

Mr. ROUDA. Thank you, Mr. Morris.

At this time, I would like to yield to Congressman Mr. Levin to make his final comments.

Mr. LEVIN. Thank you, Mr. Chairman.

As I mentioned earlier, the issues surrounding spent nuclear fuel and our nuclear industry are complex and challenging. I have had the opportunity now to meet a number of times with the military leadership at Camp Pendleton, as well as the Nuclear Regulatory Commission San Onofre and stakeholders from around the country, and I have learned more that informs my thinking about the best path forward for our district and our region.

Yucca Mountain, as we have said, has been stuck now for more than a decade, and I think it is really important that we focus on a consent-based interim storage program. That is why we fought so hard for the $25 million in the House appropriations package, and I was excited we got that done.

It is really important that consent and safety are the two keys to ensuring interim storage is acceptable and worthwhile, and I think Harley and I are in Congress to deliver solutions. That is what this is about, and this really should be a bipartisan issue focused on solutions.

I think it is worth mentioning the timetable here so that the public understands. By Edison's own timetable, we wouldn't even begin moving the canisters offsite until 2035, and that wouldn't commence until 2050. I don't know about you, but I would actually like to be alive by the time all this is done.

With funds for siting, permitting, and licensing an interim site, as well as prioritizing those sites across the country that have the highest population density and the greatest seismic risk, we could trim 10 to 15 years off of that timetable. I think it is a very worthwhile endeavor, and I hope you will continue to be engaged and continue to support those efforts.

I just want to close by thanking again the Chairman for his organizing this hearing, as well as all of you in the public, including those on the task force, the elected officials who are here. I share your concern, and we are going to focus on this. It will continue to be a core element of my service for as long as I am honored to have the opportunity to serve as your representative. Thank you.

[Applause.]

Mr. ROUDA. Thank you, Congressman Levin. And thank you, witnesses, for participating today. Thank you, public members, for coming to this hearing, this incredibly important hearing.

Obviously, as you have heard today, we have a long way to go, and we do not have a clear path. And that is going to be the challenge for Congressman Levin, myself, this committee, this subcommittee, Congress as a whole, and many of these communities across the country who are so directly affected by having spent nuclear waste too close to their homes and their families.

But as Congressman Levin said, we are committed to fighting hard to find the solution in a timely manner, as quickly as possible, and bringing to closure what should have been done decades be-

fore. With your help, we will hopefully get there in a timeframe as quickly as possible.

I would like to thank our witnesses for testifying today. Without objection, all members will have five legislative days within which to submit additional written questions for the witnesses, to the Chair, which will be forwarded to the witnesses for their response. I ask that our witnesses please respond as quickly as you are able.

Without anything further, this hearing is hereby adjourned. Thank you.

[Whereupon, at 1:18 p.m., the subcommittee was adjourned.]